Annotated Bibliography

HIV and Aging 2019

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This document contains over 1000 articles published in 2019 that are pertinent to the domain of HIV and AGING. Most articles using data outside the USA are not included except where relevant or illustrative or provides comparative data.

This Report is part of the National HIV and Aging Resource Center effort. We thank Gilead Sciences for their support of the Resource Center.
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BONE HEALTH


Life expectancy of people living with HIV (PLWH) is reaching similar length as in the general population. Accordingly, age-related comorbidities, including osteoporosis, are increasing. Fracture risk is higher and increases approximately 10 years earlier in PLWH. Classical risk factors of bone fragility are highly prevalent in PLWH but factors specific for HIV infection itself and the type of antiretroviral therapy (ART) (triple combination antiretroviral therapy) regimen (especially tenofovir and protease inhibitors) also contribute to bone loss. The majority of bone loss occurs during virus activity and at initiation of ART (immune reconstitution) and is associated with an increase of bone resorption (upregulation RANKL). Recent data indicate that calcium and vitamin D supplements as ART initiation lower BMD loss. The reduction of tenofovir plasma concentrations with tenofovir alafenamide attenuates BMD loss but it remains unknown whether it will contribute to reduce fracture risk. Hence, special considerations for the management of bone fragility in PLWH are warranted. Based on the current state of epidemiology and pathophysiology of osteoporosis in PLWH, we provide the consensus of the Swiss Association against Osteoporosis on best practice for diagnosis, prevention, and management of osteoporosis in this population. Periodic assessment of fracture risk is indicated in all HIV patients and general preventive measures should be implemented. All postmenopausal women, men above 50 years of age, and patients with other clinical risk for fragility fractures qualify for BMD measurement. An algorithm clarifies when treatment with bisphosphonates and review of ART regimen in favour of more bone-friendly options are indicated.


INTRODUCTION: Most prospective studies of bone mineral density (BMD) in HIV-infected cohorts taking antiretroviral therapy (ART) have been of short duration, typically < 3 years. Such studies have reported short-term stable or increasing BMD. We assessed whether this BMD stability persists for > 10 years in middle-aged and older men established on ART.

METHODS: A 12-year, prospective, longitudinal study in 44 HIV-infected men treated with ART who had measurements of BMD at the lumbar spine, proximal femur and total body at baseline, 2, 6 and 12 years. RESULTS: At baseline, the mean age of participants was 49 years, the mean duration of HIV infection was 8 years, and the mean duration of ART was 50 months. After 12 years, BMD increased by 6.9% (95% CI 3.4 to 10.3) at the lumbar spine, and remained stable (range of BMD change: - 0.6% to 0.0%) at the total hip, femoral neck and total body. Only two individuals had a decrease of > 10% in BMD at any site during follow-up and both decreases in BMD were explained by co-morbid illnesses. CONCLUSIONS: BMD remained stable over 12 years in middle-aged and older HIV-infected men treated with ART. Monitoring BMD in men established on ART who do not have risk factors for BMD loss is not necessary.


Bone loss and vitamin D deficiency are common in HIV patients. However, bone health status in newly diagnosed HIV patients has not been thoroughly described. Our aim was to assess the bone mineral density (BMD), bone resorption and vitamin D status in newly diagnosed HIV patients. A prospective observational study in HIV newly diagnosed therapy-naive persons. Patients with secondary causes of osteoporosis were excluded. Bone densitometry (DXA), a bone resorption marker (CTXs), 25-hydroxyvitamin D (25OHD), CD4 count and HIV viral load (VL) were done in 70 patients. Vitamin D results were compared with a group of healthy volunteers. All patients were men, mean age 31 years (19-50). Low BMD (Z score <= 2.0) was found in 13%, all of them in lumbar spine, and in only one patient also in femoral neck. Bone resorption was high in 16%. One out of four participants had low BMD or high bone resorption. Vitamin D deficiency (25OHD < 20 ng/mL)

Objective: The purpose of our study was to evaluate the alterations of bone metabolism and the prevalence of vertebral fractures in the population with HIV and hepatitis B and C seropositivity in treatment with antiretroviral drugs (HAART).

Methods: We selected 83 patients with diagnosis of HIV, HBV, HCV infection. In all these patients biochemical examinations of phospho-calcium metabolism and a densitometry of lumbar spine were performed. We also evaluated lateral spine X-rays in order to analyze the presence of vertebral deformities and to define their severity. As a control group we analyzed the prevalence of vertebral fractures in a group of 40 non-infectious patients. Results: We selected 82 seropositive patients, 46 males and 37 females, with a median age of 55 ± 10 years. Out of these patients, 55 were infected by HIV, 12 were infected by HBV, 11 presented HIV and HCV co-infection and 4 were HCV+. The prevalence of hypovitaminosis D in the studied population was 53%, while the prevalence of osteoporosis and osteopenia was 14 and 48%, respectively. The average T-score in the fractured population was −1.9 SD. The viral load and the CD4+ cell count were respectively, directly, and inversely correlated with the number and severity of vertebral fractures. Antiretroviral therapy regimen containing TDF and PI was a significant determinant of the presence of vertebral deformities. The use of these drugs was also associated with lower levels of vitamin D and higher bone turnover levels compared to other antiretroviral drugs. Conclusions: HIV patients suffer from bone fragility, particularly at spine, independently by the level of bone mineral density. In this population, the T-score threshold for the risk of fracture is higher than that usually used in general population. For this reason, it would be indicated to perform an X-ray of the spine in order to detect vertebral deformities even in patients with a normal or slightly reduced bone mineral density. [ABSTRACT FROM AUTHOR]


Objectives: To investigate the differences between bone mineral density (BMD), lean and fat mass of human immunodeficiency virus (HIV-) positive and HIV-negative black women and to investigate factors associated with low BMD.

Methods: Case-control study of black women (n = 565) aged 29–65 years from Potchefstroom, North West province, South Africa, based on secondary analysis of data. Total BMD, left femur neck of the hip (LFN BMD), spine BMD, total fat, fat-free tissue mass and percentage body fat (%BF) were measured by dual-energy X-ray absorptiometry. Results: HIV-negative women had significantly higher median BMD, %BF, appendicular skeletal mass (ASM), ASM index, body mass index (BMI) and waist circumference than HIV-positive women. When the groups were matched for age and BMI, only spine BMD was marginally lower in HIV-positive women. In the total group, age, smoking and HIV status were associated with lower BMD, while calcium intake was positively associated with BMD. Similar variables were associated with BMD in HIV-negative women, while age and educational status were associated with BMD in HIV-positive women. Conclusion: Low BMD was more common among HIV-positive than HIV-negative women. Older HIV-positive women with low educational status are particularly at risk. [ABSTRACT FROM AUTHOR]
INTRODUCTION: Studies among HIV-uninfected persons (mostly in their sixth decade of life) show that detectable coronary artery calcium (CAC) is independently associated with low bone mineral density (BMD), suggesting a possible common pathogenic mechanism. AIM: We assessed the relationship between CAC and BMD, which has not been well described among younger to middle-aged HIV-infected persons. METHODS: We studied participants with baseline CAC and BMD measures from a prospective cohort of HIV-infected persons enrolled in the Study to Understand the Natural History of HIV/AIDS in the Era of Effective Therapy (SUN) during 2004-2006. We used logistic regression to assess the association between detectable CAC (>0 Agatston score) and BMD (g/cm, T-score), and adjusted for known traditional and HIV-related risk factors. RESULTS: Among 472 participants (76% male, 30% non-Hispanic black, median age 41 years, and 71% with HIV RNA < 400 copies/mL), the majority had no detectable CAC (82%), but had baseline osteopenia (53%) or osteoporosis (10%). In univariate analysis, participants with detectable CAC had lower femoral neck/total hip T-scores, lower femoral neck/total hip/lumbar spine BMD, and higher rates of osteopenia/osteoporosis. After adjustment for age, all associations were no longer significant; adjustment for traditional risk factors excluding age and HIV-related variables failed to attenuate these associations. CONCLUSIONS: We found aging attenuates the association between detectable CAC and BMD in this cohort. Aging remains an important contributor to non-AIDS-defining illnesses. These data reinforce the importance of developing screening and prevention strategies for aging HIV-infected persons given their excess risk across a wide spectrum of end-organ complications.

BACKGROUND: Perinatally-acquired HIV infection commonly causes stunting in children; how this affects bone and muscle development is unclear. We investigated differences in bone and muscle mass and muscle function between children with HIV (CWH) and uninfected children. SETTING: Cross-sectional study of CWH (6-16years) receiving antiretroviral therapy (ART) for >6months and similar aged children testing HIV-negative at primary health clinics in Zimbabwe. METHODS: From Dual-energy X-ray Absorptiometry (DXA) we calculated total-body less-head (TBLH) Bone Mineral Content (BMC) for lean mass adjusted-for-height (TBLH-BMC(LBM)) Z-scores, and lumbar spine (LS) Bone Mineral Apparent Density (BMAD) Z-scores. RESULTS: The 97 CWH were older (mean age 12.7 vs. 10.0years) and taller (mean height 142cm vs. 134cm) than 77 uninfected. However, stature (height-for-age Z-score<=-2) was more prevalent in CWH (35% vs. 5%, p<0.001). Among CWH, 15% had low LS-BMAD (Z-score<=-2) and 13% low TBLH-BMC(LBM), vs. 1% and 3% respectively in those uninfected (both p<0.02). After age, sex, height and puberty adjustment, LS-BMAD was 0.33 SDs (95%CI -0.01, 0.67; p=0.06) lower in CWH, with no differences by HIV status in TBLH-BMC(LBM), lean mass (0.11 [-0.03, 0.24], p=0.11) or grip strength (0.05 [0.07, 0.16], p=0.62). However, age at ART initiation was correlated with both LS-BMAD Z-score (r=0.33, p=0.001) and TBLH-BMC(LBM) Z-score (r=-0.23, p=0.027); for each year ART initiation was delayed a 0.13 SD reduction in LS-BMAD was seen. CONCLUSION: Size-adjusted low bone density is common in CWH. Delay in initiating ART adversely affects bone density. Findings support immediate ART initiation at HIV diagnosis.

BACKGROUND: Perinatally HIV-infected (PHIV) children and adolescents with low bone mineral density (BMD) may be at higher risk of osteoporosis and fractures in later life than their uninfected peers. Bisphosphonate therapy has been shown to reduce fractures in adults with osteoporosis, but has not been formally studied in HIV-infected youth. METHODS: Fifty-two PHIV 11-<25 years of age with low lumbar spine (LS) BMD (Z-score <-1.5) were randomized to receive once-weekly alendronate or placebo in a double-blind cross-over study designed to assess the safety and efficacy of 48 and 96 weeks of alendronate in the US and Brazil (ClinicalTrials.gov # NCT000921557). All participants received daily calcium carbonate and vitamin D supplementation and were asked to engage in regular weight-bearing exercise. Safety and efficacy are summarized for the initial 48 weeks of the trial. RESULTS: Grade >/= 3 abnormal laboratory values, signs, or symptoms developed in 5 of 32 (16%) participants on alendronate and 2 of 18 (11%) on placebo (p>0.99). No cases of jaw osteonecrosis, atrial fibrillation, or non-healing fractures were reported. Mean increases (95% confidence interval) in LS BMD over 48 weeks were significantly larger on alendronate [20% (14%, 25%)] than placebo [7% (5%, 9%), p<0.001]. Similar improvements were seen for whole body BMD. CONCLUSIONS: In this small study in PHIV children and adolescents with low

LS BMD, 48 weeks of alendronate was well-tolerated, showed no safety concerns, and significantly improved LS and whole body BMD compared to participants on vitamin D/calcium supplementation and exercise alone.


BACKGROUND: The life expectancy of HIV-infected individuals has dramatically improved with potent antiretroviral therapies. However, organ-specific toxicities of some antiretrovirals and persistent inflammation and immune activation due to residual virus replication account for a high burden of age-associated comorbidities in the HIV population.

METHODS: The prevalence of overt cardiovascular, renal and bone diseases as well as their major risk factors were cross-sectionally examined during the year 2014 in the VACH cohort, a large nationwide population of HIV-infected individuals in Spain. RESULTS: A total of 10,897 HIV-infected patients were examined. Seventy-one point four percent were male and the mean age was 48 years. Mean time since HIV diagnosis was 15.8 years and mean time on antiretroviral therapy was 13.1 years. The proportion of patients with undetectable viral load was 87.1%, whereas 65.7% had CD4 counts >500 cells/mm(3). Overall, cardiovascular, renal and bone disease were recorded in 4.7%, 5.9% and 2.8%, respectively. The prevalence of major risk factors was as follows: smoking 51.3%, alcohol abuse 7.8%, overweight/obesity 42.2%, diabetes 19.9%, dyslipidaemia 72.6%, hypertension 25.6%, and osteoporosis 11.1%. In the subset of patients older than 55 years-old (18%), all figures for overt disease and their major risk factors were significantly greater. CONCLUSION: Major age-related medical conditions and most of their risk factors are highly prevalent in HIV-infected individuals on long-term antiretroviral therapy in Spain. Preventive actions, including careful selection of antiretroviral agents, should be prioritized in the ageing HIV population.


HIV-infected men under the age of 50 years had a lower bone mass compared to that of HIV-uninfected men. Lower CD4 T cell counts, independent of whether antiretroviral therapy (ART) was used, were associated with lower BMD. HIV-infected patients with low CD4 T cell counts may need follow-up and intervention regarding bone health, including younger patients. INTRODUCTION: HIV-infected patients have a low bone mineral density (BMD) owing to multifactorial interaction between common osteoporosis risk factors and HIV-related factors, including chronic inflammation and ART. Although HIV infection and ART might affect bone metabolism, little data is available for patients aged under 50 years. We aimed to investigate the association of HIV infection-induced low CD4 T cell counts and ART with BMD in men aged under 50 years. METHODS: We performed an age- and body mass index-matched case-control study. BMD values of HIV-infected and HIV-uninfected men (<50 years) were compared, and HIV-infected men were stratified by CD4 T cell counts and ART use. RESULTS: After adjusting confounders, HIV-infected men with CD4 T cell counts >/= 500 cells/μL (n = 28) and < 500 cells/μL (n = 139) had lower BMD at the femoral neck (FN, p < 0.001) and total hip (TH, p < 0.001) than HIV-uninfected men (n = 167). HIV-infected men with CD4 T cell counts < 500/μL had lower BMD at the lumbar spine (LS, p = 0.034) than those with counts of >/= 500 cells/μL, but not at FN and TH. The CD4 T cell count (gamma = 0.169, p = 0.031) was positively correlated with BMD at LS. There was no significant difference in the BMD (p = 0.499-> 0.999) between the ART-naive (n = 75) and ART-user group (n = 92). CONCLUSIONS: Despite their relatively younger age, HIV-infected men had a lower BMD than HIV-uninfected men. Lower CD4 T cell counts, irrespective of ART, might result in lower bone mass.


Two sentences in the Discussion section were incorrect.


BACKGROUND: The mechanisms behind ART-induced bone changes in HIV-infected patients are poorly known. We aimed to analyse changes in inflammatory and bone markers in HIV after tenofovir disoproxil fumarate initiation, and the associations with changes in the bone strength parameters. METHODS: HIV-positive participants starting tenofovir disoproxil fumarate-based ART underwent dual-energy X-ray absorptiometry (QDR 4500 SL(R), Hologic, Waltham, MA, USA)
for bone mineral density (BMD), a microindentation test (OsteoProbe(R), Active Life Scientific, Santa Barbara, CA, USA) for bone quality [bone material strength index (BMSi)] and phlebotomy at baseline and 48 weeks after ART. A panel of inflammatory biomarkers and bone turnover markers were measured by ELISA. HIV-negative controls underwent identical procedures once. Values are expressed as medians and IQRs, and non-parametric tests were used to perform the analysis.

RESULTS: Twenty HIV-infected individuals and 20 HIV-negative control individuals were matched in terms of age and gender. HIV individuals showed higher levels of inflammatory markers. We found no differences in bone turnover markers. HIV-positive individuals presented lower BMSi values at baseline compared with controls [86 (83-90) versus 89 (88-93), respectively; P = 0.034]. We found no difference in BMD (at either of the sites evaluated). BMSi tended to increase with treatment. IL-1beta at baseline was positively correlated with changes in BMSi after ART (rho = 0.564, P = 0.014). Baseline levels of sclerostin tended to be negatively correlated with changes in BMSi (rho = -0.402, P = 0.097). We found a negative correlation between time since HIV diagnosis and changes in BMSi (rho = -0.466, P = 0.04). CONCLUSIONS: We observed a correlation between changes in bone quality and the inflammatory environment in HIV-positive individuals. Moreover, among the underlying mechanisms we highlight the Wnt pathway as having a potentially significant role in ART bone quality recovery.

Maggiolo, F., et al. (2019). "Bone mineral density in virologically suppressed people aged 60 years or older with HIV-1 switching from a regimen containing tenofovir disoproxil fumarate to an elvitegravir, cobicistat, emtricitabine, and tenofovir alafenamide single-tablet regimen: a multicentre, open-label, phase 3b, randomised trial." Lancet HIV 6(10): e655-e666.

BACKGROUND: Tenofovir alafenamide is associated with less renal and bone toxicity than tenofovir disoproxil fumarate and might improve the long-term safety of antiretroviral therapy. We aimed to investigate the effect on bone mineral density of switching from a regimen containing tenofovir disoproxil fumarate to one containing tenofovir alafenamide in participants aged 60 years and older. METHODS: We did a prospective, open-label, multicentre, randomised trial in 36 European centres. Participants were virologically suppressed (HIV-1 RNA <50 copies per mL), aged 60 years or older, on a tenofovir disoproxil fumarate-containing regimen and were randomly assigned (2:1) via an interactive web-response system to open-label elvitegravir (150 mg), cobicistat (150 mg), emtricitabine (200 mg), and tenofovir alafenamide (10 mg) daily or continued therapy containing tenofovir disoproxil fumarate (300 mg). Participants were stratified by spine and hip bone mineral density categories. Primary endpoints were change from baseline to week 48 in spine and hip bone mineral density with a null hypothesis of zero between-group difference tested at a significance level of 0.05. This study was registered with ClinicalTrials.gov, NCT02616783. FINDINGS: Between Dec 22, 2015, and March 21, 2018, 167 participants were randomly assigned to elvitegravir, cobicistat, emtricitabine, and tenofovir alafenamide (n=111 [66%]) or tenofovir disoproxil fumarate (n=56 [34%]). One participant in the elvitegravir, cobicistat, emtricitabine, and tenofovir alafenamide group did not receive treatment and was excluded from all analyses. At week 48, the mean percentage change in spine bone mineral density was 2.24% (SD 3.27) in the elvitegravir, cobicistat, emtricitabine, and tenofovir alafenamide group and -0.10% (3.39) in the tenofovir disoproxil fumarate group (between-group difference 2.43% [95% CI 1.34-3.52]; p<0.0001), and mean percentage change in hip bone mineral density was 1.33% (2.20) in the elvitegravir, cobicistat, emtricitabine, and tenofovir alafenamide group and -0.73% (3.21) in the tenofovir disoproxil fumarate group (difference 2.04% [1.17-2.90]; p<0.0001). The most common adverse events were nasopharyngitis (12 [11%]), back pain (nine [8%]), and diarrhoea (eight [7%]) in the elvitegravir, cobicistat, emtricitabine, and tenofovir alafenamide group; and bronchitis (six [11%]), vitamin D deficiency (four [7%]), and arthralgia (four [7%]) in the tenofovir disoproxil fumarate group. 22 (20%) participants in the elvitegravir, cobicistat, emtricitabine, and tenofovir alafenamide group and one (2%) participant in the tenofovir disoproxil fumarate group had an adverse event that was considered to be related to treatment. No treatment-related serious adverse events were observed. The proportions of adverse events leading to premature treatment discontinuation were similar between groups (four [4%] in the elvitegravir, cobicistat, emtricitabine, and tenofovir alafenamide group; and one [2%] in the tenofovir disoproxil fumarate group). INTERPRETATION: The significantly improved bone mineral density, overall safety, and efficacy data show the feasibility of switching from a regimen containing tenofovir disoproxil fumarate to elvitegravir, cobicistat, emtricitabine, and tenofovir alafenamide in virologically suppressed people living with HIV aged 60 years or older. FUNDING: Gilead Sciences.


BACKGROUND: Disordered bone mineral metabolism and low vitamin D concentrations are associated with cardiovascular abnormalities; few studies have evaluated this relationship in HIV-infected youth. SETTING: The Adolescent Master Protocol is a Pediatric HIV/AIDS Cohort Study network study conducted across 14 US sites. METHODS: Among perinatally HIV-
People living with human immunodeficiency virus (HIV) infection have higher risk of low bone mineral density (BMD) and fragility fracture than general population. The aim of our retrospective study was to explore if HIV-specific Veterans Aging Cohort Study (VACS) Index and its specific components could help identify patients at risk for low BMD. A total of 195 HIV-infected patients with dual-energy X-ray absorptiometry (DXA) scan between 2007 and 2014 were included and DXA scan results were used to classify patients with osteopenia. VACS Index was calculated for all patients using laboratory values closest to the date of DXA scan. Logistic regression was used to assess the association between VACS Index score or individual components of VACS Index with the presence of low BMD after adjusting for confounding variables. A total of 109 (56%) patients were diagnosed with low BMD. VACS Index score was significantly associated with low BMD, with the odds of low BMD increasing 1.21 times for each 10 unit increase in VACS Index score [confidence interval (95% CI) 1.03-1.42; p = .02]. The two groups differed significantly on patient weights, proportion of white patients, and hepatitis C-coinfected patients. After adjusting for white race and weight, hepatitis C coinfection was significantly associated with increased risk of low BMD (odds ratio 24.4; 95% CI 7.45-80.16). VACS Index score, previously demonstrated to be a marker of frailty in HIV-infected patients, is significantly associated with low BMD and could be used to develop a prediction tool to screen for low BMD in resource-limited setting where DXA scans are not easily available.


BACKGROUND: Prevalence of osteoporosis and fracture is increased among older people with HIV. We compared the effects of low (1000 IU) vs moderate (3000 IU) vitamin D3 (VitD) supplementation on areal bone mineral density (aBMD) and volumetric bone mineral density (vBMD) in African American and Hispanic postmenopausal women with HIV on antiretroviral therapy. METHODS: We performed a 12-month prospective, randomized, double-blind, placebo-controlled study with primary outcomes of change in aBMD by dual-energy X-ray absorptiometry (DXA) and secondary outcomes of change in vBMD by quantitative computed tomography and bone turnover markers. An intent-to-treat analysis was performed on 85 randomized subjects (43 low and 42 moderate) for primary DXA outcomes, and complete case analysis was performed for secondary outcomes. RESULTS: Mean age was 56 +/- 5 years, median CD4 count was 722 cells/mm, and 74% had HIV RNA <50 copies/mL. Serum 25-OHD was higher in the moderate than low VitD group at 6 months (33.1 +/- 10.3 vs 27.8 +/- 8.1 ng/mL, P = 0.03) and 12 months, but parathyroid hormone levels remained similar. Percent change in aBMD, vBMD, and bone turnover markers did not differ between low and moderate VitD groups before or after adjustment.
for baseline aBMD. CONCLUSIONS: VitD supplementation at 3000 IU daily increased mean total 25-OHD levels in postmenopausal women with HIV, but we did not find evidence of an effect on BMD beyond those observed with 1000 IU daily. Future studies are necessary to determine whether VitD supplementation is beneficial in this patient population, and if so, what dose is optimal for skeletal health.

**CANCER**


Despite advances in HIV medicine people living with HIV continue to face many challenges. These include an increased risk of a number of cancers. In order to effectively identify those at risk and meet their healthcare needs nurses need knowledge and vigilance. This will result in appropriate patient education and referral for screening thereby maximising the chances of early detection and enhancing clinical outcomes. Cancers seen more commonly in people living with HIV will be discussed, including those classified as 'AIDS defining' i.e. Kaposi’s sarcoma, non-Hodgkin lymphoma and invasive cervical cancer; in addition to other cancers seen disproportionately in this cohort, namely those of the liver, anus and lung.


Sub-Saharan Africa is the region in the world with the most people infected with the human immunodeficiency virus (HIV). The incidence of breast cancer is also rising in the region. This transcript focusses on the burden of these two diseases when they converge in the same populace. This comprehensive literature review of the topic suggests a trend towards an increasing incidence of breast cancer in the HIV-infected population, and the rationale for such a tendency is hypothesized, especially in the context of the availability of highly active antiretroviral therapy. Besides the age at diagnosis, all other clinical characteristics appear to be similar in HIV-positive and HIV-negative breast cancer populations. Outcomes of the different treatment modalities for breast cancer in HIV-positive patients are also appraised and finally innovative areas of future research are suggested along with plausible recommendations.


With the introduction of HAART, the life expectancy of the patients infected with HIV almost approached that of the general population. The incidence of certain HIV-Associated cancers as Kaposi Sarcoma (KS) and Non-Hodgkin Lymphoma (NHL) decreased, while an increase in Non-AIDS-Defining cancers (NADCs) has been documented. HIV infection is a risk factor for numerous cancers in PLWH. Breast cancer is the most common cancer worldwide among all women. The association between HIV infection and breast cancer has not been thoroughly investigated: when compared to the general population, people living with HIV/AIDS (PLWHA) have a similar or slightly lower risk of breast cancer. Screening tests are essential weapons to fight cancer burden and more effective therapeutic and preventive strategies are needed, especially among PLWHA. Further and more comprehensive studies are needed to better characterize breast cancer among PLWH.

Background: Screening and treating premalignant cervical lesions (CIN2+) is an effective way to prevent cervical cancer, and recommendations exist for monitoring of treatment success. Yet, there is no specific recommendation for HIV-infected women, who are at known increased risk of cervical cancer. Methods: A systematic review was performed by searching MEDLINE, EMBASE and Web of Science from January 1980 through May 2018. Eligible studies described prevalence of histologically and/or cytologically-defined lesions in HIV-infected women, at least 6 months post-treatment. Primary endpoint was treatment failure, defined as the presence of residual and/or recurrent high-grade CIN2+/HSIL+ lesions post-treatment. Pooled prevalence in HIV-infected women, and odds ratios (OR) for HIV-infected compared to HIV-uninfected women were estimated using random-effects models. Results: Among 40 eligible studies, pooled prevalence of treatment failure in HIV-infected women was 21.4% (95%CI 15.8-27.0). There was no significant difference in treatment failure for cryotherapy (13.9%, 95%CI 6.1-21.6) versus LEEP (13.8%, 95%CI 8.9-18.7, p=0.9), but it was significantly higher in women with positive (47.2%, 95%CI 22.0-74.0) than with negative (19.4%, 95%CI 11.8-30.2) margins (OR 3.4, 95%CI 1.5-7.7). Treatment failure was significantly increased in HIV-infected versus HIV-uninfected women, both overall (OR 2.7, 95%CI 2.0-3.5) and in all sub-group analyses. Conclusion: There is strong evidence for increased risk of treatment failure in HIV-infected women in comparison to their HIV-negative counterparts. The only significant predictor of treatment failure in HIV-infected women was positive margin status, but further data is needed on long-term outcomes after ablative treatment in HIV-infected women.


Human papillomavirus (HPV) is the first identified necessary cause of human cancers and is associated with nearly 100% of all cervical cancers. Compared to the general female populations, HIV+ women have higher prevalence and incidence of cervical HPV infections, higher risks of persistent HPV infections and subsequent cervical intraepithelial lesions, and a higher incidence of cervical cancer. Although the wide use of combined antiretroviral therapy (cART) has improved the immune function and the longevity of HIV+ women, the incidence of cervical cancer in HIV+ women has not declined. For HIV+ women who follow routine cervical cancer screenings, their incidence of cervical cancer is comparable to that in HIV-negative women. Thus, adherence to the recommended cervical cancer screening is still critical for HIV+ women to prevent cervical cancer. Prophylactic HPV vaccines may also benefit HIV+ women, but prospective studies are needed to determine the effectiveness of HPV vaccination on reducing cervical cancer incidence in HIV+ women.


Women living with HIV (WLWH) are at high risk for cervical cancer (CC); however, many WLWH in India do not obtain regular CC screening. Little is known about facilitators and barriers of CC screening in this population. This qualitative study examined the relation of HIV-related stigma to obtaining CC screening among women in Surat, India. Semi-structured individual in-depth interviews were conducted between April 2015 and July 2015 with 25 WLWH at the New Civil Hospital Anti-Retroviral Centre and 15 stakeholders providing health care to WLWH. HIV-related stigma emerged as a considerable barrier to gynecologic care and CC screening among WLWH. Two major subthemes were identified: (1) perceptions of HIV-related normative stigma and enacted discrimination; and (2) HIV status disclosure in the context of health care and CC screening. Stakeholders described a general awareness of HIV-related stigma as a barrier to care for WLWH, while WLWH focused on experiences of enacted discrimination. Both patients and stakeholders described that concerns about disclosure and fear of stigma hinder WLWH in India from obtaining health care and CC screening. Findings suggest that interventions to increase cancer screening among WLWH in India should address the role of HIV-related stigma to be maximally effective.

OBJECTIVES: We examined trends in the incidence rates of invasive cervical cancer (ICC) and in the rate of survival after ICC among women living with HIV (WLHIV) in France and compared them to those of the general population. METHODS: Histologically validated incident cases of ICC in the period 1992-2009 from the French Hospital Database on HIV (FHDH-ANRS CO4) were included in the study. Age-standardized incidence rates were estimated for FHDH and the general population in France for 1992-1996 [pre-combination antiretroviral therapy (cART) period], 1997-2000 (early cART period), 2001-2004 (intermediate cART period), and 2005-2009 (late cART period). Age-standardized incidence ratios (SIRs) were calculated. Five-year survival was compared with that of the general population for ICC diagnosed in 2005-2009 after standardization for age. RESULTS: Among 28,977 WLHIV, 60 incident ICCs were histologically validated. There was a nonsignificant decreasing trend for the incidence across the cART periods (P = 0.07), from 60 to 36/100,000 person-years. The risk of ICC was consistently significantly higher in WLHIV than in the general population; the SIR was 5.4 [95% confidence interval (CI) 3.0-8.9] during the pre-cART period and 3.3 [95% CI 2.2-4.7] in 2005-2009. Survival after ICC did not improve across periods (log-rank P = 0.14), with overall estimated 5-year survival of 78% [95% CI 0.67-0.89%). Five-year survival was similar for WLHIV and the general population for women diagnosed with ICC in 2005-2009, after standardization (P = 0.45).

CONCLUSIONS: ICC risk is still more than three times higher in WLHIV than in the general population. Survival after ICC did not improve over time and was similar to that of the general population during the most recent period. Such results call for promotion of the uptake of screening in WLHIV.


BACKGROUND: Cervical cancer is the leading cause of cancer death in Sub-Saharan Africa. The risk of developing cancer is increased for women living with human immunodeficiency virus (HIV) infection. It is unknown which factors predict the initiation of curative chemoradiotherapy (CRT) in resource-limited settings and whether HIV is associated with initiating curative CRT in settings with a high HIV burden. METHODS: All women living with and without HIV infection who were initiating curative and noncurative CRT for locally advanced cervical cancer in Botswana were prospectively enrolled in an observational study. The factors associated with receiving CRT were evaluated in all patients and the subgroup of women living with HIV. RESULTS: Of 519 enrolled women, 284 (55%) initiated CRT with curative intent. The curative cohort included 200 women (70.4%) who were living with HIV and had a median CD4 count of 484.0 cells/μL (interquartile range, 342.0-611.0 cells/μL). In the noncurative cohort, 157 of 235 women (66.8%) were living with HIV and had a median CD4 count of 476.5 cells/μL (interquartile range, 308.0-649.5 cells/μL). HIV status was not associated with initiating curative CRT (odds ratio [OR], 0.95; 95% confidence interval [CI], 0.58-1.56). The factors associated with receiving curative CRT treatment on multivariable analysis in all patients included baseline hemoglobin levels >/=10 g/dL (OR, 1.80; 95% CI, 1.18-2.74) and stage I or II versus stage III or IV disease (OR, 3.16; 95% CI, 2.10-4.75). Women aged >61 years were less likely to receive curative treatment (OR, 0.43; 95% CI, 0.24-0.75). Among women who were living with HIV, higher CD4 cell counts were associated with higher rates of CRT initiation. CONCLUSIONS: The initiation of CRT with curative intent does not depend on HIV status. Significant predictors of CRT initiation include baseline hemoglobin level, disease stage, and age.


As growing numbers of people living with HIV also develop cancer, a holistic understanding of their experiences is essential to the provision of patient centred care. Both conditions are linked to powerful beliefs in our society that may affect experiences. This study explored how HIV and cancer were represented in UK newspapers to gain insight into the social context of living with a dual diagnosis. We performed an initial content analysis of HIV articles and of cancer articles published in the free London newspapers, The Metro and The Evening Standard between 2012 and 2017, followed by qualitative thematic analysis and in-depth analysis of selected articles of exemplar cases. Both conditions were presented very differently. The underlying subtext was that cancer could happen to any of us. HIV was framed as a potentially dangerous, stigmatising phenomenon affecting "others". Popular discourse about HIV within news media remains largely negative and stigmatising. People living with a dual diagnosis of HIV and cancer may choose to prioritise the sharing of the more socially acceptable condition, cancer, in order to access support. The negotiation of cancer healthcare services is likely to be adversely influenced by the social burden of HIV related stigma.
PURPOSE: Women living with human immunodeficiency virus (WLWH) have a higher risk of cervical cancer than women without HIV. In addition, women in India experience a high burden of death from cervical cancer. This qualitative study evaluated individual and interpersonal factors influencing cervical cancer screening among WLWH in Surat, India. METHODS: In-depth interviews were conducted with 25 WLWH and 15 stakeholders in Surat, India. Data were analyzed using directed content analysis to identify individual and intrapersonal barriers and facilitators. RESULTS: WLWH lacked knowledge and reported being afraid of cervical cancer and cervical cancer screening but were interested in learning more about it. Interpersonal factors influencing cervical cancer screening included receipt or lack of instrumental and emotional family support, interactions with healthcare providers, and receipt or lack of information about cervical cancer and the Pap test from healthcare providers. CONCLUSION: Widespread public education is necessary to increase awareness of cervical cancer and cervical cancer screening and to encourage family members to support women who wish to obtain screening. Patient- and provider-focused interventions may facilitate the process of providing cervical cancer care to WLWH who are obtaining care in busy public healthcare systems in India.

Kung, T. H., et al. (2019). ""My husband says this: If you are alive, you can be someone...": Facilitators and barriers to cervical cancer screening among women living with HIV in India." Cancer Causes Control 30(4): 365-374.


Background: Invasive cervical cancer (ICC) is more prevalent in HIV infected women and occurs at younger median age than in HIV negative women. Organized cervical cancer screening (CCS) is presently lacking in Nigeria, and the age at CCS is not known in this population. We sought to examine the age at CCS, the cytology outcomes and whether outcomes differ by HIV infection status in an opportunistic screening setting. Methods: Cross-sectional analysis of data on a sample of women who had received a CCS in an opportunistic screening service in Jos, Nigeria over a 10-year time period (2006-2016). We used logistic regression models to estimate the independent effect of patient-reported HIV and age at CCS and odds ratios for abnormal cytology outcomes adjusting for other covariates. We also assessed the correlation between median age at CCS and severity of abnormal cervical cytology outcomes. Statistical analyses were done on STATA version 14, College Station, Texas, USA. Results: In a sample of 14,088, the median age at CCS was 37 years (IQR: 30-45). For HIV infected women vs. uninfected women, CCS occurred at earlier ages (35.0 +/- 7.4 vs 38.2 +/- 10.2 years, p < 0.001). All women, regardless of HIV status, who completed at least 7 or more years of education were 1.27 to 3.51 times more likely to have CCS before age 35 than women with less education. The predictors of an abnormal cervical cytology outcome at CCS were: age at CCS >/= 35 (aOR = 3.57; 95% CI: 2.74, 4.64), multiparity >/=5 (aOR = 1.27; 95% CI: 1.03, 1.56), and provider-referral (aOR = 1.34; 95% CI: 1.09, 1.64). Irrespective of reported HIV status, we found a positive correlation between median age at CCS and severity of cytology outcome. Discussion: The age at CCS in women who have utilized cervical cancer screening in the study population is relatively late compared to the recommended age by most guidelines from developed settings. Late age at CCS correlates positively with severity of abnormal cytology outcome irrespective of HIV status. More educated women are more likely to have CCS at early age and less likely to have underlying abnormal cytology outcomes.
Nelson, B. (2019). "As the HIV-positive population ages, new dangers loom: Researchers are exploring human immunodeficiency virus-mediated inflammation and immune dysregulation to better understand the higher risks of cancer, cardiovascular disease, and other conditions among individuals who carry the virus." Cancer Cytopathol 127(1): 5-6.


BACKGROUND: While there is a significant body of literature on cervical cancer in HIV-positive women, little is known about other gynecologic cancers in this population. OBJECTIVE: The objective of this systematic review and meta-analysis is to describe the incidence, presentation, treatment, and outcomes for HIV-positive women with non-acquired immunodeficiency syndrome-defining gynecologic cancers. STUDY DESIGN: We searched MEDLINE, EMBASE, ClinicalTrials.gov, and the Cochrane Central Register of Controlled Trials for English-language studies published from 2000 to May 1, 2017. Studies containing 1 or more HIV-positive women with endometrial, ovarian, or vulvovaginal cancer and reporting incidence, treatment regimen, or survival were included. Two authors independently reviewed abstracts and full-text articles for inclusion and assessed study quality (details of the review protocol were registered as PROSPERO-CRD42017064525). Pooled estimates of incidence were calculated using random-effects models. Pooled estimates of cancer presentation and outcomes were averaged from case studies. RESULTS: Of 5744 abstracts screened, we identified 70 articles on 58 studies on 292,202 women with HIV and 528 women with HIV and gynecologic cancer for inclusion. Most articles (53%) focused on incidence, and only 3, 4, and 20 articles focused on treatment and outcomes of endometrial, ovarian, and vulvovaginal cancers, respectively. The standardized incidence ratios for endometrial, ovarian, and vulvovaginal cancers were 4.38 (95% confidence interval 0.26-8.49) for endometrial cancer, 3.21 (95% confidence interval 2.29-4.13) for ovarian cancer, and 21.93 (95% confidence interval 13.50-30.35) for vulvovaginal cancer. Fifty-seven percent of women were diagnosed at an early stage, and all received cancer treatment. CONCLUSION: In women with HIV, the incidence of ovarian and vulvovaginal cancer were higher than the general population, while incidence of endometrial cancer was similar. However, there was a paucity of data on treatment and outcomes for non-acquired immunodeficiency syndrome-defining gynecologic cancers. Given the increased incidence of gynecologic cancer, specific research on this population is essential to improve treatment and outcomes for HIV-positive women.


INTRODUCTION: Among haemophilic (H) men, hepatitis C virus (HCV) is the leading cause of liver disease and mortality, but demographics and risks of hepatocellular carcinoma (HCC) in H are not well known. METHODS: Adult discharges in H and non-haemophilic (NH) men, with and without HCC were identified in the National Inpatient Sample (NIS) between 1998 and 2014, using ICD-9 codes. Analyses included NIS-provided discharge-level weights to reflect national estimates. Categorical variables were assessed by Rao-Scott chi-square and continuous variables by weighted simple linear regression. HCC predictors were determined by weighted multivariable logistic regression. RESULTS: Of 18 098 H, 144 (0.79%) had HCC between 1998 and 2014. Adjusted rates of HCC increased 3.0-fold in H vs 1.7-fold in NH (P = 0.484). Among HCV+, HCC rates adjusted for HIV, increased 2.2-fold in H vs 1.7-fold in NH (P = 0.740), while among HIV+, HCC increased 1.4-fold in H vs 0.2-fold in NH (P = 0.448). Among those with HCC, H were older than NH (P < 0.001), Caucasian (P = 0.006), platelet transfusion recipients (P < 0.001), with greater comorbidity (P < 0.001) and mortality (P < 0.006). H with HCC also had greater rates of HCV and HIV (each P < 0.001), lower rates of alcoholism and hyperlipidemia (each P < 0.001), and similar rates of HBV (P = 0.866), smoking (P = 0.507) and obesity (P = 0.502). In multivariable logistic regression, HCV was a strong predictor for HCC in haemophilia, (OR: 15.42, 95% CI: 8.75-27.16). DISCUSSION: Haemophilic men have increasing rates of HCC, similar to men without haemophilia. HCV is the major predictor of HCC in haemophilia. Future trends in HCC will depend on the impact of newer HCV antiviral therapy.

OBJECTIVES: Logistical and economic issues make traditional cytology-based cervical cancer screening challenging in developing countries. Alternative, cost-effective, screening strategies must be developed to screen millions of women in resource-poor countries such as Cambodia. DESIGN: A prospective cohort study during which all women underwent four cervical cancer screening methods: (1) self-sampled human papilloma virus (HPV) testing (careHPV system), (2) clinician-collected HPV testing, (3) visualization with acetic acid (VIA) and (4) digital colposcopy (DC) with the Enhanced Visual Assessment System (EVA). SETTING: A referral hospital in Phnom Penh, Cambodia. PARTICIPANTS: Two hundred and fifty Cambodian women (129 HIV+, 121 HIV-). Subjects were recruited from the National Center for HIV/AIDS Dermatology and sexually transmitted disease (STD) cohort, the Sihanouk Hospital Center of Hope's Rural Outreach Teams and the Pochentong Medical Center. RESULTS: Fifty six of the 250 (22.4%) patients tested positive for high-risk HPV (hrHPV+). Thirty seven of the 129 HIV+ women were hrHPV+ (28.6%) whereas 19/121 HIV- women were hrHPV+ (15.7%) p=0.0154. Self-sampling HPV specimens identified 50/56 (89%) whereas physician-collected specimens identified 45/56 (80%) p=0.174. 95.2% of the patients felt comfortable obtaining HPV self-samples. Thirty seven of 250 women were VIA+. Thirty of 37 VIA+ women underwent confirmatory biopsies for cervical intraepithelial neoplasia (CIN) (26 CIN1, 4 CIN2+). The rate of confirmed dysplasia in the HIV+ group was 20/129 (15.5%) compared with 10/121 (8.26%) in HIV- women p=0.0291. The contemporaneous physician impressions of the DC images accurately differentiated between CIN1 and CIN2+ lesions in all 30 women having confirmatory biopsies. CONCLUSIONS: The results of this study suggest potential modifications of the current cervical screening strategy that is currently being employed in Cambodia. The first step in this new strategy would be self-swabbing for hrHPV. Subsequently, hrHPV+ patients would have DC and immediate treatment based on colposcopic findings: cryotherapy for suspected CIN1 and loop electrosurgical excision procedure (LEEP) for suspected CIN2+.


The author offers his comments on the article by J. M. McMillan and colleagues on the health implications of aging with HIV infections. He argues that McMillan and colleagues' recommendation regarding annual Papanicolaou tests for anal cancer is well-intentioned but may not be appropriate in the Canadian context. He says that a successful screening program relies on the availability of downstream resources to validate initial findings.


The incidence of anal cancer in HIV-positive women is a growing public health concern where they have a 7.8-fold increased risk for anal cancer than women in the general population. We examined knowledge of anal cancer, anal cancer screening, and HPV in HIV-positive women and high-risk HIV-negative women. Women were recruited from the Women's Interagency HIV Study and completed an adapted Knowledge of Anal Cancer and HPV Scale. Correlations among anal cancer knowledge and sociodemographic and risk factors were assessed using Pearson's or Spearman's rho r test. Student's t test or chi-square tests identified significant differences between groups by HIV status or risk factors. Among 155 women, 72% (n = 113) correctly identified the purpose of an anal Pap test. However, only 42% (n = 65) identified HIV as a risk factor for anal cancer. HIV-positive women were more knowledgeable about anal cancer than high risk HIV-negative women (t = 2.104, p = .037). Women with a history of an abnormal cervical Pap test (t = 2.137, p = .034), younger age (t = 3.716, p = .000), reported history of anal sex (t = 3.284, p = .001), some college education or higher (t = -2.005, p = .047), and non-smokers (t = 2.425, p = .016) were significantly more knowledgeable about HPV. Although most women were knowledgeable about anal cancer, many women could not identify important risk factors for anal cancer, such as HIV infection. Patient educational interventions tailored to HIV-positive women are warranted to improve knowledge and awareness of risk for anal cancer.

BACKGROUND: The present study aims to assess the performance of 18F-FDG PET-CT on mediastinal staging of non-small cell lung cancer (NSCLC) in a location with endemic granulomatous infectious disease. METHODS: Diagnostic test study including patients aged 18 years or older with operable stage I-III NSCLC and indication for a mediastinal lymph node biopsy. All patients underwent a 18F-FDG PET-scan before invasive mediastinal staging, either through mediastinoscopy or thoracotomy, which was considered the gold-standard. Surgeons and pathologists were blinded for scan results. Primary endpoint was to evaluate sensitivity, specificity and positive and negative predictive values of PET-CT with images acquired in the 1st hour of the exam protocol, using predefined cutoffs of maximal SUV, on per-patient basis. RESULTS: Overall, 85 patients with operable NSCLC underwent PET-CT scan followed by invasive mediastinal staging. Mean age was 65 years, 49 patients were male and 68 were white. One patient presented with active tuberculosis and none had HIV infection. Using any SUV_max > 0 as qualitative criteria for positivity, sensitivity and specificity were 0.87 and 0.45, respectively. Nevertheless, even when the highest SUV cut-off was used (SUV_max >/=5), specificity remained low (0.79), with an estimated positive predictive value of 54%. CONCLUSIONS: Our findings are in line with the most recent publications and guidelines, which recommend that PET-CT must not be solely used as a tool to mediastinal staging, even in a region with high burden of tuberculosis. TRIAL REGISTRATION: The LACOG 0114 study was registered at ClinicalTrials.gov, before study initiation, under identifier NCT02664792.


PURPOSE: The prevalence of non-AIDS-related malignancies is on the rise among people aging with HIV population, but the evidence on healthy behaviors including cancer screening practices in this population subgroup is extremely limited. Therefore, we investigated the prevalence of healthy behaviors and sex-specific cancer screening among persons living with HIV, by sex and time since HIV diagnosis. METHODS: We included 517 persons living with HIV from the Florida Cohort. Data were obtained from the baseline and follow-up questionnaires, electronic medical records, and Enhanced HIV/AIDS Reporting System. The prevalence of self-reported, age-appropriate cancer screening (anal, colorectal, prostate, breast, and cervical), and healthy behaviors (sustaining healthy body weight, refraining from smoking and alcohol and engaging in physical activity) was compared by sex and years since HIV diagnosis (<13 vs. >13 years). RESULTS: In the analyses by sex, females were more likely to be obese than males (56.5% vs. 22.2%, p < 0.0001). Distribution of healthy behaviors did not differ by time since diagnosis among males and females. In the analysis of age-appropriate screening among males, 64.8% never had an anal Pap-smear, 36.2% never had a colonoscopy, and 38.9% never had prostate cancer screening. In the analysis of age-appropriate screening among females, 50.0% never had an anal Pap-smear, 46.5% never had a colonoscopy, 7.9% never had a cervical Pap-smear, and 12.7% never had a mammogram. The difference in anal Pap-smear by sex was statistically significant (p < 0.0001). Among males, the age-adjusted prevalence of never having a colonoscopy was higher in those who had HIV for <13 years (50.8% vs. 30.6%, p = 0.03). CONCLUSION: The prevalence of selected healthy behaviors and cancer screening differed by sex and/or years since HIV diagnosis suggesting a need for tailored cancer prevention efforts among persons living with HIV via long-term sex-specific interventions.


Skin cancers-including basal cell carcinoma, squamous cell carcinoma, and melanoma-impose high incidence and morbidity in older persons. As life expectancy continues to increase in persons living with HIV (PLWH), this population may face an increased risk of non-AIDS-defining malignancies, such as skin cancers. We conducted a systematic review on skin cancer risks in PLWH, ages 50 years or older, as compared with age-matched, HIV-uninfected persons. Four studies met criteria and were included. No statistically significant associations were demonstrated between HIV infection and skin cancers in older persons. For those with a history of basal or squamous cell carcinoma, HIV infection was associated with higher risks of subsequent squamous cell carcinoma. Future studies are needed to elucidate and reduce morbidity of primary and multiple skin cancers to promote successful aging in PLWH.

Background People living with HIV (PLWH) experience higher risk of myocardial infarction (MI) and heart failure (HF) compared with uninfected individuals. Risk of other cardiovascular diseases (CVDs) in PLWH has received less attention.

Methods and Results We studied 19,798 PLWH and 59,302 age- and sex-matched uninfected individuals identified from the MarketScan Commercial and Medicare databases in the period 2009 to 2015. Incidence of CVD, including MI, HF, atrial fibrillation, peripheral artery disease, stroke, and any CVD-related hospitalization, were identified using validated algorithms. We used adjusted Cox models to estimate hazard ratios and 95% CIs of CVD end points and performed probabilistic bias analysis to control for unmeasured confounding by race. After a mean follow-up of 20 months, patients experienced 154 MIs, 223 HFs, 93 strokes, 397 atrial fibrillation, 98 peripheral artery disease, and 935 CVD hospitalizations (rates per 1000 person-years: 1.2, 1.7, 0.7, 3.0, 0.8, and 7.1, respectively). Hazard ratios (95% CI) comparing PLWH with uninfected controls were 1.3 (0.9-1.9) for MI, 3.2 (2.4-4.2) for HF, 2.7 (1.7-4.0) for stroke, 1.2 (1.0-1.5) for atrial fibrillation, 1.1 (0.7-1.7) for peripheral artery disease, and 1.7 (1.5-2.0) for any CVD hospitalization. Adjustment for unmeasured confounding led to similar associations (1.2 [0.8-1.8] for MI, 2.8 [2.0-3.8] for HF, 2.3 [1.5-3.6] for stroke, 1.3 [1.0-1.7] for atrial fibrillation, 0.9 [0.5-1.4] for peripheral artery disease, and 1.6 [1.3-1.9] for CVD hospitalization). Conclusions In a large health insurance database, PLWH have an elevated risk of CVD, particularly HF and stroke. With the aging of the HIV population, developing interventions for cardiovascular health promotion and CVD prevention is imperative.


BACKGROUND: Cardiovascular disease (CVD) poses a significant cause of morbidity and mortality among people living with human immunodeficiency virus (HIV). However, data are limited on CVD risk burden among HIV patients in Ghana. We describe the age- and sex-adjusted prevalence of CVD risk factors among HIV patients in Ghana.

METHODS: From January 2013 to May 2014, we identified eligible HIV patients 18 years and older, as well as uninfected adult blood donors presenting to the Komfo Anokye Teaching Hospital as controls. Using a standardized protocol, we collected demographic, clinical, laboratory, and electrocardiographic data. We created multivariable logistic regression models to compare the prevalence of abnormal risk factors between the two groups.

RESULTS: We recruited 345 patients with HIV (n = 173 on HAART, n = 172 not on HAART) and 161 uninfected adult blood donors. Patients with HIV were older (mean [SD] age: 41 [11] vs 32 [11] years) and were more likely to be female (72% vs 28%) than blood donors. Among patients on HAART, median (interquartile range) treatment duration was 17 (4-52) months. The prevalence of hypertension, hypercholesterolemia, and diabetes mellitus among HIV patients was 9%, 29%, and 5%, respectively, compared with 5%, 15%, and 0.6% among uninfected blood donors. Smoking was the least prevalent CVD risk factor (1%-2%). After adjustment for age, sex, and body mass index, HIV patients had a 10-fold higher odds of prevalent diabetes compared with controls, (adjusted OR = 10.3 [95% CI: 1.2, 86.7]). CONCLUSION: CVD risk factors are common among HIV patients in Ghana, demonstrating the urgent need for creation and implementation of strategic CVD interventions.


Cardiovascular disease (CVD) is one among the leading causes of mortality in people living with HIV on antiretroviral treatment (ART) worldwide. We examined the prevalence of subclinical atherosclerosis, associated factors, and risk of CVD in older adults living with HIV (OALHIV). A cross-sectional study was conducted with patients aged >/=50 years with HIV infection receiving ART at community hospitals in Chiang Mai, Thailand. Age- and sex-matched patients without documented HIV infection who visited the general outpatient department were enrolled for comparison. Cardio-ankle vascular index (CAVI) and ankle-brachial index (ABI) were measured using the vascular screening system, VaSera System (Fukuda Denshi Co., Ltd., Japan) to determine subclinical atherosclerosis (defined as CAVI >/=9.0) and peripheral arterial disease (defined as ABI <0.9), respectively. The Ramathibodi-Electric...
Generating Authority of Thailand (RAMA-EGAT) scores to predict the risk of coronary stenosis and the 10-year risk of ASCVD by pooled cohort equation were calculated. One hundred fifty-five patients were enrolled (107 HIV/48 comparison). The mean age was 59.0 years (SD 6.1); 67 (43%) were male. Participants in the HIV and comparison group were similar with respect to abnormal CAVI (57% vs. 58%, p = .88), abnormal ABI (6% vs. 8%, p = .50), and the risk of coronary stenosis (34% vs. 44%, p = .23). However, the 10-year risk of ASCVD was lower in HIV than in the comparison group (29% vs. 48%, p = .02). In OALHIV, diabetes mellitus was the only factor associated with abnormal CAVI. The cardiovascular risk among OALHIV in this study was similar to non-HIV population. More than a half of them had abnormal CAVI, and approximately one-third was at >/=10% 10-year risk of ASCVD.


The main objective of this study is to evaluate the predictive capacity of T cell activation/senescence in subclinical atherosclerosis (SCA) in a group of HIV-infected patients. So, a cross-sectional analysis was performed on 91 long-term triple-ART therapy HIV-infected patients from an observational and prospective cohort. Carotid Intima Media Thickness (cIMT) was measured. Binary logistic regression was used to evaluate independent variables associated with SCA. Compared to patients without SCA, patients with SCA (60.4%) were older (41.33+/−9.04 vs. 51.73+/−8.44 years old, p<0.001) and showed Framingham risk score (2.63+/−3.127 vs. 7.66+/−5.84, p=0.008), as well as higher numbers of CD4(+)/CD8(+) double positive T cells (0.50+/−0.42% vs. 0.81+/−0.79%, p=0.037), CD8(+)/CD28(-) T cells (41.70+/−16.96% vs. 50.22+/−16.15%, p=0.018), higher expression of CD28 on CD8(+)/CD28(+) T cells (1865+/−789 vs. 2243+/−917 MFI, P=0.046). In contrast, they showed lower expression of CD8 on CD19(+) B cells (65.38+/−27.47% vs. 42.67+/−30.26%, P<0.001). Logistic multivariable analysis showed that Framingham risk score >10% (OR=14.84, CI95% 1.63-125; p=0.016) and numbers of CD8(+)CD28(-) T cells (OR=1.032, CI 95% 1.06-1.065; p=0.045) were independent factors associated with SCA. Patients with CD8(+)CD28(-) T cells >/=59% compared to those <59% had higher risk of SCA (OR=3.14, CI95% 1.19-13.3, p=0.024).

Interestingly, 27.4% of patients with low Framingham risk score had elevated levels of CD8(+)CD28(-) T cells. In conclusion, immune senescence represented by accumulation of CD8(+)CD28(-) T cells may contribute to improve the predictive capacity of the Framingham risk score, especially when the scores are low and can explain, at least in part, the higher prevalence of SCA observed in long-term ART-treated stable HIV infected patients.


PURPOSE OF REVIEW: Human immunodeficiency virus (HIV) infection and its treatment with antiretroviral therapy (ART) are associated with lipid abnormalities that may enhance cardiovascular disease risk (CVD). RECENT FINDINGS: Chronic inflammation persists in HIV+ individuals, and complex relationships exist among lipids and inflammation, as immune activation may be both a cause and a consequence of lipid abnormalities in HIV infection. Advances in mass spectrometry-based techniques now allow for detailed measurements of individual lipid species; improved lipid measurement might better evaluate CVD risk compared with the prognostic value of traditional assessments. Lipidomic analyses have begun to characterize dynamic changes in lipid composition during HIV infection and following treatment with ART, and further investigation may identify novel lipid biomarkers predictive of adverse outcomes. Developing strategies to improve management of comorbidities in the HIV+ population is important, and statin therapy and lifestyle modifications, including diet and exercise, may help to improve lipid levels and mitigate CVD risk.


Cardiomyopathies are complex heart muscle diseases that can be inherited or acquired. Dilated cardiomyopathy can result from mutations in LMNA, encoding the nuclear intermediate filament proteins lamin A/C. Some LMNA mutations lead to accumulation of the lamin A precursor, prelamin A, which is disease causing in a number of tissues, yet its impact upon the heart is unknown. Here, we discovered myocardial prelamin A accumulation occurred in a case of dilated cardiomyopathy, and we show that a potentially novel mouse model of cardiac-specific prelamin A accumulation exhibited a phenotype consistent with inflammatory cardiomyopathy, which we observed to be similar to HIV-associated cardiomyopathy, an acquired disease state. Numerous HIV
protease therapies are known to inhibit ZMPSTE24, the enzyme responsible for prelamin A processing, and we confirmed that accumulation of prelamin A occurred in HIV+ patient cardiac biopsies. These findings (a) confirm a unifying pathological role for prelamin A common to genetic and acquired cardiomyopathies; (b) have implications for the management of HIV patients with cardiac disease, suggesting protease inhibitors should be replaced with alternative therapies (i.e., nonnucleoside reverse transcriptase inhibitors); and (c) suggest that targeting inflammation may be a useful treatment strategy for certain forms of inherited cardiomyopathy.


OBJECTIVES: Elite controllers (ECs), viraemic controllers (VCs), and long-term nonprogressors (LTNPs) control HIV viral replication or maintain CD4 T-cell counts without antiretroviral therapy, but may have increased cardiovascular disease (CVD) risk compared to HIV-uninfected persons. We evaluated subclinical carotid and coronary atherosclerosis and inflammatory biomarker levels among HIV controllers, LTNPs and noncontrollers and HIV-uninfected individuals in the Multicenter AIDS Cohort Study (MACS) and the Women’s Interagency HIV Study (WIHS). METHODS: We measured carotid plaque presence and common carotid artery intima-media thickness (IMT) in 1729 women and 1308 men, and the presence of coronary artery calcium and plaque in a subgroup of men. Associations between HIV control category and carotid and coronary plaque prevalences were assessed by multivariable regression analyses adjusting for demographics and CVD risk factors. Serum inflammatory biomarker concentrations [soluble CD163 (sCD163), soluble CD14 (sCD14), galectin-3 (Gal-3), galectin-3 binding protein (Gal-3BP) and interleukin (IL)-6] were measured and associations with HIV control category assessed. RESULTS: We included 135 HIV controllers (30 ECs) and 135 LTNPs in the study. Carotid plaque prevalence and carotid IMT were similar in HIV controllers, LTNPs and HIV-uninfected individuals. HIV controllers and LTNPs had lower prevalences of carotid plaque compared to viraemic HIV-infected individuals. The prevalence of coronary atherosclerosis was similar in HIV controllers/LTNPs compared to HIV-uninfected and viraemic HIV-infected men. Controllers and LTNPs had higher concentrations of sCD163 and sCD14 compared to HIV-uninfected persons. CONCLUSIONS: Subclinical CVD was similar in HIV controllers and LTNPs compared to HIV-uninfected individuals despite elevated levels of some inflammatory biomarkers. Future studies of HIV controllers and LTNPs are needed to characterize the risk of CVD among HIV-infected persons.


Combination antiretroviral therapy (cART) has been hugely successful in reducing the mortality associated with human immunodeficiency virus (HIV) infection, resulting in a growing population of people living with HIV (PLWH). Since PLWH now have a longer life expectancy, chronic comorbidities have become the focus of the clinical management of HIV. For example, cardiovascular complications are now one of the most prevalent causes of death in PLWH. Numerous epidemiological studies show that antiretroviral treatment increases cardiovascular disease (CVD) risk and early onset of CVD in PLWH. Nucleoside reverse transcriptase inhibitors (NRTIs) are the backbone of cART, and two NRTIs are typically used in combination with one drug from another drug class, e.g., a fusion inhibitor. NRTIs are known to induce mitochondrial dysfunction, contributing to toxicity in numerous tissues, such as myopathy, lipoatrophy, neuropathy, and nephropathy. In in vitro studies, short-term NRTI treatment induces an endothelial dysfunction with an increased reactive oxygen species (ROS) production; long-term NRTI treatment decreases cell replication capacity, while increasing mtROS production and senescent cell accumulation. These findings suggest that a mitochondrial oxidative stress is involved in the pathogenesis of NRTI-induced endothelial dysfunction and premature senescence. Mitochondrial dysfunction, defined by a compromised mitochondrial quality control via biogenesis and mitophagy, has a causal role in premature endothelial senescence and can potentially initiate early cardiovascular disease (CVD) development in PLWH. In this review, we explore the hypothesis and present literature supporting that long-term NRTI treatment induces vascular dysfunction by interfering with endothelial mitochondrial homeostasis and provoking mitochondrial genomic instability, resulting in premature endothelial senescence.


Both cognitive diseases and alexithymia may be associated with HIV. Moreover, alexithymia has been linked to cardiovascular (CV) diseases. Our aim was to explore the prevalence of alexithymia and its associations with neurocognitive disorders (HAND) and CV risk factors in a well-controlled HIV-positive population. We consecutively enrolled 140 HIV-positive individuals on antiretroviral therapy and 35 healthy subjects matched for age, education and gender. In all participants alexithymia was explored by the 20-item Toronto Alexithymia Scale. For HIV-positive subjects also data about CV risk factors were collected, and a comprehensive neuropsychological examination was administered; HAND was defined according to Frascati criteria. Patients and controls did not differ in the proportion of alexithymic status (10% vs. 11%; p=0.761). Among HIV-positive patients, alexithymic participants presented a higher prevalence of diabetes (21% vs. 3%, p=0.035) and hypertension (36% vs. 13%, p=0.037) compared to non-alexithymic. About 30% (n=41) of HIV-positive patients met criteria for asymptomatic HAND. Alexithymia was not independently associated with a higher risk of HAND (p=0.189). Analyzing each cognitive domain, alexithymia showed an independent association with an abnormal performance (OR 1.08; p=0.037) only in psychomotor speed. In conclusion, in the context of a well-controlled HIV infection, we found a low prevalence of alexithymia comparable to healthy controls. Alexithymia was linked to higher risk of CV disease in the HIV-positive population, but with a rate similar to that previously estimated in the HIV-negative alexithymic. Finally, alexithymia was clearly associated to cognitive impairment only in the psychomotor speed domain, suggesting a common fronto-striatal system dysregulation.


OBJECTIVE: Bilirubin is an antioxidant that may suppress lipid oxidation. Elevated bilirubin is associated with decreased cardiovascular events in HIV-uninfected populations. We examined these associations in people living with HIV (PLWH). METHODS: Potential myocardial infarctions (MIs) and strokes were centrally adjudicated. We examined MI types: type 1 MI (T1MI) from atherosclerotic plaque instability and type 2 MI (T2MI) in the setting of oxygen demand/supply mismatch such as sepsis. We used multivariable Cox regression analyses to determine associations between total bilirubin levels and outcomes adjusting for traditional and HIV-specific risk factors. To minimize confounding by hepatobiliary disease, we conducted analyses limited to bilirubin values <2.1 mg/dL; among those with fibrosis-4 values <3.25; and among everyone. We repeated analyses stratified by hepatitis C status and time-updated atazanavir use. RESULTS: Among 25,816 PLWH, there were 392 T1MI and 356 T2MI during follow-up. Adjusted hazard ratios for the association of higher bilirubin levels with T1MI were not significant. Higher bilirubin levels were associated with T2MI. By contrast, among PLWH on atazanavir, higher bilirubin levels were associated with fewer T2MI (hazard ratio 0.56:0.33-1.00). Higher bilirubin levels among those on atazanavir were associated with lower T1MI combined with ischemic stroke. LIMITATIONS: Analyses were conducted with total rather than unconjugated bilirubin. CONCLUSIONS: Among PLWH, higher bilirubin levels were associated with T2MI. By contrast, among PLWH on atazanavir, higher bilirubin levels were associated with fewer T2MI (hazard ratio 0.56:0.33-1.00). Higher bilirubin levels among those on atazanavir were associated with lower T1MI combined with ischemic stroke. OBJECTIVES: The aim of the study was to describe agreement between the QRISK2, Framingham and Data Collection on Adverse Events of Anti-HIV Drugs (D:A:D) cardiovascular disease (CVD) risk calculators in a large UK study of people living with HIV (PLWH). METHODS: PLWH enrolled in the Pharmacokinetic and Clinical Observations in People over Fifty (POPPY) study without a prior CVD event were included in this study. QRISK2, Framingham CVD and the full and reduced D:A:D CVD scores were calculated;


OBJECTIVES: The aim of the study was to describe agreement between the QRISK2, Framingham and Data Collection on Adverse Events of Anti-HIV Drugs (D:A:D) cardiovascular disease (CVD) risk calculators in a large UK study of people living with HIV (PLWH). METHODS: PLWH enrolled in the Pharmacokinetic and Clinical Observations in People over Fifty (POPPY) study without a prior CVD event were included in this study. QRISK2, Framingham CVD and the full and reduced D:A:D CVD scores were calculated;
participants were stratified into 'low' (< 10%), 'intermediate' (10-20%) and 'high' (> 20%) categories for each. Agreement between scores was assessed using weighted kappas and Bland-Altman plots. RESULTS: The 730 included participants were predominantly male (636; 87.1%) and of white ethnicity (645; 88.5%), with a median age of 53 [interquartile range (IQR) 49-59] years. The median calculated 10-year CVD risk was 11.9% (IQR 6.8-18.4%), 8.9% (IQR 4.6-15.0%), 8.5% (IQR 4.8-16.4%) and 6.9% (IQR 4.1-11.1%) when using the Framingham, QRISK2, and full and reduced D:A:D scores, respectively. Agreement between the different scores was generally moderate, with the highest level of agreement being between the Framingham and QRISK2 scores (weighted kappa = 0.65) but with most other kappa coefficients in the 0.50-0.60 range. CONCLUSIONS: Estimates of predicted 10-year CVD risk obtained with commonly used CVD risk prediction tools demonstrate, in general, only moderate agreement among PLWH in the UK. While further validation with clinical endpoints is required, our findings suggest that care should be taken when interpreting any score alone.


OBJECTIVES: The clinical significance of low-level viraemia (LLV) during antiretroviral therapy (ART) is debated. We retrospectively investigated longitudinal levels of plasma markers associated with inflammation, altered coagulation and cardiovascular disease in Swedish HIV-positive adults in relation to LLV or permanent virological suppression during long-term ART.

METHODS: Plasma levels of C-reactive protein (CRP), D-dimer, vascular cell adhesion molecule 1 (VCAM-1), suppression of tumorigenicity 2 (ST2), growth differentiation factor 15 (GDF-15), soluble CD14 (sCD14), soluble CD163 (sCD163), interferon-gamma-inducible protein 10 (IP-10) and beta-2-microglobulin were measured in 34 individuals with LLV (viral load 50-999 HIV-1 RNA copies/mL) and in matched controls with persistent virological suppression. Biomarker levels were analysed in samples obtained during episodes of LLV and follow-up samples obtained 1 year later (with similar timing for controls). All biomarkers were analysed using an independent sample t-test and analysis of covariance (ANCOVA) after logarithmic transformation. Log-rank analysis was applied for markers with concentration values out of range. RESULTS: Compared with controls, patients with LLV had significantly higher levels of GDF-15 [geometric mean 3416 (95% confidence interval (CI) 804-14 516) pg/mL versus 2002 (95% CI 355-11 295) pg/mL in controls; P = 0.026] and D-dimer [mean 1114 (95% CI 125-9917) ng/mL versus 756 (95% CI 157-3626) ng/mL; P = 0.038] after adjustment for age, CD4 count nadir and type of ART. In the unadjusted t-test, only GDF-15 was significantly higher and in the log-rank test, both GDF-15 and D-dimer were significantly elevated. No significant differences were observed for the other biomarkers analysed. CONCLUSIONS: Although levels of inflammation markers were similar in ART recipients with and without LLV, persons with LLV had significantly higher levels of GDF-15 and D-dimer. These findings suggest a potential link between LLV and cardiovascular outcomes.


BACKGROUND: The increased survival of patients with HIV infection thanks to antiretroviral therapy (ART) is accompanied by a higher rate of cardiovascular disease (CVD). We analysed the prevalence of the cardiovascular risk factors (CRFs) and estimated the risk of CVD in a cohort of patients with HIV in Spain. METHODS: We conducted a cross-sectional, observational study of CRFs in the Spanish VACH cohort of patients with HIV who undergo ART. RESULTS: The study assessed 15,559 patients with HIV (76% men; mean age, 46 years). Some 3.7% had experienced at least 1 CVD event. The prevalence of CRFs was high (hyperlipidaemia, 64%; tobacco use, 47%; arterial hypertension, 22%; and diabetes, 16%). According to the Framingham scale, 10.9% of the patients presented a high CVD risk, and 28.8% presented a moderate risk. Of the patients with a high CVD risk, 49% took protease inhibitors and 43% took abacavir. Fifty-three percent of the patients diagnosed with arterial hypertension took antihypertensive drugs, and 2.6% of the patients with diabetes took antidiabetic agents. CONCLUSIONS: Classical CRFs are common in patients with HIV undergoing ART in Spain, and a large proportion of them have a moderate-high risk of CVD. Therefore, controlling the modifiable CRFs in patients with HIV should be improved, and the use of drugs with a better cardiovascular risk profile should be assessed.

As early and effective antiretroviral therapy has become more widespread, HIV has transitioned from a progressive, fatal disease to a chronic, manageable disease marked by elevated risk of chronic comorbid diseases, including cardiovascular diseases (CVDs). Rates of myocardial infarction, heart failure, stroke, and other CVD manifestations, including pulmonary hypertension and sudden cardiac death, are significantly higher for people living with HIV than for uninfected control subjects, even in the setting of HIV viral suppression with effective antiretroviral therapy. These elevated risks generally persist after demographic and clinical risk factors are accounted for and may be partly attributed to chronic inflammation and immune dysregulation. Data on long-term CVD outcomes in HIV are limited by the relatively recent epidemiological transition of HIV to a chronic disease. Therefore, our understanding of CVD pathogenesis, prevention, and treatment in HIV relies on large observational studies, randomized controlled trials of HIV therapies that are underpowered to detect CVD end points, and small interventional studies examining surrogate CVD end points. The purpose of this document is to provide a thorough review of the existing evidence on HIV-associated CVD, in particular atherosclerotic CVD (including myocardial infarction and stroke) and heart failure, as well as pragmatic recommendations on how to approach CVD prevention and treatment in HIV in the absence of large-scale randomized controlled trial data. This statement is intended for clinicians caring for people with HIV, individuals living with HIV, and clinical and translational researchers interested in HIV-associated CVD.


Background: Experimental CCR5 antagonism with maraviroc in atherosclerosis-prone mice and preliminary data in humans suggest an anti-atherosclerotic effect of the drug. We assessed the impact of maraviroc treatment in persons living with HIV on subclinical indicators of atherosclerosis. Methods: Persons living with HIV on effective antiretroviral therapy (ART) including only protease inhibitors were recruited if they had a Framingham risk score >20% and brachial flow-mediated dilation (bFMD) <4%, as indices of high cardiovascular risk. Maraviroc (300 mg per os for 24 weeks) was administered, in addition to ongoing ART, to all patients using a crossover design. Brachial FMD, carotid-femoral pulse wave velocity (cfPWV), and carotid intima-media thickness (cIMT) were measured as markers of atherosclerosis. Vascular competence-as expressed by the ratio of circulating endothelial microparticles (EMPs) to endothelial progenitor cells (EPCs)-and markers of systemic inflammation and monocyte and platelet activation were assessed. Results: Maraviroc treatment significantly improved bFMD, cfPWV, and cIMT by 66%, 11%, and 13%, respectively (P = .002, P = .022, P = .038, respectively). We also found a beneficial effect of maraviroc on the EMP/EPC ratio (P < .001) and platelet/leucocyte aggregates (P = .013). No significant changes in markers of systemic inflammation, monocyte activation, and microbial translocation were observed. Conclusions: Maraviroc led to significant improvements in several markers for cardiovascular risk, endothelial dysfunction, arterial stiffness, and early carotid atherosclerosis, which was accompanied by an increase of vascular competence, without seeming to affect systemic inflammation. Our data support the need for larger studies to test for any effects of maraviroc on preventing atherosclerosis-driven pathologies.


OBJECTIVES: to analyze the association between HCV coinfection and cumulative infections with the development of a cardiovascular disease in HIV-infected subjects. METHODS: HIV-infected subjects attended at Virgen del Rocio University Hospital, between January 1982 and March 2018, were considered if fulfilled the following criteria: at least two visits to the HIV clinic, clinical records with data about VZV reactivation and bacterial infections, available data on HCV coinfection status. Atherogenic cardiovascular events were registered. To analyze factors associated with the development of cardiovascular event, a logistic regression analysis was performed. RESULTS: 823 subjects were included in the study. During the observational period, 58/823 (7.05%) developed a cardiovascular event. Advanced age at HIV-1 diagnosis, a low T-CD4 nadir, HCV coinfection and the burden of infections were independently associated with the risk of developing a cardiovascular event, apart from lipid levels and diabetes. CONCLUSIONS: both HCV and the burden of infections are associated with an increased risk of cardiovascular event in HIV-infected patients, together with other cardiovascular risk factors. Therapeutic strategies such as HCV eradication or VZV immunization could ameliorate cardiovascular risk in these subjects.

Cardiovascular disease is an important contributor to morbidity and mortality in people living with HIV. The immature platelet fraction (IPF) is increased in HIV-negative patients with cardiovascular disease and evidence suggests that an enlarged IPF is associated with adverse cardiovascular events. In this multi-center observational study, we aimed to investigate how the IPF in people living with HIV is influenced by antiretroviral therapy and cardiovascular disease. Subjects without cardiovascular disease that received antiretroviral therapy showed a smaller IPF accompanied by lower D-dimer and C-reactive protein (CRP) levels compared to therapy-naive subjects (mean IPF: 2.9% vs. 3.9%, p = .016; median D-dimer: 252 microg/L vs. 623 microg/L, p < .001; median CRP: 0.2 mg/dL vs. 0.5 mg/dL, p = .004). No significant differences for the IPF, D-dimer or CRP were found between subjects on antiretroviral therapy with documented cardiovascular disease and therapy-naive subjects. In conclusion, we observed a reduction in the IPF among subjects on therapy only in the absence of cardiovascular disease. In contrast, subjects receiving therapy that had documented cardiovascular disease showed an IPF comparable to therapy-naive subjects. Future studies are needed to investigate if an enlarged IPF may serve as a biomarker in predicting adverse cardiovascular events in people living with HIV.


BACKGROUND: People living with HIV (PLWHIV) have a 2-fold higher risk of having a cardiovascular event than HIV-negative individuals. OBJECTIVES: To estimate the pooled proportion of moderate-high cardiovascular risk in PLWHIV obtained through different scores. In addition, to establish the prevalence of dyslipidemia, smoking habit, diabetes and high blood pressure in the studies included. METHODS: A bibliographic search was conducted in MEDLINE from studies on cardiovascular risk assessment in PLWHIV that took place during the period of inception to July 2018. Eligibility criteria for inclusion were: cross-sectional or longitudinal studies in HIV-positive adults in which prevalence of moderate-high cardiovascular risk (or data to calculate it) was reported, and include at least one of the following cardiovascular risk scores: Framingham, ASCVD, D:A:D, Progetto Cuore, PROCAM, SCORE, Regicor, World Health Organization scores. RESULTS: Bibliographic search identified 278 studies. Finally, thirty-nine peer-reviewed publications were identified for a collective total of 13698 subjects. The pooled prevalence of moderate-high cardiovascular risk in PLWHIV obtained with nine different scores through random-effect modeling was 20.41% (95% CI: 16.77-24.31). The most prevalent concomitant cardiovascular risk factor was dyslipidemia (39.5%), smoking (33.0%), high blood pressure (19.8%) and diabetes (7.24%). CONCLUSIONS: Data obtained in this systematic review indicate that more than 1 in every five subjects with HIV had a moderate-high cardiovascular risk. In consequence, the burden of cardiovascular disease in PLWHIV represents a public health problem. There is an urgent need to develop strategies to prevent and detect cardiovascular risk assessment effectively in PLWHIV.


BACKGROUND: HIV may affect the risk of death due to cardiovascular disease (CVD) differently in men versus women. METHODS: We examined CVD mortality rates between 2007 and 2017 among all HIV-positive New York City residents age 13+ by sex, using data from city HIV surveillance and vital statistics and the National Death Index. Residents without HIV were enumerated using modified US intercensal estimates. We determined associations of HIV status with CVD mortality by sex after accounting for age, race/ethnicity, year, and neighborhood poverty, defined as the percent living below the federal poverty level. RESULTS: There were 3,234 CVD deaths reported among 147,915 HIV-positive New Yorkers, with the proportion of deaths due to CVD increasing from 11% in 2007 to 22% in 2017. The age-standardized CVD mortality rate was 2.7/1,000 person-years among both men and women with HIV. The relative rate of CVD mortality associated with HIV status was significantly higher among women (adjusted rate ratio [aARR] 1.7, 95% CI 1.6-1.8) than men (aARR 1.2, 95% CI 1.1-1.3) overall, and within strata defined by neighborhood poverty. Sex
differences in CVD mortality rates were the greatest comparing HIV-positive individuals having detectable HIV RNA and CD4+ T-cell counts <500 cells/µL with HIV-negative individuals. CONCLUSIONS: One in five deaths among people with HIV is now associated with CVD. HIV providers should recognize CVD risk among women with HIV, and reinforce preventive measures (e.g., smoking cessation, blood pressure control, lipid management) and viremic control among all people living with HIV to reduce CVD mortality.


PURPOSE OF REVIEW: People infected with HIV through injection drug use are more likely to experience progression to AIDS, death due to AIDS, and all-cause mortality even when controlling for access to care and antiretroviral therapy. While high-risk behavior and concurrent infections most certainly are contributors, chronic immune activation, downstream metabolic comorbidities may play an important role. RECENT FINDINGS: Altered intestinal integrity plays a major role in HIV-related immune activation and microbial translocation markers are heightened in active heroin users. Additionally, greater injection frequency drives systemic inflammation and is associated with HIV viral rebound. Finally, important systemic inflammation markers have been linked with frailty and mortality in people who inject drugs with and without concurrent HIV infection. Heroin use may work synergistically with HIV infection to cause greater immune activation than either factor alone. Further research is needed to understand the impact on downstream metabolic comorbidities including cardiovascular disease. Medication-assisted treatment for opioid use disorder with methadone or buprenorphine may ameliorate some of this risk; however, there is presently limited research in humans, including in non-HIV populations, describing changes in immune activation on these treatments which is of paramount importance for those with HIV infection.


Although the initial reports of increased cardiovascular (CV) disease in the setting of advanced AIDS were reported approximately 30 years ago, advances in antiretroviral therapy and immediate initiation of therapy on diagnosis have transformed what was once a deadly infectious disease into a chronic health condition. Accordingly, the types of CV diseases occurring in HIV have shifted from pericardial effusions and dilated cardiomyopathy to atherosclerosis and heart failure. The underlying pathophysiology of HIV-associated CV disease remains poorly understood, partly because of the rapidly evolving nature of HIV treatment and because clinical endpoints take many years to develop. The gut plays an important role in the early pathogenesis of HIV infection as HIV preferentially infects CD4+ T cells, 80% of which are located in gut mucosa. The loss of these T cells damages gut mucosa resulting in increased gut permeability and microbial translocation, which incites chronic inflammation and immune activation. Antiretroviral therapy does not cure HIV infection and immune abnormalities persist. These abnormalities correlate with mortality and CV events. The effects of antiretroviral therapy on CV risk are complex; treatment reduces inflammation and other markers of CV risk but induces lipid abnormalities, most commonly hypertriglyceridemia. On a molecular level, monocytes/macrophages, platelet reactivity, and immune cell activation, which play a role in the general population, may be heightened in the setting of HIV and contribute to HIV-associated atherosclerosis. Chronic inflammation represents an inviting therapeutic target in HIV, as it does in uninfected persons with atherosclerosis.


BACKGROUND: Pro-inflammatory cytokines expressed in human immune deficiency virus (HIV) infection, may induce oxidative stress likely to compromise the patency of the airways or damage the lung tissues/cardiac function. However, physical (aerobic and/or resistance) exercise-induced release of heat shock protein, immune function alteration or reduced tissue hypoxia, have been highlighted as possible mechanisms by which increasing physical activity may reduce plasma pro-inflammatory cytokines.
Therefore, we evaluated the effects of physical exercises on 1) inflammatory biomarkers and 2) cardiopulmonary function (VO2 Max) in PLWH. METHODS: A systematic review was conducted using the Cochrane Collaboration protocol. Searching databases, up to January 2018. Only randomized control trials investigating the effects of either aerobic or resistance or a combination of both exercise types with a control/other intervention(s) for a period of at least 4 weeks among adults living with HIV, were included. Two independent reviewers determined the eligibility of the studies. Data were extracted and risk of bias (ROB) was assessed with the Cochrane Collaboration ROB tool. Meta-analyses were conducted with random effect models using the Review Manager (RevMan) computer software. RESULT: Twenty-three studies met inclusion criteria (n = 1073 participants at study completion) comprising male and female with age range 18-65 years. Three meta-analyses across three sub-groups comparisons were performed. The result showed no significant change in biomarkers of inflammation (IL-6 and IL-1beta) unlike a significant (Z = 3.80, p < 0.0001) improvement in VO2 Max. Overall, the GRADE evidence for this review was of moderate quality. CONCLUSION: There was evidence that engaging in either aerobic or resistance exercise, or a combination of both exercises, two to five times per week can lead to a significant improvement in cardiopulmonary function but not biomarkers of inflammation (IL-6 and IL-1beta). However, this should not be interpreted as "No evidence of effect" because the individual trial studies did not attain sufficient power to detect treatment effects. The moderate grade evidence for this review suggests that further research may likely have an important impact on our confidence in the estimate of effects and may change the estimate.


BACKGROUND: The life expectancy of HIV-infected individuals has dramatically improved with potent antiretroviral therapies. However, organ-specific toxicities of some antiretrovirals and persistent inflammation and immune activation due to residual virus replication account for a high burden of age-associated comorbidities in the HIV population. METHODS: The prevalence of overt cardiovascular, renal and bone diseases as well as their major risk factors were cross-sectionally examined during the year 2014 in the VACH cohort, a large nationwide population of HIV-infected individuals in Spain. RESULTS: A total of 10,897 HIV-infected patients were examined. Seventy-one point four percent were male and the mean age was 48 years. Mean time since HIV diagnosis was 15.8 years and mean time on antiretroviral therapy was 13.1 years. The proportion of patients with undetectable viral load was 87.1%, whereas 65.7% had CD4 counts>500 cells/mm(3). Overall, cardiovascular, renal and bone disease were recorded in 4.7%, 5.9% and 2.8%, respectively. The prevalence of major risk factors was as follows: smoking 51.3%, alcohol abuse 7.8%, overweight/obesity 42.2%, diabetes 19.9%, dyslipidaemia 72.6%, hypertension 25.6%, and osteoporosis 11.1%. In the subset of patients older than 55 years-old (18%), all figures for overt disease and their major risk factors were significantly greater. CONCLUSION: Major age-related medical conditions and most of their risk factors are highly prevalent in HIV-infected individuals on long-term antiretroviral therapy in Spain. Preventive actions, including careful selection of antiretroviral agents, should be prioritized in the ageing HIV population.


BACKGROUND: People living with HIV are at increased risk of cardiovascular disease and carotid thickness, due to the inflammation caused by the virus, the antiretroviral therapy, and other risk factors. However, few studies have observed the occurrence of cardiovascular diseases and carotid thickness in HIV-positive population at low cardiovascular risk and with undetectable viral load. OBJECTIVES: To evaluate the association between levels of inflammatory markers and carotid thickness in people living with HIV, under antiretroviral therapy and at low cardiovascular risk. METHODS: To determine low cardiovascular risk in both groups (HIV infected and non-infected individuals), the Framingham Risk Score was used. Inflammatory markers (IFN-gamma, TNF-alpha, IL-1beta, IL-6, sVCAM-1, and sICAM-1) were assessed using flow cytometry. Carotid thickness (mm) was measured using Doppler ultrasound. Level of significance was p < 0.05. RESULTS: In People living with HIV, age and smoking status were associated with carotid thickness alterations. In the non-HIV group, age, higher total cholesterol, and LDL levels were associated with increased carotid thickness. Using the multivariate analysis, a significant association between TNF-alpha and IL-1 levels, and a higher chance of atherosclerosis development in HIV group were observed. CONCLUSIONS: Both groups have a similar risk for developing cardiovascular disease, therefore our study demonstrates that HIV-positive individuals with undetectable viral...
Comparison of cardiovascular disease (CVD) risk calculators in Latinx majority populations living with HIV can assist clinicians in selecting a calculator and interpreting results. 10-year CVD risks were estimated for 652 patients seen >/= 2 times over 12 months in a public clinic using three risk calculators: Atherosclerotic CVD risk Calculator (ASCVD), Framingham Risk Calculator (FRC), and Data Collection on Adverse Effects of Anti-HIV Drugs Study (D:A:D) Calculator. Median estimated 10-year CVD risk in this population was highest using FRC (11%), followed by D:A:D (10%), and lowest with ASCVD (5%; p < 0.001). However, D:A:D classified 44.3% in a high/very high risk category compared to FRC (20.7%) and ASCVD (33.4%) (all p < 0.001). ASCVD risk estimates differed significantly by race/ethnicity (p < 0.001). Risk varied widely across three risk calculators and by race/ethnicity, and providers should be aware of these differences when choosing a calculator for use in majority minority populations.

BACKGROUND: As in non-infected subjects, statins and aspirin have a pivotal preventive role in reducing the cardiovascular related morbidity and mortality in HIV infected patients. The persistence of immune activation in these subjects, could contribute to accelerate atherosclerosis, therefore, these treatments that reduce inflammation could provide additional cardiovascular protection. However the current guidelines for the use of these drugs in general population are dissimilar, with important differences between American and European ones. Aim of the present position paper is to provide recommendations aimed to overcome the actual differences and limitations among the current ones and to adapt them to the needs of HIV infected patients. RESULTS: We propose to adopt the new ACC/AHA guidelines, simple to use and cost effective, to use the ASCVD score that seems to estimate more accurately the cardiovascular risk among these patients. We suggest to start statin therapy in all patients with a calculated 10-year risk of a cardiovascular event of 10% or greater. Rosuvastatin and atorvastatin should be preferred. LDL-C target may be adopted. Aspirin should be always associated with a statin, in secondary prevention, while in primary prevention it should be reserved only to patients with >/= 20% 10-year risk particularly adherent to treatments, and with low risk of bleeding. We suggest to start with a dose of 100 mg/day. Finally, management of antiplatelet agents or novel oral anticoagulants may include selecting antiretrovirals with a lower potential for drug interactions or choosing agents least likely to interact with antiretrovirals. CONCLUSIONS: As demonstrated in surveys, HIV physicians are generally highly committed regarding CVD and autonomous in prescribing statins and ASA. Consequently, in the light of the previously discussed discrepancies among the different guidelines and of the incomplete indications regarding HIV-positive persons, the present suggestions could overcome the actual differences and limitations among the current ones.

BACKGROUND: A high prevalence of cardiac abnormalities has been reported in children with HIV taking ART in sub-Saharan Africa. We investigated the incidence and progression of cardiac abnormalities among children taking ART in Zimbabwe. METHODS: A prospective cohort study was conducted at a paediatric HIV clinic from 2014 to 2017. Children with HIV aged between 6 and 16 years and taking ART >/=6 months were enrolled. Transthoracic echocardiography was performed at baseline and 18 months. RESULTS: Of 197 participants recruited at baseline, 175 (89%), 48% female, median age 12 (IQR, 10-14) years were followed up. The incidence of left and right heart abnormalities was 3.52 and 5.64 per 100 pys, respectively. Stunting was associated with the development of any cardiac abnormality [adjusted OR 2.59 (95% CI, 1.03-6.49); p=0.043]. Right ventricular (RV) dilatation persisted at follow up in 92% and left ventricular (LV) diastolic dysfunction in 88%. Cardiac abnormalities present at baseline reverted to normal over the follow up period in 11(6%). There was an overall increase in mean z-scores for LV, left atrium (LA), RV, interventricular septum and LV posterior wall diameters at 18 months (p<0.001). CONCLUSIONS: Despite ART, children with HIV have
a high incidence of cardiac abnormalities, with only a minority being transient. Mean z-scores for LV, LA, RV, interventricular septum and LV posterior wall diameters increased over a relatively short follow up period, suggesting the potential for progression of cardiac abnormalities. Longer follow up is required to understand the clinical implications of these abnormalities.


Transgender individuals represent the fastest growing minority in the United States and are disproportionately affected by HIV. Hormone therapy is the most common treatment for gender dysphoria in transgender individuals. As HIV is an independent risk factor for coronary artery disease, it is critical to further research the influence masculinising and feminising hormone therapies have on cardiovascular disease. There is a clinical need for evidence-based guidelines for cardiologists to follow to effectively care for and treat transgender patients. For this to be done, the interplay between HIV, hormone therapy, and cardiovascular disease must be better understood through collaboration between researchers and clinicians to achieve maximum benefit from recent advancements. [ABSTRACT FROM AUTHOR]

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OBJECTIVES: To analyze the incidence rates (IR) and spectrum of vascular events in people living with HIV (PLWH) in Spain from 2004 to 2015. Serial measurements of different plasma cardiovascular biomarkers were assessed in relation to disease development. METHODS: Longitudinal study in a nationwide contemporary multicenter cohort of PLWH. A nested case-control study was performed to evaluate the predictive value of cardiovascular biomarkers. Additive generalized and Cox mixed models were used for the analyses. RESULTS: 9,712 PLWH and 48,341 person-years of follow-up were analysed. During 2004-2015, 147 persons developed 154 vascular events; 80 (54.42%) coronary-related; 65 (44.22%) cerebrovascular-related, and 9 (6.12%) peripheral arterial disease. The 2004-2015 IR (95% confidence interval) of vascular events was 3.17 (2.69-3.71) x1,000 person-years; 1.64 (1.30-2.05) for coronary events; 1.34 (1.03-1.70) for cerebrovascular events; and 0.19 (0.09-0.35) for peripheral arterial disease (p<0.001). IR of vascular events gradually increased from 0.37 (0.12-0.85) x1,000 patient-years in the stratum 25-34-years to 19.65 (6.38-45.85) x1,000 patient-years in the stratum 75-84-years. Compared to the general population, there was a higher incidence of acute myocardial infarction (AMI) in men (sIR ratio 1.29 [95% CI 1.16-1.42]), of cerebrovascular events in women (sIR ratio 2.44 [95% CI 1.68-3.19]), and of both types of events specifically among the younger age-strata. CD4 count (hazard ratio 0.80, [95% CI, 0.79-0.81]), age (1.86 [1.47-2.34] for 45-65 years and 3.44 [2.37-4.97] for >65 years) and vascular event (1.81 [1.12-2.94]) were associated with total mortality. Adjusted levels of intercellular-adhesion-molecule (sICAM), pro-b-type-natriuretic-peptide (pro-BNP) and marginally sCD14, were higher among patients who subsequently developed vascular events. CONCLUSION: Vascular events in PLWH do preferentially occur in the older age-strata, they are associated with increased mortality and, compared to the general population, the excess risk occurs at younger ages. Peripheral arterial disease is unusual. Vascular events are preceded by increased levels of sICAM, pro-BNP and, marginally, sCD14.

People with HIV (PWH) have an increased prevalence of cardiovascular disease (CVD) compared to uninfected patients. Lipoprotein-associated phospholipase A2 (Lp-PLA2) catalyzes the synthesis of pro-inflammatory lipids that recruit monocytes. Current guidelines for assessing cardiovascular risk in HIV-infected patients suggest that Lp-PLA2 may be a useful surrogate marker for CVD health in this patient population. Lipoprotein-associated phospholipase A2, lipids, glucose, physical parameters, and carotid intimal-medial thickness (CIMT) were measured in 98 participants (49 HIV-uninfected, 27 antiretroviral therapy [ART]-naive PWH, and 22 ART-treated PWH). HIV viral load (VL) and CD4+ T-cell count were measured in HIV-infected participants. Lipoprotein-associated phospholipase A2 was increased in participants on protease inhibitor (PI) ART (median 50.5 vs 127.0 nmol/mL, P = .05) and correlated with age, body mass index, and cholesterol. Lipoprotein-associated phospholipase A2 was not related to Framingham risk score or CIMT but correlated directly with VL (r = .323, P = .025) and inversely with CD4+ T-cell count (r = -.727, P < .001). Lipoprotein-associated phospholipase A2 was increased in HIV-infected participants on PIs and correlated strongly with VL and CD4+ T-cell count suggesting that HIV-associated inflammation is linked to increased Lp-PLA2, providing a mechanistic link between HIV and CVD.


BACKGROUND: The identification and management of cardiovascular risk factors became a major clinical issue among HIV-infected individuals in the post-cART era. As in the past decades the link between acute infections and cardiovascular diseases became clear in the general population, we sorted to investigate the role of severe infections on incident cardiovascular diseases (CVDs) among HIV-infected individuals. METHODS: HIV-infected individuals aged >/=18 years, with no history of CVD were followed from January 2000 to December 2013 until the occurrence of the first CVD event, death or end of study, whichever occurred first. To explore the effect of severe infections on the incidence of CVD we used extended Cox regression models and stratified post-hospitalization follow-up time into three periods: < 3 months, 3-12 months and > 12 months post discharge. RESULTS: One hundred-eighty four persons from 3384 HIV-infected individuals developed incident CVD events during the follow-up (incidence rate = 11.10/1000 PY (95%CI: 9.60-12.82)). Risk of an incident CVD was 4-fold higher at < 3 months post-hospitalization for severe infections (adjusted hazard ratio [aHR], 4.52; 95% confidence interval [CI] 2.46-8.30), after adjusting for sociodemographic and clinical factors as well as comorbidities. This risk remained significant up to one year (3-12 months post hospital discharge aHR 2.39, 95% CI 1.30-4.38). Additionally, non-white race/ethnicity (aHR 1.49, 95% CI 1.10-2.02), age >/= 60 years (aHR 2.01, 95% CI 1.01-3.97) and hypertension (aHR 1.90, 95% CI 1.38-2.60) were associated with an increased risk of CVD events. High CD4 (>/= 500 cells/mm(3): aHR 0.41, 95% CI 0.27-0.62) and cART use (aHR 0.21, 95% CI 0.14-0.31) reduced the risk of CVD events. CONCLUSIONS: We provide evidence for a time-dependent association between severe infection and incident cardiovascular disease in HIV-infected individuals. cART use, and high CD4 count were significantly associated with reduced hazards of CVD.


The aim of this study was to describe metabolic changes in HIV/AIDS patients according to the treatment regimen. It was a retrospective cohort conducted from 2002 to 2014. Researchers surveyed clinical variables and treatment regimen of 538 individuals. They used measures of central tendency and marginal logistic regression to determine the influence of the treatment regimen on clinical variables over time; survival was estimated using Kaplan-Meier curves. 56.2% of patients were male, 82.2% white, 33.8% had 4 to 7 years of study, 49.2% were married, 98.5% had sexual transmission, and 89.0% were heterosexuals. During the study period, 24.4% had hypertension, 18.2% changed cholesterol, 39.7% low HDL, 51.3% high triglycerides and 33.3% hyperglycemia. Treatment regimens with nucleotide reverse transcriptase inhibitors associated with protease inhibitors, and the association of different classes of antiretrovirals have been associated with greater lipid changes. Higher metabolic changes were observed in patients with longer treatment time. It is concluded that preventive measures, as well as early treatment, can contribute to minimize the risks of developing cardiovascular diseases.
BACKGROUND: Integrated cardiovascular disease (CVD) and HIV (CVD-HIV) care interventions are being adopted to tackle the growing burden of noncommunicable diseases (NCDs) in low- and middle-income countries (LMICs) but there is a paucity of studies on the feasibility of these interventions in LMICs. This scoping review aims to present evidence of the feasibility of integrated CVD-HIV care in LMICs, and the alignment of feasibility reporting in LMICs with the existing implementation science methodology. METHODS: A systematic search of published articles including systematic and narrative reviews that reported on integrated CVD-HIV care was conducted, using multiple search engines including PubMed/Medline, Global Health, and Web of Science. We examined the articles for evidence of feasibility reporting. Adopting the definition of Proctor and colleagues (2011), feasibility was defined as the extent to which an intervention was plausible in a given agency or setting. Evidence from the articles was synthesized by level of integration, the chronic care continuum, and stages of intervention development. RESULTS: Twenty studies, reported in 18 articles and 3 conferences abstracts, reported on feasibility of integrated CVD-HIV care interventions. These studies were conducted in Sub-Saharan Africa, Southeast Asia and South America. Four of these studies were conducted as feasibility studies. Eighty percent of the studies reported feasibility, using descriptive sentences that included words synonymous with feasibility terminologies in existing definition recommended by Proctor and colleagues. There was also an overlap in the use of descriptive phrases for feasibility amongst the selected studies. CONCLUSIONS: Integrating CVD and HIV care is feasible in LMICs, although methodology for reporting feasibility is inconsistent. Assessing feasibility based on settings and integration goals will provide a unique perspective of the implementation landscape in LMICs. There is a need for consistency in measures in order to accurately assess the feasibility of integrated CVD-HIV care in LMICs.
to banked HIV(+) human plasma samples to determine whether the glycome may include biomarkers that predict future HIV-associated cardiovascular events or CVD diagnoses. Using 324 patient samples, we identified a glycomic fingerprint that was predictive of future CVD events but independent of CD4 counts, diabetes, age, and birth sex, suggesting that the plasma glycome may serve as a biomarker for specific HIV-associated sequelae. Our findings constitute the discovery of novel glycan biomarkers that could classify patients with HIV with elevated risk for CVD and reveal the untapped prognostic potential of the plasma glycome in human disease.-Oswald, D. M., Sim, E. S., Baker, C., Farhan, O., Debanne, S. M., Morris, N. J., Rodriguez, B. G., Jones, M. B., Cobb, B. A. Plasma glycomics predict cardiovascular disease in patients with ART-controlled HIV infections.


Patients with HIV infection have a higher cardiovascular risk than the general population. The identification of patients with high CVR, the implementation of preventive measures and the control of modifiable risk factors, especially in patients on antiretroviral therapy should be part of the management of HIV infection. This document updates the recommendations published in 2014, mainly regarding lipid, glucose, arterial hypertension alterations and cardiovascular risk (CVR). The objective of metabolic monitoring is A1C ≤7%, similar to that of non-infected population, individualising by age, life expectancy, comorbidities, hypoglycaemia risk and costs. Cardiovascular risk should be calculated in all HIV patients with a risk calculator available for clinical use, even though we recommend the use of REGICOR tables as we are treating the Spanish population. Proper measurement of blood pressure should be a routine practice in the care of patients with HIV infection. The aim of this document is to provide tools for the diagnosis and appropriate treatment of the main metabolic alterations to serve as a reference to professionals who care for people with HIV infection.


INTRODUCTION: In Sub-Saharan Africa, the rising rates of cerebrovascular and cardiovascular diseases (CBD/CVD) are intersecting with an ageing HIV-infected population. The widespread use of antiretroviral therapy (ART) may confer an additive risk and may not completely suppress the risk associated with HIV infection. High-quality prospective studies are needed to determine if HIV-infected patients in Africa are at increased risk of CBD/CVD and to identify factors associated with this risk. This study will test the hypothesis that immune activation and dysfunction, driven by HIV and reactivation of latent herpesvirus infections, lead to increased CBD/CVD risk in Malawian adults aged >/=35 years. METHODS AND ANALYSIS: We will conduct a single-centre, 36-month, prospective cohort study in 800 HIV-infected patients initiating ART and 190 HIV-uninfected controls in Blantyre, Malawi. Patients and controls will be recruited from government ART clinics and the community, respectively, and will be frequency-matched by 5-year age band and sex. At baseline and follow-up visits, we will measure carotid intima-media thickness and pulse wave velocity as surrogate markers of vasculopathy, and will be used to estimate CBD/CVD risk. Our primary exposures of interest are cytomegalovirus and varicella zoster reactivation, changes in HIV plasma viral load, and markers of systemic inflammation and endothelial function. Multivariable regression models will be developed to assess the study’s primary hypothesis. The occurrence of clinical CBD/CVD will be assessed as secondary study endpoints. ETHICS AND DISSEMINATION: The University of Malawi College of Medicine and Liverpool School of Tropical Medicine research ethics committees approved this work. Our goal is to understand the pathogenesis of CBD/CVD among HIV cohorts on ART, in Sub-Saharan Africa, and provide data to inform future interventional clinical trials. This study runs between May 2017 and August 2020. Results of the main trial will be submitted for publication in a peer-reviewed journal. TRIAL REGISTRATION NUMBER: ISRCTN42862937.
Evidence suggests association of red blood cell distribution width (RDW) with cardiovascular diseases (CVDs). On the contrary, we underline that the sole RDW values cannot represent a valid CVD biomarker. High RDW values are expression of biological effects of a lot of both endogenous and exogenous factors (i.e., age, sex, genetic background, inflammation, hormones, drugs, diet, exercise, hematological analyzers, and ranges of values), modulating the biology and physiology of erythrocytes. Thus, the singular monitoring of RDW cannot be used to predict cardiovascular disorders. Accordingly, we have reviewed the evidence for potential relationship of RDW values with alterations in the cardiovascular system (i.e., regenerative capacity, endothelial turnover, and senescence of cardiovascular cells), associated with vascular aging and disease. In addition, we highlight the inevitable impact of biases in clinical application of RDW related to CVDs. Based on our thorough review of literature, we suggest a combined evaluation of RDW with other emerging biomarkers related to vascular aging and the diagnosis and prognosis of CVDs, including telomere.
length of leukocytes, circulating nucleated red blood cells (nRBCs) and endothelial progenitor cells (EPCs) in future large scale studies.


OBJECTIVES: As HIV-positive people age, diagnosis and management of comorbidities associated with ageing are of increasing concern. In this study, we aimed to compare the self-reported prevalences of heart disease, stroke, thrombosis and diabetes in older Australian HIV-positive and HIV-negative gay and bisexual men (GBM). METHODS: We analysed data from the Australian Positive & Peers Longevity Evaluation Study (APPLES), a study of a prospectively recruited cross-sectional sample of 228 (51.1%) HIV-positive and 218 (48.9%) HIV-negative GBM, aged >/= 55 years. Regression methods were used to assess the association of HIV status with self-reported comorbidities. RESULTS: Of 446 patients, 389 [200 (51.4%) HIV-positive] reported their disease history. The reported prevalence of comorbidities was higher in the HIV-positive group than in the HIV-negative group: heart disease, 19.5 versus 12.2%; stroke, 7.5 versus 4.2%; thrombosis, 10.5 versus 4.2%; and diabetes, 15.0 versus 9.0%, respectively. In adjusted analyses, HIV-positive GBM had significantly increased odds of reporting heart disease [adjusted odds ratio (aOR) 1.99; P = 0.03] and thrombosis (aOR 2.87; P = 0.01). In our analysis, HIV status was not significantly associated with either age at diagnosis of heart disease (median 53 years for HIV-positive GBM versus 55 years for HIV-negative GBM; P = 0.64) or 5-year cardiovascular disease (CVD) risk estimated using the Framingham risk score. CONCLUSIONS: HIV-positive GBM more commonly reported heart disease and thrombosis compared with their HIV-negative peers. These results further highlight the need to understand the impact of HIV on age-related comorbidities in GBM, to guide optimal screening and treatment strategies to reduce the risk of these comorbidities among the HIV-positive population.


AIMS: B-type natriuretic peptide (BNP) has been suggested to improve risk prediction of cardiovascular (CV) events and mortality. We aimed to evaluate the value of BNP to predict the composite primary endpoint of CV events and mortality alongside traditional and HIV specific risk factors in a HIV-infected population. METHODS: In this prospective multicenter HIV-HEART study we followed 808 HIV-positive subjects in the German Ruhr area for a median follow up of 120 (IQR:113-129) months since 2004. Association of BNP with the composite primary endpoint was assessed using Cox regression adjusting for traditional cardiovascular and HIV specific risk factors. RESULTS: At baseline, median BNP was 10.3 (IQR 5.4-18.9) pg/ml. The composite endpoint occurred in 158 (19.6%) patients. Subjects with high BNP levels showed significantly increased frequencies of CV events and death (22% for BNP <5pg/ml; 30% for BNP >5 up to <20pg/ml, 38% for BNP >20 up to <35pg/ml, 59% for BNP >35 up to <100pg/ml and 86% for BNP >100pg/ml; p-value<0.01). In the fully adjusted model that included traditional CV risks as well as HIV specific factors, after a log2 transformation, doubling of BNP was significantly associated with increased risk for the composite endpoint (HR:1.16 (95%CI 1.01-1.33); p=0.031). Comparing BNP of <5pg/ml to BNP >100pg/ml, HR in the fully adjusted model was 3.25 (95%CI 1.50-7.08; p<0.001). CONCLUSIONS: Increased BNP is associated with significant excess of incident CV events and mortality in HIV-infected patients. BNP is a valuable marker to improve the prediction of CV events and mortality.


Antiretroviral therapy (ART) has been pivotal in prolonging the lifespan of people living with HIV (PLWH). However, this also simultaneously increases their risk of cardiovascular disease (CVD) either related to ART, aging, hypertension, immunosenescence, inflammation, immune activation, or other comorbidities. Although the use of risk markers has greatly enhanced the field of cardiovascular (CV) medicine and improved the prognosis and early diagnosis in the general population, this strategy has not been clearly elucidated in PLWH. Developing accurate risk algorithms for PLWH requires an innate understanding of mechanistic factors influencing their risks. Early identification of CV risk will significantly enhance the prospects of PLWH living longer and relatively healthily. Herein, we discuss the use of multimodality noninvasive CV imaging as robust markers for ameliorating CV risk. The ability
to prognosticate CV risk and hence prevent CV events in PLWH would represent an important advance in CV medicine, allowing precise detection and early institution of preventative strategies. Using novel CV imaging modalities and strategies would have a positive impact on precision medicine in this patient cohort.


BACKGROUND: HIV-positive patients are twice as likely than the general population to have a heart attack and are four times at greater risk of sudden death. In addition to the increased risk, these individuals present with cardiovascular events on average approximately 10 years earlier than the general population. OBJECTIVE: To compare Framingham and reduced DAD (Data Collection on Adverse Effects of Anti-HIV Drugs Cohort) scores for cardiovascular risk assessment in HIV-positive patients and potential impact on clinical decision after evaluation of subclinical carotid atherosclerosis. METHODS: Seventy-one HIV-positive patients with no history of cardiovascular disease were clinically evaluated, stratified by the Framingham 2008 and reduced DAD scores and submitted to subclinical carotid atherosclerosis evaluation. Agreement between scores was assessed by Kappa index and p < 0.05 was considered statistically significant. RESULTS: mean age was 47.2 and 53.5% among males. The rate of subclinical atherosclerosis was 39.4%. Agreement between scores was 49% with Kappa of 0.735 in high-risk patients. There was no significant difference between scores by ROC curve discrimination analysis. Among patients with intermediate risk and Framingham and reduced DAD scores, 62.5% and 30.8% had carotid atherosclerosis, respectively. CONCLUSION: The present study showed a correlation between the scores and medium-intimal thickening, besides a high correlation between patients classified as high risk by the Framingham 2008 and reduced DAD scores. The high prevalence of carotid atherosclerosis in intermediate risk patients suggests that most of them could be reclassified as high risk.


: Heightened systemic inflammation contributes to cardiovascular (CVD) events in people living with HIV (PLWH), although not all PLWH develop CVD, thus suggesting a genetic modifying role. We examined GCH1 polymorphisms, which have been associated with reduced endothelial function in European populations with CVD and increased inflammation, in a racially diverse cohort of US PLWH initiating antiretroviral therapy (ART). GCH1 polymorphisms differed by race and were not associated with flow-mediated dilation or carotid intima-media thickness before or after 48 weeks of ART.


Although rollout of combined antiretroviral treatment (cART) has blunted human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS) onset, there is increased development of cardiovascular diseases (CVDs) in HIV-infected individuals. While most HIV-infected individuals on cART achieve viral suppression, this may not necessarily result in complete immunological recovery. This study therefore evaluated T-cell-mediated changes and coagulation markers in HIV-positive individuals to ascertain their potential to increase CVD risk. Eighty participants were recruited (Worcester, South Africa), and fasted blood was collected to evaluate: 1) immune activation (CD38 expression on CD4(+) and CD8(+) T cells) and thrombus formation [tissue factor (CD142)] on CD4(+) and CD8(+) T cells; 2) monocyte subpopulations (nonclassical, intermediate, and classical); and 3) classical regulatory T (Treg) cells with activation markers [glycoprotein A repetitions predominant (GARP) and special AT-rich sequence-binding protein 1 (SATB-1)]. High- and low-density lipoprotein subclasses (Lipoprint) were also determined. This study revealed four key findings for HIV-positive patients: 1) coexpression of the CD142 coagulation marker together with immune activation on both CD4(+) and CD8(+) T cells during chronic infection stages; 2) Treg cell activation and upregulated GARP and SATB-1 contributing to Treg dysfunction in chronic HIV; 3) proatherogenic monocyte subset expansion with significant correlation between T-cell activation and macrophage activation (marker: CD163); and 4) significant correlation between immune activation and lipid subclasses, revealing crucial changes that can be missed by traditional lipid marker assessments (LDL and HDL). These data also implicate lipopolysaccharide-binding protein as a crucial link between immune activation, lipid alterations, and increased CVD risk.

NEW & NOTEWORTHY With combined antiretroviral treatment rollout, HIV-AIDS patients are increasingly associated with
cardiovascular diseases onset. This study demonstrated the significant interplay between adaptive immune cell activation and monocyte/macrophage markers in especially HIV-positive individuals with virological failure and on second line treatment. Our data also show a unique link between immune activation and lipid subclass alterations, revealing important changes that can be missed by traditional lipid marker assessments (e.g., LDL and HDL).


BACKGROUND: Among people living with HIV, cardiovascular risk could be markedly reduced through lifestyle improvement. However, to date behavioral cardiovascular risk factors (other than tobacco smoking) have been poorly investigated among them. Additionally, although co-occurrence of risk factors might amplify the deleterious effects of each risk factor, little is known about such risk factors clustering in this population. We aimed to examine levels, determinants and clustering of the major behavioral cardiovascular risk factors in the French HIV-infected population, in order to better target individuals with high risk profiles. METHODS: The ANRS-Vespa2 survey was conducted among a national representative sample of HIV-infected people followed at hospital in France in 2011. Frequency and co-occurrence of tobacco smoking, alcohol intake, low physical activity and obesity were assessed in the HIV-infected population, overall and in each of the distinctive socio-epidemiological group composing it (men who have sex with men, intravenous drug users, sub-Saharan African migrants, non-African heterosexuals). Individual characteristics associated with each of these indicators were investigated using multivariable Poisson regression models. RESULTS: The 2537 participants (median time since HIV-diagnosis: 12 years) included 39.4% men who have sex with men, 11.0% intravenous drug users, 23.5% sub-Saharan African migrants and 26.1% non-African heterosexuals. Overall, 29.4% were regular smokers, 13.8% were heavy drinkers, 14.8% lacked physical activity and 8.6% were obese. Half of the participants reported at least one risk factor with co-occurrence observed in 13.8% of the sample. However, those figures varied markedly across the groups. Main risk factors profiles were 1) regular smoking, heavy drinking, low physical activity alone or combined among intravenous drug users and men who have sex with men, 2) obesity and low physical activity usually alone among sub-Saharan African migrant women, 3) occurrence of the four risk factors separately or sometimes combined among sub-Saharan African migrant men and non-African heterosexuals. These risk factors were correlated with lower socioeconomic status and poorer health status. CONCLUSIONS: Those findings highlight the need to focus on all behavioral cardiovascular risk factors and co-occurrence (and not only on tobacco smoking) in HIV-infected people and to implement preventive approach tailored to the specific needs of the different socio-epidemiological groups.


BACKGROUND: People living with HIV (PLWH) experience a higher cardiovascular disease (CVD) risk. Yet, traditional algorithms are often used to estimate CVD risk. We evaluated the performance of 4 commonly used algorithms. SETTING: The Netherlands. METHODS: We used data from 16,070 PLWH aged >/=18 years, who were in care between 2000 and 2016, had no pre-existing CVD, had initiated first combination antiretroviral therapy >1 year ago, and had available data on CD4 count, smoking status, cholesterol, and blood pressure. Predictive performance of 4 algorithms [Data Collection on Adverse Effects of Anti-HIV Drugs Study
Systematic COronary Risk Evaluation adjusted for national data (SCORE-NL); Framingham CVD Risk Score (FRS); and American College of Cardiology and American Heart Association Pooled Cohort Equations (PCE) was evaluated using a Kaplan-Meier approach. Model discrimination was assessed using Harrell's C-statistic. Calibration was assessed using observed-versus-expected ratios, calibration plots, and Greenwood-Nam-D'Agostino goodness-of-fit tests. RESULTS: All algorithms showed acceptable discrimination (Harrell's C-statistic 0.73-0.79). On a population level, D:A:D, SCORE-NL, and PCE slightly underestimated, whereas FRS slightly overestimated CVD risk (observed-versus-expected ratios 1.35, 1.38, 1.14, and 0.92, respectively). D:A:D, FRS, and PCE best fitted our data but still yielded a statistically significant lack of fit (Greenwood-Nam-D'Agostino chi ranged from 24.57 to 34.22, P < 0.05). Underestimation of CVD risk was particularly observed in low-predicted CVD risk groups. CONCLUSIONS: All algorithms perform reasonably well in PLWH, with SCORE-NL performing poorest. Prediction algorithms are useful for clinical practice, but clinicians should be aware of their limitations (ie, lack of fit and slight underestimation of CVD risk in low-risk groups).


OBJECTIVE: Our objective was to examine the effect of a lifestyle diet and exercise intervention on cardiorespiratory fitness (CFR) and to examine predictors of change in CFR. DESIGN: People living with HIV (PLHIV) are at increased risk for cardiovascular disease. CFR is a better predictor of cardiovascular disease-related mortality than established risk factors yet very little is known about CFR in PLHIV. METHODS: One-hundred and seven virally suppressed PLHIV were randomized to a group-based intervention to improve lifestyle behaviors or a control condition. All PLHIV maximal cardiopulmonary stress test to determine VO2 peak, VO2 at anaerobic threshold, and ventilatory efficiency/VCO2, at baseline and 6 months later. Participants wore an accelerometer to measure physical activity, completed waist-hip circumference measures, and had a fasting lipid profile, IL-6, and high sensitivity C-reactive protein analyzed. Generalized estimating equations were used to examine the effect of the intervention on CFR and predictors of change in CFR. RESULTS: Participants were approximately 53 years old, 65% male (n = 70), and 86% African-American (n = 93). There was no effect of the intervention on markers of CFR over time (P > 0.05). After controlling for age, sex, waist-hip-ratio, the inflammatory biomarker IL-6 was inversely associated with a decline in both VO2 peak (P = 0.03) and VO2 at anaerobic threshold (P = 0.03). In addition, participants who walked an additional 10 000 steps per day had a 2.69 ml/kg per min higher VO2 peak (P = 0.02). CONCLUSION: Despite HIV viral suppression, PLHIV had remarkably poor CFR and inflammation was associated with a clinically adverse CFR profile. However, increased physical activity was associated with improved CFR.


We recently reported that a 12-week internet weight loss program produced greater weight losses than education control in overweight/obese people living with HIV (PLWH) (4.4 kg vs 1.0 kg; p < 0.05). This manuscript presents the changes in diet, physical activity, behavioral strategies, and cardio-metabolic parameters. Participants (N = 40; 21 males, 19 females) were randomly assigned to an internet behavioral weight loss (WT LOSS) program or internet education control (CONTROL) and assessed before and after the 12-week program. Compared to CONTROL, the WT LOSS arm reported greater use of behavioral strategies, decreases in intake (- 681 kcal/day; p = 0.002), modest, non-significant, increases in daily steps (+ 1079 steps/day) and improvements on the Healthy Eating Index. There were no significant effects on cardio-metabolic parameters. The study suggests that a behavioral weight loss program increases the use of behavioral strategies and modestly improves dietary intake and physical activity in PLWH. Further studies with larger sample sizes and longer follow-up are needed.Clinical Trials Registration: NCT02421406.

People living with HIV (PLWH) have limited exercise capacity because of anemia, neuromuscular disorders, and pulmonary limitations. We used a meta-analysis to examine the effect of aerobic and resistance exercise alone and in combination on cardiovascular parameters. Subgroup meta-analyses were conducted and long-term effects of exercise were investigated. A systematic literature search was conducted up to July/August 2017. The Physiotherapy Evidence Database-scale was used to rate quality and assess the risk of bias on the papers. Standardized mean differences (SMDs) were calculated to assess the effect of exercise. Posttreatment comparison between the exercise and control groups revealed moderate and large effect sizes in favor of the intervention group for VO2max (SMD = 0.66, p < .0001) and the 6-minute walk test (SMD = 1.11, p = .0001). Exercise had a positive effect on cardiovascular parameters in PLWH. Exercise can be a prevention factor for PLWH dealing with multiple comorbidities.

**DEPRESSION/ANXIETY/MENTAL HEALTH**


BACKGROUND: HIV, which causes AIDS, infects the immune system cells, by destroying or damaging the function of the CD4. PLWHA will have twice the risk of experiencing mental health disorders such as depression and anxiety compared with the general population, thereby suppressing immune function, decreasing their quality of life, decreasing the level of adherence to treatment, and contributing significantly to the occurrence of premature death. AIM: To determine the correlation Anxiety and Depression symptoms and CD4 levels in PLWHA who are undergoing Anti-Retroviral treatment at the HIV/AIDS. METHODS: The study was a cross-sectional study, which assesses the correlation between Hospital Anxiety and Depression Scale scores (HADS) and CD4 levels in PLWHA who are receiving ARV in the HIV/AIDS Special Services Polyclinic Medan Haji general hospital. RESULTS: It was found that the average HADS-A score, PLWHA was 15.286 and the SD +/- 2.244. This shows that PLWHA is in moderate to severe anxiety and moderate to severe depression. The mean CD4 level of people with HIV/AIDS/PLWHA was 288.171 and SD +/- 88.955. According to WHO criteria, regarding the classification of HIV immunodeficiency in adults, are classified as moderate immunodeficiency. There was a significant correlation between the HADS-A score and CD4 level with a correlation value of r = -0.592 indicating a negative correlation with a moderate correlation strength, and the correlation between HADS-D score and CD4 level. The strength of the relationship between HADS-D score and CD4 level is r = -0.650, shows a negative correlation with strong correlation strength. CONCLUSION: from this study, it was found that there is a relationship between depression and anxiety symptom and CD4 level.


OBJECTIVE: This study aimed at investigating the relationship between self-efficacy, depression, and adherence to antiretroviral therapy (ART) in Indonesian women with HIV. METHOD: This study employed a cross-sectional research design. The participants were 120 women with HIV aged 18-60 years on self-administered ART regimens. RESULTS: This study shows a significant relationship between self-efficacy and adherence to ART (p-value=0.004; OR 2.330). Women are living with HIV with high self-efficacy adherence to following their ART 2.33 times more often than those with low self-efficacy. It is shown that a significant relationship exists between depression and adherence to ART (p-value=0.001; OR 3.647). Depressed HIV women took ART medication 3.64 times less often than who did not have depression. CONCLUSION: It is recommended to increase the level adherence rate by improving self-efficacy and reduce depression.

Diagnosing symptoms of psychological distress can be challenging in migrants living with HIV (MLWH) living in Western Europe. We evaluated the Hospital Anxiety and Depression Scale (HADS) as a screening tool for psychological distress. Additionally, the association between psychological distress and adherence to combination Antiretroviral Therapy (cART) was determined. Socio-demographic and clinical characteristics, psychosocial variables, and self-reported adherence to cART data were collected. 306/352 participants completed the HADS. A HADS+ (>15, at risk for psychological distress) was found in 106/306. The Composite International Diagnostic Interview (CIDI) was completed by 60/106. The HADS was repeated in 58 participants as the time between the first HADS and the CIDI was more than three months. In 21/37 participants with a HADS+ (57%) within three months before the CIDI a diagnosis of depression or anxiety disorder based on the CIDI was found. Participants with a HADS+ were more likely to be non-adherent (71.3% vs. 43.6%). In a large group of 

OBJECTIVES: Center of Epidemiologic Studies-Depression Scale (CES-D) provides a snapshot of symptom severity at a single point in time. However, the best way of using CES-D to classify long-term depression is unclear. METHOD: To identify long-term depression among HIV-infected and HIV-uninfected 50+ year-old men who have sex with men (MSM) with at least 5 years of follow-up, we compared sensitivities and specificities of CES-D-based metrics (baseline CES-D; four consecutive CES-Ds; group-based trajectory models) thresholded at 16 and 20 to a clinician's evaluation of depression phenotype based on all available data including CES-D history, depression treatment history, drug use history, HIV disease factors, and demographic characteristics. RESULTS: A positive depressive phenotype prevalence was common among HIV-infected (prevalence = 33.1%) and HIV-uninfected MSM (prevalence = 23.2%). Compared to the depressive phenotype, trajectory models of CES-D >/= 20 provided highest specificities among HIV-infected (specificity = 99.9%, 95% CI:99.4%-100.0%) and HIV-uninfected MSM (specificity = 99.0%, 95% CI:97.4%-99.7%). Highest sensitivities resulted from classifying baseline CES-D >/= 16 among HIV-infected MSM (sensitivity = 75.0%, 95% CI:67.3%-81.7%) and four consecutive CES-Ds >/= 16 among HIV-uninfected MSM (sensitivity = 81.0%, 95% CI:73.7%-87.0%). CONCLUSION: Choice of method should vary, depending on importance of false positive or negative rate for long-term depression in HIV-infected and HIV-uninfected MSM.


HIV/AIDS not only affects the patients, but also their entire family. This study aimed to assess the impacts of the patients' and their spouses' anxiety and depression on their quality of life (QoL) at the dyadic level. A total of 120 serodiscordant husband-wife dyads from the voluntary counselling and testing center in Shiraz, Iran, were involved in this study from February to June 2015. The WHOQOL-BREF, CESD-10, and Beck Anxiety Inventory instruments were used, respectively, to assess the QoL, depression, and anxiety scores of the participants. The actor-partner interdependence model (APIM) was used to estimate the effects of depression and anxiety of both the people living with HIV/AIDS (PLWHA) and their spouses on their own QoL (actor effect) as well as their partners' (partner effect). The APIM analysis revealed that both PLWHAs' and their spouses' depression and anxiety showed actor effects on their own QoL. Furthermore, spouses' depression showed a significant partner effect on PLWHAs' QoL and PLWHAs' anxiety had significant partner effects on spouses' QoL. Accordingly, this data can be used to develop targeted interventions aimed at guidance and assistance of PLWHAs and their spouses to find coping strategies that improve their own QoL as well as their partners'.


Positive affect has unique beneficial effects on psychological and physical health, independent of the effects of negative affect. Interventions that explicitly target positive affect show promise for improving health outcomes in a number of chronic illnesses. In this article, we present pilot data on the acceptability and feasibility of an online intervention to increase positive affect in those living with comorbid human immunodeficiency virus (HIV) and depression. The intervention was rated both acceptable and feasible by participants. Six of nine participants completed the intervention and the subsequent follow-up assessment and a post-intervention phone call. We also present outcomes of planned comparisons of intervention effects on emotion, which indicate that positive affect increased significantly in the intervention group. Based upon results of the current study, future research should continue the development of positive affect interventions for people living with comorbid HIV and depression.


Diagnosing symptoms of psychological distress can be challenging in migrants living with HIV (MLWH) living in Western Europe. We evaluated the Hospital Anxiety and Depression Scale (HADS) as a screening tool for psychological distress. Additionally, the association between psychological distress and adherence to combination Antiretroviral Therapy (cART) was determined. Socio-demographic and clinical characteristics, psychosocial variables, and self-reported adherence to cART data were collected. 306/352 participants completed the HADS. A HADS+ (>15, at risk for psychological distress) was found in 106/306. The Composite International Diagnostic Interview (CIDI) was completed by 60/106. The HADS was repeated in 58 participants as the time between the first HADS and the CIDI was more than three months. In 21/37 participants with a HADS+ (57%) within three months before the CIDI a diagnosis of depression or anxiety disorder based on the CIDI was found. Participants with a HADS+ were more likely to be non-adherent (71.3% vs. 43.6%). In a large group of
Depression is common among women with HIV and untreated depression can result in poor quality of life and worsen HIV outcomes. Women with HIV who are dually enrolled in Medicaid and Medicare faced a potential disruption in medication access when Medicare Part D was implemented in 2006. The goal of this study was to estimate the effects of Medicare Part D implementation on antidepressant use, depressive symptoms, and hospitalization in Medicaid-Medicare dual eligible women with HIV. This study used 2003-2008 data from the Women's Interagency HIV Study. The effects of Medicare Part D were estimated using a difference-in-differences approach, adjusting for temporal trends using a matched control group of Medicaid-only enrollees. Before Medicare Part D implementation, dual eligibles differed from Medicaid-only enrollees in antidepressant use and hospitalization, despite having identical prescription drug coverage through Medicaid. For dual enrollees, the transition to Medicare Part D was not associated with changes in antidepressant use, depressive symptoms, or hospitalization. We did not find disruptive effects on antidepressant use and related outcomes among dual eligibles in this study. Stable antidepressant use may be due to better access to medical care for dual eligibles through Medicare both before and after Medicare Part D implementation, which may have eclipsed any effects of the transition. It may also signal that classification of antidepressants as a protected drug class under Medicare Part D was effective in preventing psychiatric medication disruption.

OBJECTIVE: The burden of HIV infection is higher in Africa where 70% of people living with HIV (PLHIV) resides. Since depression can negatively impact the course of HIV infection, it is therefore important to accurately estimate its burden among PLHIV in the continent. METHODS: We searched multiple databases to identify articles published between January 2000 and February 2018, reporting the prevalence of (major) depressive disorders in PLHIV residing in Africa. We used a random-effects meta-analysis model to pool studies. RESULTS: Overall, 118 studies (60,476 participants, 19 countries) were included. There was no publication bias. The overall prevalence estimates of depressive disorders and probable major depressive disorders were 36.5% (95% CI 32.3-41.0; 101 studies) and 14.9% (12.1-17.9; 55 studies) respectively. The heterogeneity of the overall prevalence of depressive disorders was significantly explained by screening tool used, period (higher prevalence in recent studies) and distribution in sub-regions. The study setting, site, CD4 cell counts, age, sex, proportion of people with undetectable viral load were not sources of heterogeneity. CONCLUSIONS: This study shows that more than one third of PLHIV face depressive disorders and half of them having major form, with heterogeneous distribution in the continent. As such, depressive disorders deserve more attention from HIV healthcare providers for improved detection and overall proper management.


Sustained adherence to antiretroviral therapy (ART) is critical in the prevention of drug resistance, disease progression, and death. We aimed to assess the level of ART adherence among 112 people living with HIV/AIDS (PLWHA) and to determine associated factors with that. The socioeconomic aspects were evaluated by medical records; the adherence, depression, and coping by specific questionnaires. Although most patients have undetectable viral load (79%) and CD4(+) T count >500 cells/mm(3) (65%), two-third (66%) of them exhibited a lower adherence, which was directly associated with some signs of depression (p = .006) presented by 65% of them. Some risk factors to presence of depression were female gender (p = .008) and low income (p = .013). In addition, most participants who reported tobacco (33%) and alcohol (29%) consumption had a low or intermediate adherence score. Among the coping strategies, self-control (p = .029), social support (p = .006), problem solving (p = .013), and positive reappraisal (p = .049) led to an improvement in adherence.


This study evaluated the relationships between depression trajectories, depression diagnosis and sexual risk behaviors in the US Military HIV Natural History Study. Risk behavior survey data, a coded diagnosis of depression, available Center for Epidemiological Studies Depression measures, and self-reported depressive symptoms (n = 662) were utilized. Latent class analysis created 3 classes of depression trajectories, namely, low depression (LD, n = 378), recent-onset depression (ROD, n = 170), and high depression (HD, n = 114) trajectories. Overall, participants with clinically diagnosed depression were less likely to report often using condoms with new sexual partners in the past 3 months than those who have never been diagnosed with depression (OR 0.15, 95% CI 0.49-2.53). Participants with ROD (OR 0.52, 95% CI 0.28-0.97) and HD (OR 0.48, 95% CI 0.24-0.96) trajectories were less likely to report often using condoms with new sexual partners in the past 3 months than those with LD trajectories. Moreover, those with either ROD (OR 2.13, 95% CI 1.19-3.80) or HD (OR 2.74, 95% CI 1.43-5.24) trajectories were more likely to have had sex with >/=2 new sexual partners in the last 3 months than those with LD trajectories. Continued efforts targeting HIV-infected persons with mental health disorders are warranted to reduce sexual risk behaviors.


Public stigma surrounding HIV is related to heightened emotional distress, poor psychological functioning, and reduced subjective well-being in people living with HIV. For men who have sex with men (MSM) living with HIV, they may also face stigmatizing attitudes within the gay community, which create an additional burden to their health. Grounded in the psychological mediation framework, the present study examined the underlying psychological processes through which HIV stigma from the public and within the gay community influences the mental and social health of MSM living with HIV. Findings from 206 Chinese MSM living with HIV in Hong Kong indicated that negative self-concept, maladaptive coping, and peer isolation mediated the effect of HIV stigma on mental and social health. The study revealed the cognitive, regulatory, and interpersonal processes underlying HIV stigma and health. Feeling intense HIV stigma from the public and within the gay community may render MSM living with HIV more vulnerable to negative self-concept, maladaptive coping, and peer isolation, which contribute to poor mental and social health. To combat prejudice and discrimination against people living HIV, stigma reduction initiatives should be implemented not only in the public, but also in the gay community. Cognitive-behavioral interventions can also be used to restructure negative self-beliefs and build adaptive emotion regulation skills, which can improve stigma-related health outcomes among MSM living with HIV.


Entering HIV care is a vulnerable time for newly diagnosed individuals often exacerbating psychosocial difficulties, which may contribute to poor health-related quality of life (HRQOL) ultimately influencing health behaviors including ART adherence, the driver of viral load suppression. Understanding HRQOL in people newly entering HIV care is critical and has the potential to guide practice and research. This exploratory cross-sectional study examined demographic, clinical, and psychosocial factors associated with limitations in four specific domains of HRQOL among persons initially entering outpatient HIV care at four sites in the United States (n = 335). In the unadjusted analysis, female gender was significantly associated with sub-optimal HRQOL with women having increased odds of reporting HRQOL challenges with pain, mood, mobility, and usual activity when compared to men. The adjusted models demonstrated attenuation of parameter

BACKGROUND: Depressive symptoms are well documented among people living with HIV and some evidence suggests that youth living with HIV (YLWH) are more affected than their adult counterparts. Therefore, screening for depression is imperative among YLWH to ensure optimal health. The objective of this study is to compare the utility of the Center for Epidemiological Studies-Depression (CES-D) and the Patient Health Questionnaire (PHQ) as depression screeners in an integrated care setting serving YLWH in the southeastern United States. METHODS: As a part of standard care, the CES-D and the PHQ were administered to YLWH. A Retrospective review of patient records was conducted. Using receiver operating characteristic (ROC) curve analysis and reports from mental health providers, researchers compared the utility of the screeners. RESULTS: The sample consisted of 121 cases from 2017. Youth ranged in age from 12-25 (M=20.68, SD=2.75). Most were Black/African American (59.5%) males (56.2%) who acquired HIV behaviorally (51.2%). Sexual orientation was nearly evenly split between heterosexual (37.2%) and homosexual (34.7%). The CES-D demonstrated higher specificity and sensitivity for identifying clinical depression, yet, this was not significantly different from the PHQ, p=.09. LIMITATIONS: Generalizability of findings may be limited as the study sample included youth from a single integrated care setting. CONCLUSION: Both the PHQ and the CES-D demonstrate utility for depression screening among YLWH. However, the PHQ may be preferable for use within a clinical setting.


Background: The prevalence and risk of concurrent unhealthy drinking, cigarette use, and depression on mortality among persons living with HIV (PLWH) is unclear. This study applied a syndemic framework to assess whether these co-occurring conditions increase mortality and whether such risk is differential by HIV status. Methods: We evaluated 6721 participants (49.8% PLWH) without baseline cancer from the Veterans Aging Cohort Study, a prospective, observational cohort of PLWH and matched uninfected veterans enrolled in 2002 and followed through 2015. Multivariable Cox proportional hazards regressions estimated risk of a syndemic score (number of conditions: that is, unhealthy drinking, cigarette use, and depressive symptoms) on all-cause mortality by HIV status, adjusting for demographic, health status, and HIV-related factors. Results: Fewer than 10% of participants had no conditions; 25.6% had 1, 51.0% had 2, and 15.0% had all 3. There were 1747 deaths (61.9% PLWH) during the median follow-up (11.4 years). Overall, age-adjusted mortality rates/1000 person-years increased with a greater number of conditions: (0: 12.0; 1: 21.2; 2: 30.4; 3: 36.3). For 3 conditions, the adjusted hazard ratio of mortality was 36% higher among PLWH compared with uninfected participants with 3 conditions (95% confidence interval, 1.07-1.72; P = .013), after adjusting for health status and HIV disease progression. Among PLWH and uninfected participants, mortality risk persisted after adjustment for time-updated health status. Conclusions: Syndemic unhealthy drinking, cigarette use, and depression are common and are associated with higher mortality risk among PLWH, underscoring the need to screen for and treat these conditions.


Objective: HIV stigma undermines health and well-being of people living with HIV (PLWH). Conceptual work on stigma mechanisms suggests that experiences of stigma or discrimination increase internalised stigma. However, not all PLWH may internalise the HIV discrimination they experience. We aimed to investigate the role of stress associated with events of HIV-related discrimination on internalised HIV stigma, as well as the downstream effects on depressive symptoms and alcohol use severity. Design: 199 participants were recruited from an HIV clinic in the southeastern United States. Main study measures: HIV-related discrimination was assessed using items adapted from measures of enacted HIV stigma and discrimination. Participants rated perceived stress associated with each discrimination item. Internalised HIV stigma was assessed using the internalised stigma subscale of the HIV Stigma Mechanisms Scale. Depressive symptoms were assessed using the \[ \text{PHQ-9} \] depression screener. Data were analysed using multilevel regression.
BACKGROUND: The prevalence of depression spans age-groups, but it can be particularly destructive for older people with chronic illness. Among older Black women living with HIV (OBWLH), multiple social determinants have been associated with the prevalence and severity of depression. A greater understanding of the impact of the social determinants at the individual, interpersonal, and community levels is needed. AIMS: To explore social determinants of depression among OBWLH at the intrapersonal, interpersonal, and community levels. METHOD: Cross-sectional descriptive design. RESULTS: A total of 118 OBWLH were analyzed in the study. Depression was prevalent among the participants. Approximately 89.8% of the participants had moderate to severe depressive symptoms. Health status, exercise, and social support were significant predictors of depression in the sample. CONCLUSION: Social determinants at multiple levels play a significant role in the
This study presents a conceptual and quantitative approach to assess service linkages among people living with HIV (PLWH). We use network analytic techniques to document linkages among service providers based on client reports of service utilization. Data are provided by a cohort study of 1012 PLWH in New York City interviewed up to 8 times from 2002 to 2015. Participants in each interview reported service needs, services received, and location of services for primary care, from these findings.
behavior health, case management, and housing, food, or other social services. Each reported clinic or agency was linked to entries in a database of medical and social service providers, which included details on organizational characteristics. Based on connections indicated by clients' reported referrals, service co-location within a single agency, or service site part of a larger parent organization, we constructed networks of linkages operationally defining which service areas were linked with others. Case management and primary care were services most commonly linked with other services. The most common pairing was case management and housing services. Individuals with more linkages in their care networks, as measured by average number of connections per provider, were associated with greater odds of adherence to antiretroviral medication and suppressed viral load. Further, higher levels of service linkage were associated with reduced emergency department visits and hospital admission rates. This study offers an innovative approach to analyzing linkages and outcomes from the perspective of service users in terms of their care experiences and provides insights into patient self-management of what are often multiple medical and support service needs. Study limitations include the use of data from a single urban setting and gaps in service reports.


Background: Antiretroviral therapy has significantly reduced the prevalence of diseases and mortality rate caused by HIV; therefore, recognition of the factors affecting the antiretroviral therapy is of great importance. We aimed to investigate the relationship between antiretroviral medication adherence and CD4 with posttraumatic stress disorder (PTSD) and depression in patients with HIV. Methods: This was a descriptive, cross-sectional, quantitative, and correlational study. The statistical population included all of the patients with HIV in Shiraz, Fars Province, southwest of Iran in 2013, of whom 220 were selected from the Behavioral Diseases Consultation Center using the convenience sampling method. The measures included Mississippi Post Traumatic Stress Disorder Questionnaire, Beck-II Depression, and ACTG Adherence (ACTG). The results were analyzed using the Pearson correlation method and stepwise hierarchical multivariate regression. Results: Regression analysis showed that of two mediating variables (age & educational level), only age could predict 5% (P<0.001) and of two predictive variables (depression & PTSD) only PTSD could predict 53% (P<0.001) of medication adherence's variance. Moreover, of two mediating variables (age & disease duration), only age could predict 3% (P<0.004) and of two predictive variables (depression & PTSD) only PTSD could predict 4% (P<0.001) of CD4 variance. Conclusion: The posttraumatic stress disorder symptoms could predict the medication non-adherence and lower CD4 levels.


There is a need for a culturally adapted, evidence-based, psychotherapy treatment that is effective, acceptable, and feasible for integration into primary care in South Africa. This qualitative study used exit interviews to examine participants' experiences of an adapted cognitive-behavioural therapy treatment for adherence and depression, task-shifted and delivered by nurses in two peri-urban HIV clinics near Cape Town. Nine semi-structured exit interviews were conducted with isiXhosa-speaking females and analysed using thematic analysis. Overall, participants responded positively to the treatment, viewing it as acceptable and beneficial and as a catalyst to returning to normalcy. Results indicated that participants viewed the treatment as being effective in ameliorating their depressive symptoms and improving their adherence to ART. Additional benefits described included improvements in subjective wellbeing and social and occupational functioning. Several began or resumed employment, an important behavioural indicator of the treatment's capacity to facilitate positive change and cost saving. Recommendations to improve the treatment included using video material and educating others about depression. These findings have positive implications regarding the acceptability and cultural applicability of the treatment for use in South Africa.

BACKGROUND: The HIV/AIDS epidemic continues to threaten the health and wellbeing of millions in the United States and worldwide. Syndemic theory suggests that HIV/AIDS can cooccur with other afflictions. As close to 20% of US adults live with a mental health condition, it is critical to understand the correlation between HIV risk behaviors and mental health needs, as well as protective factors such as social support in intervening the association between mental distress and HIV risk behaviors. Furthermore, as past research has shown mixed results concerning the function of social support on HIV risks by gender, it is important to conduct a gender-specific analysis. METHODS: To assess the relationship between mental health needs, social support, and HIV risk behaviors, and to assess if social support can be a buffer, weakening the effect of mental health needs on HIV risk, in 2018, we analyzed representative, cross-sectional data from 2016 BRFSS collected from 33,705 individuals from four states in the United States, stratified by gender. Weighted logistic regression analyses, adjusted for age, race, marital status, education, and annual income, assessed the correlation between mental health needs, social support, and HIV risk behaviors. Furthermore, interaction analyses were performed to see if social support modifies the slope of mental health needs as a function of HIV risk behaviors. RESULTS: For both genders, the odds of participating in HIV risk behaviors increase with mental health needs and decrease with the level of social support. Furthermore, social support mitigates the association between mental health needs and HIV risk behavior involvement for males, as males receiving high level of social support have least odds of HIV risk behaviors relative to males receiving low level of social support. Notably, for females, social support does not serve as a buffer against HIV risk behaviors when their mental health needs increase. CONCLUSION: The study contributes to the knowledge base of HIV prevention and highlights the important role of mental health and social support against HIV risk behaviors when developing gender-specific prevention strategies.

Evidence suggests that HIV-related stigma is a contributing factor to mental health and substance use problems among people living with HIV (PLWH). Limited research, however, has examined the differential effects that multiple stigma constructs, specifically, anticipated, enacted, and internalized stigma may have on mental health and alcohol use disorders among PLWH. Furthermore, no studies have examined this relationship within the larger context of urban life stressors. The purpose of this study was to examine associations of an overall HIV-related stigma measure and four HIV stigma subscales on depression, anxiety, and hazardous drinking among a sample of 380 PLWH in New Orleans. Log-Poisson models with generalized estimating equations were used to estimate relative risks (RR) and 95% confidence intervals (CI). A test of interaction was used to determine presence of effect modification by urban life stressors. Overall, higher levels of HIV-stigma were associated with depressive symptoms (RR 1.67, 95% CI 1.25, 2.23), anxiety symptoms (RR 1.91, 95% CI 1.17, 3.12), and hazardous drinking (RR 1.45, 95% CI 1.02, 2.05). Internalized HIV-stigma (measured using the negative self-image subscale) was associated with all three outcomes and had the highest magnitude point estimates across the four stigma subscales. Urban life stressors, measured by the Urban Life Stressors Scale (ULSS), modified the association between HIV-related stigma and mental health and alcohol use disorders (P < 0.2), highlighting the importance for examining the larger urban environmental context. Findings from this study may inform interventions to reduce HIV-related stigma operating at the individual and structural level.

Few studies examine how depression and substance use interact to affect HIV control. In 14,380 persons with HIV (PWH), we used logistic regression and generalized estimating equations to evaluate how symptoms of depression interact with alcohol, cocaine, opioid, and methamphetamine use to affect subsequent retention in care, maintaining an active prescription for ART, and consistent virologic suppression. Among PWH with no or mild depressive symptoms, heavy alcohol use had no association with virologic suppression (OR 1.00 [0.95-1.06]); among those with moderate or severe symptoms, it was associated with reduced viral suppression (OR 0.80 [0.74-0.87]). We found no interactions with heavy alcohol use on retention in care or maintaining ART prescription or with other substances for any outcome. These results highlight the importance of treating moderate or severe depression in PWH, especially with comorbid heavy alcohol use, and support multifaceted interventions targeting alcohol use and depression.

Objectives: Collaborative care models may improve outcomes for both HIV and depression. The model includes routine screening and re-assessment of depressive symptoms as well as care coordination services delivered by an ancillary provider focused on mental health. We sought to explore patient experiences and attitudes about the services received through the collaborative care model, including measurement-based care using the Patient Health Questionnaire-9.

Methods: We conducted 17 qualitative interviews with patients in a collaborative care model implemented at an HIV primary care clinic in a safety-net hospital in the United States. Interviews were analyzed using Framework Analysis.

Results: Our findings illustrate the ways in which the collaborative care model for depression may be meaningful to patients in HIV care settings. Participants appreciated the support offered through the collaborative care model. Most participants perceived measurement-based care as useful to their providers, and an additional subset used the Patient Health Questionnaire-9 for their own self-management and awareness of depression. Over time, the collaborative care model appeared to motivate some patients to address depressive symptoms. Conclusion: The collaborative care model may be particularly helpful to patients in the way that it reinforces how depressive symptoms can be measured and managed. Furthermore, routine screening and re-measurement for depressive symptoms using the Patient Health Questionnaire-9 hold promise as an additional self-management tool to complement other clinical and supportive services.


BACKGROUND: Despite antiretroviral treatment (ART) being an efficacious treatment for HIV, essentially making it a chronic non-terminal illness, two related and frequent concerns for many people living with HIV/AIDS (PLWHA) continue to be HIV-related stigma and life stress. These two variables are frequently associated with depression, substance use, and poorer functional health. Studies to date have not fully examined the degree to which these constructs may be associated within one model, which could reveal a more nuanced understanding of how HIV-related stigma and life stress affect functional health in PLWHA. METHODS: The current study employed hybrid structural equation modeling to examine the interconnectedness and potential indirect relationships of HIV-related stigma and life stress to worse health through substance use and depression, controlling for ART adherence and age. Participants were 240 HIV-infected individuals who completed a biopsychosocial assessment battery upon screening for an RCT on treating depression in those infected with HIV. RESULTS: Both HIV-related stigma and stressful life events were directly related to depression, and depression was directly related to health. There were significant indirect effects from stigma and stress to health via depression. There were no significant effects involving substance use. CONCLUSION: It is important to continue to develop ways to address stigma, stressful life events, and their effects on distress in those living with HIV. Expanding our knowledge of disease progression risk factors beyond ART adherence is important to be able to design adjuvant interventions, particularly because treatment means that people living with HIV have markedly improved life expectancy and that successful treatment means that HIV is not transmittable to others.


Previous research indicates a high burden of depression among adults living with HIV and an association between depression and poor HIV clinical outcomes. National estimates of diagnosed depression, depression treatment status, and association with HIV clinical outcomes are lacking. We used 2009-2014 data from the Medical Monitoring Project to estimate diagnosed depression, antidepressant treatment status, and associations with sustained viral suppression (all viral loads in past year < 200 copies/mL). Data were obtained through interview and medical record abstraction and were weighted to account for unequal selection probabilities and non-response. Of adults receiving HIV medical care in the U.S. and prescribed ART, 27% (95% confidence interval [CI] 25-29%) had diagnosed depression during the surveillance period; the majority (65%) were prescribed antidepressants. The percentage with sustained viral suppression was highest among those without depression (72%, CI 71-73%) and lowest among those with untreated depression (66%, CI 64-69%). Compared to those without depression, those with a depression diagnosis were less likely to achieve sustained viral suppression (aPR 0.95, CI 0.93-0.97); this association held for persons with treated depression compared to no depression (aPR 0.96, CI 0.94-0.99) and untreated depression compared to no depression (aPR 0.92, CI 0.89-0.96). The burden of depression among adults living with HIV in care is high. While in our study depression was only minimally associated with a lower prevalence of sustained viral suppression, diagnosing and treating depression in persons living with HIV remains crucial in order to improve mental health and avoid other poor health outcomes.
OBJECTIVE: The purpose of this systematic review and meta-analysis was to examine the effects of exercise on depression and anxiety in persons living with HIV (PLWH), and to evaluate, through subgroup analysis, the effects of exercise type, frequency, supervision by exercise professionals, study quality, and control group conditions on these outcomes. METHOD: A literature search was conducted through four electronic databases from inception to February 2019. Considered for inclusion were randomized controlled trials (RCTs) investigating exercise interventions and depression or anxiety as outcomes in people living with HIV (≥18 years of age). Ten studies were included (n=479 participants, 49.67% females at baseline), and the standardized mean difference (SMD) and heterogeneity were calculated using random-effect models. An additional pre-post meta-analysis was also conducted. RESULTS: A large effect in favor of exercise when compared to baseline), and the standardized mean difference (SMD) and heterogeneity were calculated using random-effect models. An additional pre-post meta-analysis was also conducted. RESULTS: A large effect in favor of exercise when compared to


controls was found for depression (SMD=-0.84, 95%CI=[-1.57, -0.11], p=0.02) and anxiety (SMD=-1.23, 95%CI=[-2.42, -0.04], p=0.04). Subgroup analyses for depression revealed large effects on depression for aerobic exercise only (SMD=-0.96, 95%CI=[-1.63, -0.30], p=0.004), a frequency of >/=3 exercise sessions per week (SMD=-1.39, 95%CI=[-2.24, -0.54], p<0.001), professionally supervised exercise (SMD=-1.40, 95%CI=[-2.46, -0.17], p=0.03), and high-quality studies (SMD=-1.31, 95%CI=[-2.46, -0.17], p=0.02). CONCLUSION: Exercise seems to decrease depressive symptoms and anxiety in PLWH, but other larger and high-quality studies are needed to verify these effects.


This study investigated correlates of quality of life (QOL) among people living with HIV/AIDS (PLWH) at An Hoa Clinic, Ho Chi Minh City, Vietnam. Inclusive criteria were PLWH >/=18 years old, under antiretroviral therapy (ART) for >/=3 months, and consent to participate. PLWH who were illiterate, too ill, or at the final stage of AIDS were excluded. QOL was assessed using WHOQOL-BREF-HIV. Depressive symptoms were assessed using the Center for Epidemiologic Studies Depression Scale. For every point increased in depression score, QOL decreased 0.13 points in Physical (p < .001), 0.12 points in Psychological and Social Relationships (p < .001), 0.07 points in Level of Independence (p < .001), 0.09 points in Environment (p < .001), and 0.15 points in Personal Beliefs domain (p < .001). PLWH from an economically disadvantaged household had lower QOL scores for all QOL domains but Personal Beliefs with differences ranging from 0.81 points for Social Relationships to 1.77 points for Environment domain. PLWH with a co-morbidity had lower scores whereas those living with a spouse and adhering to ART medication had higher scores in at least one QOL domain. In conclusion, depressive symptoms, household economy, living with a spouse, having a co-morbidity and ART medication adherence were important factors associated with PLWH's QOL.


Quality of life (QOL) is relevant to people living with HIV (PLWH) with increased life expectancy because of antiretroviral therapy. Our cross-sectional study examined associations between sociodemographic, HIV-related and psychological variables, and QOL, overall and by age. PLWH (n = 614) completed questionnaires at enrollment in an alcohol treatment study. QOL was assessed by the 12-item Short Form Survey, which includes physical and mental domains. Linear regression models evaluated the association of age and other factors with mental and physical QoL. PLWH younger than 50 years (n = 310) reported poorer mental QoL but better physical QoL compared to older PLWH (n = 304). Poorer mental QoL was associated with substance use, depression, and anxiety. Poorer physical QoL was associated with depression and history of injection drug use. We identified age-group differences in QoL for this primary care-based sample. Health care providers can use our findings to guide patient-centered care.


The HIV reservoir, which comprises diverse proviruses integrated into the genomes of infected, primarily CD4+ T cells, is the main barrier to developing an effective HIV cure. Our understanding of the genetics and dynamics of proviruses persisting within distinct CD4+ T cell subsets however remains incomplete. Using single-genome amplification we characterized subgenomic proviral sequences (nef region) from naive, central memory, transitional memory and effector memory CD4+ T cells from five HIV-infected individuals on long-term cART, and compared these to HIV RNA sequences isolated longitudinally from archived plasma collected prior to cART initiation, yielding HIV datasets spanning a median 19.5 (range 10-20) years per participant. We inferred a distribution of within-host phylogenies for each participant, from which we characterized proviral ages, phylogenetic diversity and genetic compartmentalization between CD4+ T cell subsets. While three of five participants exhibited some degree of proviral compartmentalization between CD4+ T cell subsets, combined analyses revealed no evidence that any particular CD4+ T cell subset harbored the longest-persisting, most genetically diverse and/or most genetically distinctive HIV reservoir. In one participant, diverse proviruses archived within naive T cells were significantly younger than those in memory subsets, while for three others we observed no significant differences in proviral ages between subsets. In one participant, "old" proviruses were recovered from all subsets, and included one sequence, estimated to be 21.5 years old, that dominated (>93%) of their effector memory subset. HIV eradication strategies will need to overcome within- and between-host genetic complexity of proviral landscapes, possibly via...
Introduction: Internalizing mental disorders (IMDs) in HIV+ children and adolescents are associated with impaired quality of life and non-adherence to anti-retroviral treatment. Telomere length is a biomarker of cellular aging, and shorter telomere length has been associated with IMDs. However, the nature of this association has yet to be elucidated. Objective: We determined the longitudinal association between IMDs and relative telomere length (rTL) and the influence of chronic stress among Ugandan perinatally HIV-infected youth (PHIY). Methods: IMDs (depressive disorders, anxiety disorders, and post-traumatic stress disorder) and IMDs were assessed using the locally adapted Child and Adolescent Symptom Inventory-5. In 368 PHIY with any IMD and 368 age- and sex-matched PHIY controls without any psychiatric disorder, rTL was assessed using quantitative polymerase chain reaction. Hierarchical cluster analysis was used to generate the three chronic stress classes (mild, moderate, and severe). t-tests were used to assess the difference between baseline and 12 month rTL and the mean difference in rTL between cases and controls both at baseline and at 12 months. Linear regression analysis was used to model the effects of chronic stress on the association between IMDs and rTL, controlling for age and sex. Results: We observed longer rTL among cases of IMDs compared with controls (p < 0.001). We also observed a statistically significant reduction in rTL between baseline and 12 months in the combined sample of cases and controls (p < 0.001). The same statistical difference was observed when cases and controls were individually analyzed (p < 0.001). We found no significant difference in rTL between cases and controls at 12 months (p = 0.117). We found no significant influence of chronic stress on the association between IMDs and rTL at both baseline and 12 months. Conclusion: rTL is longer among cases of IMDs compared with age- and sex-matched controls. We observed a significant attrition in rTL over 12 months, which seems to be driven by the presence of any IMDs. There is a need for future longitudinal and experimental studies to understand the mechanisms driving our findings.


Suicide is an important problem in people living with HIV/AIDS (PLWHA). The importance of mental disorders and social vulnerability on suicidal behaviors is described in the literature; however, the impact of childhood traumatic events in this scenario is not clear. The aim of this study was to verify the mediation effect of mental disorder comorbidities and social vulnerability in association with childhood trauma intensity and suicide risk level. This cross-sectional study of HIV-positive outpatients was conducted in a specialized care service in the city of Pelotas in Southern Brazil. Sociodemographic data and HIV-related information were collected and the Childhood Trauma Questionnaire was applied. A total of 364 patients underwent psychiatric evaluation using MINI Plus including module C of suicide risk severity. Suicide risk was present in 39.3% of the sample. The relation between childhood traumatic events and the level of suicide risk is mediated by mental disorder comorbidities and socioeconomic vulnerability. Specific psychosocial interventions in PLWHA should consider the potential role of abusive traumatic experiences in the current mental health conditions and suicidal behaviors.

BACKGROUND: People living with HIV and depression have high rates of suicide. Studies of mobile health (mHealth) interventions have shown feasibility, acceptability, and efficacy in improving mental health in people living with HIV and depression. However, few studies have examined the mechanisms and effects of mHealth interventions on suicide.

OBJECTIVE: This study was designed to examine the mechanisms and effects of a WeChat-based intervention, Run4Love, on suicide among people living with HIV and depression in China, while considering perceived stress and depressive symptoms as mediators.

METHODS: A sample of 300 People living with HIV and depression was recruited from the outpatient clinic of a large HIV or AIDS treatment hospital and was randomized to the Run4Love group or a control group. Data were collected at baseline, 3-, 6-, and 9-month follow-ups. Path analysis modeling, with longitudinal data, was used in data analyses.
INTRODUCTION: Women living with HIV (WLHIV) experience stigma and elevated exposure to violence in comparison with HIV-negative women. We examined the mediating role of experiencing recent violence in the relationship between stigma and depression among WLHIV in Canada. METHODS: We conducted a cohort study with WLHIV in three Canadian provinces. Recent violence was assessed through self-reported experiences of control, physical, sexual or verbal abuse in the past three months. At Time 1 (2013-2015) three forms of stigma were assessed (HIV-related, racial, gender) and at Time 2 (2015-2017) only HIV-related stigma was assessed. We conducted structural equation modelling (SEM) using the maximum likelihood estimation method with Time 1 data to identify direct and indirect effects of gender discrimination, racial discrimination and HIV-related stigma on depression via recent violence. We then conducted mixed effects regression and SEM using Time 1 and Time 2 data to examine associations between HIV-related stigma, recent violence and depression. RESULTS: At Time 1 (n = 1296), the direct path from HIV-related stigma (direct effect: beta = 0.200, p < 0.001; indirect effect: beta = 0.014, p < 0.05) to depression was significant; recent violence accounted for 6.5% of the total effect. Gender discrimination had a significant direct and indirect effect on depression (direct effect: beta = 0.167, p < 0.001; indirect effect: beta = 0.050, p < 0.001); recent violence explained 23.15% of the total effect. Including Time 1 and Time 2 data (n = 1161), mixed-effects regression results indicate a positive relationship over time between HIV-related stigma and depression (Acoef: 0.04, 95% CI: 0.03, 0.06, p < 0.001), and recent violence and depression (Acoef: 1.95, 95% CI: 0.29, 4.42, p < 0.05), controlling for socio-demographics. There was a significant interaction between HIV-related stigma and recent violence with depression (Acoef: 0.04, 95% CI: 0.01, 0.07, p < 0.05). SEM analyses reveal that HIV-related stigma had a significant direct and indirect effect on depression over time (direct effect: beta = 0.178, p < 0.001; indirect effect: beta = 0.040, p < 0.001); recent violence experiences accounted for 51% of the total effect. CONCLUSIONS: Our findings suggest that HIV-related stigma is associated with increased experiences of recent violence, and both stigma and violence are associated with increased depression among WLHIV in Canada. There is an urgent need for trauma-informed stigma interventions to address stigma, discrimination and violence.
Studies suggest that inflammation might be involved in the pathogenesis of depression. Individuals with human immunodeficiency virus (HIV) have a higher risk of depression and elevated inflammatory profiles. Despite this, research on the link between inflammation and depression among this high-risk population is limited. We examined a sample of men who have sex with men from the Multicenter AIDS Cohort Study in prospective analyses of the association between inflammation and clinically relevant depression symptoms, defined as scores >20 on Center for Epidemiological Studies Depression Scale. We included 1,727 participants who contributed 9,287 person-visits from 1984 to 2010 (8,218 with HIV (HIV+)) and 1,069 without (HIV-). Exploratory factor analysis (EFA) was used to characterize underlying inflammatory processes from 19 immune markers. Logistic regression with generalized estimating equations was used to evaluate associations between inflammatory processes and depressive symptoms stratified by HIV serostatus. Three EFA-identified inflammatory processes (EIPs) were identified. EIP-1 scores—described by soluble tumor necrosis factor receptor 2 (sTNF-R2), soluble interleukin-2 receptor alpha (sIL-2Ralpha), sCD27, B-cell activating factor, interferon gamma-induced protein 10 (IP-10), soluble interleukin-6 receptor (sIL-6R), sCD14, and sGP130—were significantly associated with 9% higher odds of depressive symptoms in HIV+ participants (odds ratio = 1.09; 95% confidence interval: 1.03, 1.16) and 33% higher odds in HIV- participants (odds ratio = 1.33; 95% confidence interval: 1.09, 1.61). Findings suggest that immune activation might be involved in depression risk among both HIV+ and HIV- men who have sex with men.


BACKGROUND: Mental health conditions are common among persons with HIV (PWH). An understanding of factors associated with prescription medication use for these conditions and clinical impact of the prescription medications may improve care of mental health disorders in PWH. METHODS: Psychotropic medication use was examined among PWH within the AIDS Clinical Trials Group A5322 (HAiLO) study. Multivariable logistic models and Cox regression models estimated the association between psychotropic medications (any/none) with baseline and incident slow gait (>1 s/m) and neurocognitive impairment (NCI) for more than 4 years. RESULTS: Of 1035 participants, the median age was 51 years. 81% were men, 30% black, non-Hispanic, and 20% Hispanic. Psychotropic medication use was similar between men (34%) and women (38%; P = 0.19). PWH using psychotropic medications had greater odds of baseline slow gait (odds ratio 1.61, [95% confidence interval (CI): 1.23 to 2.10]; P < 0.001). Men but not women using psychotropic medications had an increased risk of developing slow gait [hazard ratio 1.85; (1.29 to 2.65) vs 0.77; (CI: 0.35 to 1.68), P interaction = 0.045]. The sex-specific odds ratios for medication use and NCI were qualitatively but not statistically different [men: 1.79; (1.14-2.80); women: 1.27; (0.56-2.90); P interaction = 0.47]. Psychotropic medication use was associated with an increased risk of incident NCI [hazard ratio 2.18; (95% CI: 1.23 to 3.84), P = 0.007] in both men and women. CONCLUSIONS: Psychotropic medications are associated with impairment in functional outcomes of aging, with a greater risk of baseline NCI and incident slow gait among men. Further investigation is needed to optimize outcomes in PWH and prescription of psychotropic medications among both men and women.


Youth living with HIV (YLWH) face significant mental health problems, namely depression, anxiety, and PTSD with rates of these disorders higher than in the general population. This study explored the relationship between symptoms of depression, anxiety, and PTSD and biological markers among a sample of 145 YLWH ages 13-25 years. Participants completed the Center for Epidemiologic Studies Depression Scale (CES-D), Generalized Anxiety Disorder-7 Item Scale (GAD-7), and Primary Care-Posttraumatic Stress Disorder Screen (PC-PTSD). Biological markers included CD4 count and viral load (VL) abstracted from medical records. Findings revealed a relationship between depression and anxiety and CD4 count as well as anxiety and VL. The relationship between depression and CD4 count and anxiety and VL was moderated by transmission mode (i.e., behavioral versus perinatal). For youth perinatally infected, greater psychological symptoms of depression and anxiety were associated with a decline in CD4 count and increase in VL, but this was not true for youth with behaviorally acquired HIV. These findings point to the need for individualized mental health prevention and intervention services for YLWH.

The present study examined the association between anxiety, stigma, social support and intention to use illicit drugs, and the moderating role of social support on the association between anxiety/stigma and intention to use illicit drugs among low-income, urban PWH may need to be tailored to address mental health and substance use comorbidities.


The present study examined the association between anxiety, stigma, social support and intention to use illicit drugs, and the moderating role of social support on the association between anxiety/stigma and intention to use illicit drugs among low-income, urban PWH may need to be tailored to address mental health and substance use comorbidities.


BACKGROUND: Data are limited on cumulative impacts of depression on engagement in care and HIV outcomes in women living with HIV (WLWH) during the era of universal antiretroviral therapy (ART). Understanding the relationship of accumulated depression with HIV disease management may help identify benefits of interventions to reduce severity and duration of depressive episodes. SETTING: A cohort of WLWH (N = 1491) from the Women's Interagency HIV Study at 9 sites across the US. METHODS: This longitudinal observational cohort study (2013-2017) followed WLWH for a maximum of 9 semiannual visits. Depression was quantified as a time-updated measure of percent of days depressed (PDD) created from repeated assessments using the Center for Epidemiologic Studies Depression scale. Marginal structural Poisson regression models were used to estimate the effects of PDD on the risks of missing an HIV care appointment, <95% ART adherence, and virological failure (>/>=200 copies/mL). RESULTS: The risk of missing an HIV care appointment [risk ratio (RR) = 1.16, 95% confidence interval = 0.93 to 1.45; risk difference (RD) = 0.01, -0.01 to 0.03], being <95% ART adherent (RR = 1.27, 1.06-1.52; RD = 0.04, -0.01 to 0.07), and virological failure (RR = 1.09, 1.01-1.18; RD = 0.01, -0.01 to 0.03) increased monotonically with increasing PDD (comparing those with 25 to those with 0 PDD). The total effect of PDD on virological failure was fully (%100) mediated by being <95% ART adherent. CONCLUSIONS: Time spent depressed increases the risk of virological failure through ART adherence, even in the era of universal ART regimes forgiving of imperfect adherence.


Background: Stigmatization due to HIV status may interfere with disease management among persons living with HIV (PLWHA) by heightening serostatus disclosure concerns and vulnerability to depressive symptoms. Purpose: In this cross-sectional study, indirect effects of disclosure concerns and depressive symptoms were examined for the association of stigma to treatment adherence (medication and clinic appointment adherence) in an outpatient sample of PLWHA. Method: Participants (N = 179; 47% White, 41% African-American; 35% MSM) completed measures of stigma-related experiences, concerns about disclosing HIV status, depression, and medication adherence; clinic appointment attendance was obtained from chart data. Results: Stigma had an indirect effect on medication adherence (but not clinic attendance) via disclosure concerns. Stigma had indirect effects on both medication adherence and clinic attendance via depressive symptoms. In path analyses including both disclosure concerns and depressive symptoms, combined indirect effects emerged for both medication adherence and clinic attendance. There was a significant indirect pathway from stigma to disclosure concerns to depression to clinic attendance, whereas the positioning of the mediators was swapped for the significant indirect pathway from stigma to medication adherence. Conclusions: These analyses provide evidence that stigmatizing experiences negatively affect treatment adherence through the indirect effects of disclosure concerns and depressive symptoms. Disclosure concerns and depressive symptoms are two mechanisms worthy of further research to enhance understanding of the association between stigma and treatment adherence difficulties.


The present study examined the association between anxiety, stigma, social support and intention to use illicit drugs, and the moderating role of social support on the association between anxiety/stigma and intention to use illicit drugs among low-income, urban PWH may need to be tailored to address mental health and substance use comorbidities.
402 450 Chinese HIV-positive MSM. Findings show that controlling for significant background variables, self-stigma and anxiety were positively associated with intention to use illicit drugs, while social support was negatively associated with intention to use illicit drugs. A significant moderation effect of social support was also observed, that the negative association between self-stigma/anxiety and intention to use illicit drugs was only significant among participants with lower levels of social support. Findings highlight the importance of reducing self-stigma and anxiety, and promoting social support in drug use prevention for HIV-positive MSM.


411 For persons with HIV (PWH), aims of psychotherapy can extend beyond HIV-related topics. Issues such as HIV stigmatization and disclosure and HIV-related self-care including treatment adherence might be ongoing concerns, but patients often need support to develop skills to manage other problems, whether functional or psychiatric. In the context of an ongoing randomized clinical trial, we delivered an individual, behavioral activation-based intervention to PWH with comorbid chronic pain and depression. Our primary treatment target was to reduce pain-related interference in physical and psychosocial functioning. Throughout the course of the 7-session intervention, clinicians used 4 core strategies to help patients improve a variety of domains related to their health and well-being: (a) teaching value-based goal setting, (b) developing skills to be an activated and informed patient, (c) focusing on changing behavior despite discomfort, and, (d) facilitating access to care (e.g., flexible scheduling and primarily phone sessions). The application of these strategies to HIV-related and non-HIV-related problems are presented to illustrate how and when clinicians can utilize these strategies. These practical lessons will inform a flexible approach to helping PWH address a myriad of health and functional issues related to their overall well-being. (PsycINFO Database Record (c) 2019 APA, all rights reserved).


424 BACKGROUND: HIV-infected patients with poor antiretroviral therapy (ART) adherence are prone to depression, and depression can exacerbate the disease condition. This study was conducted to determine ART Adherence based on Information, Motivation, and Behavioral Skills (IMB) Model and its association with depression among HIV-positive patients.

427 MATERIALS AND METHODS: This descriptive-correlational study was carried out on people over the age of 18 years with HIV/AIDS, who referred to the Behavioral Diseases Counseling Center in Kerman City, Iran, in 2017. In this regard, 119 patients were selected using the table of random numbers. To collect the data, we used the Beck's depression inventory-II and the IMB researcher made questionnaire to evaluate the ART adherence. RESULTS: The results of the study reveal that a significant association was observed between the total adherence and all constructs of the IMB model (P < 0.001). Risk perception and self-efficacy had the highest mean scores regarding the ART adherence. The prevalence of depression was 71.5% among patients. Information, personal motivation, and total adherence had a significant association with depression. CONCLUSIONS: IMB model was an appropriate and practical strategy with regard to the ART adherence among people living with HIV who are prone to depression and drug consumption is crucial for them to achieve the 90-90-90 target. This article created a questionnaire to assist policy-makers and health professionals designing interventions to improve adherence and health outcomes of ART.


444 INTRODUCTION: Depression in people living with HIV/AIDS is associated with poor health outcomes. Despite this, assessment of depressive symptoms is not a routine clinical practice in the care of people with HIV in Colombia. One reason could be the lack of validated depression screening scales for this population. OBJECTIVE: To test the reliability and construct validity of the 20- and 10-item-CESD for Epidemiological Studies Depression Scale in patients attending an HIV clinic in Cali, Colombia. MATERIALS AND METHODS: A non-random sample of 105 adults was enrolled. The 20 item-CES-D (CES-D-20) scale was administered twice: At baseline and 2-4 weeks later. We calculated the Cronbach’s alpha coefficient and the intraclass correlation coefficient. In addition, we used an exploratory and confirmatory factorial analysis, as well as the item response theory to assess the validity of the scale. RESULTS: Most participants were men (73%), with a mean age of 40 years, 53% of whom had not completed high school. Cronbach’s coefficients were 0.92 and 0.94 at baseline and at the
second interview, respectively. The intraclass correlation was 0.81 (95% CI: 0.72-0.88). Although all 20 items loaded distinctly in 4 factors, 5 items did not load as expected. The structure factor of the CES-D-20 was not confirmed, as 4 items had poor goodness of fit. The CES-D-10 appeared to perform better in this population. CONCLUSIONS: These results support the reliability and validity of the CES-D-10 instrument to screen for depressive symptoms in people living with HIV in Colombia.


In mental health and substance abuse treatment, individualized assessments provide information on the specific thoughts and cognitive processes influencing a person's behavior, emotional responses, and psychological functioning. Given the lack of automated assessment procedures or individualized clinical interventions in the growing health disparities in the South Los Angeles of USA, we developed a novel system using idiographic techniques to automatically and quickly generate individualized patient assessment data for use in clinical interventions.


INTRODUCTION: Mental illness and HIV remain prevalent as chronic and stigmatised conditions and a global public health concern. Disability-adjusted life-years due to comorbid neuropsychiatric conditions and HIV are rising. Occupational justice and social inclusion emphasise the importance of equity and the utility of resources and opportunities for all to engage in diverse, healthy and meaningful activities. However, succinct conceptualisation of social inclusion and occupational justice, including the relationship between these concepts is still limited. This hampers their effective utilisation in research and practice. Here, we present our scoping review protocol to appraise literature to describe and explain the state of conceptualisation of occupational justice and social inclusion in relation to mental illness and HIV. We are aiming to review the definitions, current utilisation and relationships between occupational justice and social inclusion to inform further theorisation and practice application. METHODS AND ANALYSIS: This scoping review protocol follows existing guidelines for scoping reviews in occupational therapy with particular attention on Arksey and O’Malley’s (2005) scoping review framework. We iteratively developed a search strategy and carried out our search using the following databases: PubMed, Scopus, Academic Search Premier, Cumulative Index to Nursing and Allied Health Literature, Africa-Wide Information, Humanities International Complete, Web of Science, PsychInfo and SociINDEX. To enhance the comprehensiveness of our search and capture all relevant information, we will also search a variety of grey literature sources. Two reviewers will independently screen eligible studies for inclusion. Bibliographic data, abstract content and aspects of the study design and findings will be extracted and thematically analysed. ETHICS AND DISSEMINATION: As secondary analysis, this scoping review does not require ethics approval. Results will summarise and disseminate existing research related to occupational justice and social inclusion in mental health and HIV/AIDS care, describing the conceptualisation, relationships between concepts and identifying gaps for further research and practical application. We will disseminate the results through peer-reviewed journals and conferences, targeting clinicians, academics, researchers and policy makers.


Prior studies show an association between caregiver depression and child health outcomes. There has been little examination of depression among caregivers of HIV-infected children in sub-Saharan countries where pediatric HIV is concentrated. Using baseline data collected in the pediatric HIV disclosure intervention trial, Sankofa, we examined the prevalence and factors associated with depression among caregivers (N = 446) of children infected with HIV in Ghana. Data were analyzed with descriptive and regression analyses. The mean age of the caregivers was 42.2 +/- 10.4 years. Eighty percent of the caregivers were female and 59% were HIV-infected. Twenty-eight percent (n = 126) of the caregivers were found to have mild to severe depression. In the adjusted model, factors significantly associated with caregiver depression included: HIV-positive caregiver status (P = 0.04), low income (P = 0.02), lower social support (P = 0.01), lower HIV knowledge, (P = 0.01), worse HIV illness perceptions (P<0.001), and greater perceived HIV stigma (P<0.001). Although we found a high prevalence of depression among our study participants, several of the risks factors identified are modifiable and amenable to interventions that are locally available and affordable.
Depression among persons with HIV is associated with antiretroviral therapy (ART) interruption and discontinuation, virological failure, and poor clinical and survival outcomes. Case management services can address needs for emotional counseling and other supportive services to facilitate HIV care engagement. Using 2009-2013 North Carolina Medical Monitoring Project data from 910 persons engaged in HIV care, we estimated associations of case management utilization with "probable current depression" and with 100% ART dose adherence. After weighting, 53.2% of patients reported receiving case management, 21.7% reported depression, and 87.0% reported ART adherence. Depression prevalence was higher among those reporting case management (24.9%) than among other patients (17.6%) (p < 0.01). Case management was associated with depression among patients living above the poverty level [adjusted prevalence ratio (aPR), 2.05; 95% confidence interval (CI) 1.25-3.36], and not among other patients (aPR, 1.01; 95% CI 0.72-1.43). Receipt of case management was not associated with ART adherence (aPR, 1.00; 95% CI 0.95-1.05). Our analysis indicates a need for more effective depression treatment, even among persons receiving case management services. Self-reported ART adherence was high overall, though lower among persons experiencing depression (unadjusted prevalence ratio, 0.92; 95% CI 0.86-0.99). Optimal HIV clinical and prevention outcomes require addressing psychological wellbeing, monitoring of ART adherence, and effective case management services.


Homelessness is a challenge to retention in HIV care and adherence to antiretroviral therapy. We describe the sociodemographic and behavioral characteristics of HIV-positive adults who reported recent homelessness. The Medical Monitoring Project is a complex sample survey of HIV-positive adults receiving medical care in the United States. We used weighted interview and medical record data collected from June 2009 to May 2015 to estimate the prevalence of depression, substance use, and HIV risk behaviors among adults experiencing recent homelessness. From 2009 to 2015, 8.3% of HIV-positive adults experienced recent homelessness. Homeless adults were more likely than housed adults to have major depression, to binge drink, use non-injection drugs, use injection drugs, and smoke. Over 60% of homeless adults were sexually active during the past year, with homeless adults reporting more condomless sex with an HIV-negative or unknown status sex partner than housed adults. Programs attempting to improve the health outcomes of HIV-positive homeless persons and reduce ongoing HIV transmission can focus on providing basic needs, such as housing, and ancillary services, such as mental health counseling or substance abuse treatment and counseling.

Pampati, S., et al. (2019). "Substance use, violence experiences, and mental health issues: are these health risks associated with HIV testing among sexually experienced U.S. high school students?" AIDS Care 31(9): 1106-1113.

HIV testing is a critical strategy for prevention of HIV yet testing among sexually experienced adolescents is sub-optimal. The purpose of this study is to examine associations between risk behaviors and experiences related to substance use, violence, and mental health and suicide and receipt of testing. We analyzed cross-sectional data from the 2017 national Youth Risk Behavior Survey, a nationally representative sample of U.S. high school students in grades 9-12. Analyses were limited to sexually experienced participants (n = 5192). Measures included nine indicators related to substance use, violence, and mental health and suicide. Unadjusted and adjusted prevalence ratios were calculated for each indicator to examine associations with testing. Adjusted models controlled for same-sex sexual behavior, sexual risk, and demographic characteristics. Prevalence of HIV testing was 17.2%. In adjusted models, forced sexual intercourse, injection drug use, other illicit drug use, and persistent feelings of sadness or hopelessness were associated with a higher likelihood of testing. Prevalence of HIV testing in this sexually experienced sample was low. Some behaviors and experiences that may be indicative of HIV risk, including sexual dating violence and prescription opioid misuse, were not associated with testing.

An overlooked sequela of HIV risk is trauma exposure, yet few HIV interventions address trauma exposure, mental health, and substance misuse. In a two-arm randomized controlled trial 73 Native American women were randomized to a culturally-adapted Cognitive Processing Therapy (CPT) or 6-weeks waitlist. Outcomes assessed: PTSD symptom severity, alcohol use frequency, substance abuse or dependence diagnosis, and high-risk sexual behavior defined as vaginal/anal intercourse (a) under the influence of alcohol and/or illicit substances, (b) with a partner who was concurrently sexually active with someone else, and/or (c) with more than one partner in the past 6 weeks. Among immediate intervention participants, compared to waitlist participants, there were large reductions in PTSD symptom severity, high-risk sexual

OBJECTIVE: To analyze conditions of depression, self-concept, future expectations and hope in persons living with HIV/AIDS.

METHOD: Cross-sectional survey of 108 individuals living with HIV/AIDS, carried out in a reference hospital for the treatment of infectious diseases in Northeast Brazil. The following instruments were employed: sociodemographic data, and questionnaires for ascertaining participants' emotions, including scales for self-concept, hope, depression (HAMD-D), and future expectations. Descriptive statistics using the following tests were performed: Mann-Whitney, Kruskal-Wallis, chi-square, and t-test-considered significant when $p \leq 0.05$. RESULTS: 31.5% presented mild depression and 21.3% presented moderate depression; 63% reported difficulty in obtaining decent employment; 52.8% considered life a failure; 52.8% felt worthless. Fear, guilt and loneliness influenced self-concept ($p \leq 0.05$). Loneliness influenced hope ($p \leq 0.05$).

CONCLUSION: It is necessary to raise the attention of nursing professionals and healthcare managers to the importance of providing health services that consider the mental health of people with HIV/AIDS, contributing to treatment adherence and well-being.
WHAT IS KNOWN ON THE SUBJECT?: Depression affects 1 in 20 Americans, and people living with HIV experience depression at 2-3 times the rate of the general population. Recent research has shown that a person's level of social connectedness (e.g., social networks) is important to understanding their health and ability to get help when they need it. The scientific rationale of this work is to determine whether there is a direct relationship between levels of depression and a measure of social connectedness in people with HIV who are at higher than normal risk of depression and depressive symptoms. WHAT THIS PAPER ADDS TO EXISTING KNOWLEDGE?: We examined the relationship between levels of depression and social capital in people living with HIV to determine whether depression may influence their beliefs about their social connectedness and available resources. We found that as depression increases, self-reported social capital decreases, suggesting that people living with HIV who are depressed may feel less socially connected and/or not be confident they can access resources when they need them. WHAT ARE THE IMPLICATIONS FOR PRACTICE: Mental health nurses are particularly well-positioned to help people living with HIV who are living with depression by helping them build skills for building and maintaining relationships, adhering to co-administered HIV and mental health medical treatments, and helping these individuals to identify and address barriers to social connectedness. Helping people living with HIV to address depression and promoting social connectedness can not only improve quality of life, but have major long-term benefits.

OBJECTIVES: To describe our partnership and research infrastructure development strategies and discuss steps in developing a culturally grounded framework to obtain data and identify a trauma-informed evidence-based intervention. METHOD: We present funding strategies that develop and maintain the partnership and tools that guided research development. We share how a community research committee was formed and the steps taken to clarify the health concerns and develop a culturally tailored framework. We present results from our needs/assets assessment that led to the selection of a trauma-informed intervention. Finally, we describe the agreements and protocols developed. RESULTS: We produced a strong sustainable research team that brought program and research funding to the community. We created a framework and matrix of program objectives grounded in community knowledge. We produced preliminary data and research and publication guidelines that have facilitated program and research funding to address community-driven concerns. CONCLUSIONS: This study highlights the importance of bidirectional collaboration with American Indian communities, as well as the time and funding needed to maintain these relationships. A long-term approach is necessary to build a sustainable research infrastructure. Developing effective and efficient ways to build culturally based community research portfolios provides a critical step toward improving individual and community health outcomes.

Background: Integration of mental health services into nonspecialist settings is expanding in low and middle income countries (LMICs). Among many factors required for success, such programs require reliable administration of mental health screening tools. While several tools have been validated in carefully conducted research studies, few studies have assessed how reliably nonspecialist clinicians administer these tools to low-literacy LMIC populations in routine care. Methods: Ninety-seven patients accessing human immunodeficiency virus primary care in Malawi who completed Patient Health Questionnaire (PHQ)-9 depression screening with their clinician then completed a second PHQ-9 with a trained research assistant (RA) blinded to the first result. Results: Compared to clinicians, RAs identified more patients with any depressive symptoms (PHQ-9 score 5: 38% v. 32%), moderate/severe symptoms (PHQ-9 10: 14% v. 6%), any suicidality (14% v. 4%), and active suicidality (3% v. 2%). Across these indicators, clinician and RA ratings had strong overall agreement (81-97%) but low corrected Kappa agreement (31-59%). Treating RA results as the reference standard of a carefully supervised research administration of the PHQ-9, clinician administration had high specificity (90-99%) but low sensitivity (23-68%) for these indicators. Conclusions: In routine care in LMICs, clinicians may administer validated mental health screening tools with varying quality. To ensure quality, integration programs must incorporate appropriate and ongoing training, support, supervision, and monitoring.

WHAT KNOWLEDGE OR BELIEFS DO THE LEADING ExpertS HAVE ON THIS TOPIC?: The scientific rationale of this work is to determine whether there is a direct relationship between levels of depression and a measure of social connectedness in people with HIV who are at higher than normal risk of depression and depressive symptoms. WHAT THIS PAPER ADDS TO EXISTING KNOWLEDGE?: We examined the relationship between levels of depression and social capital in people living with HIV to determine whether depression may influence their beliefs about their social connectedness and available resources. We found that as depression increases, self-reported social capital decreases, suggesting that people living with HIV who are depressed may feel less socially connected and/or not be confident they can access resources when they need them. WHAT ARE THE IMPLICATIONS FOR PRACTICE: Mental health nurses are particularly well-positioned to help people living with HIV who are living with depression by helping them build skills for building and maintaining relationships, adhering to co-administered HIV and mental health medical treatments, and helping these individuals to identify and address barriers to social connectedness. Helping people living with HIV to address depression and promoting social connectedness can not only improve quality of life, but have major long-term benefits.


health benefits. Abstract Introduction People living with HIV (PLWH) are disproportionately burdened by depression, with estimates as high as 80% of PLWH reporting depressive symptoms. Depression in PLWH is complex, and has been linked with biological and psychosocial causes, including low social capital. Few studies have examined the relationship between social capital and depression in PLWH. Aim/Question We conducted a secondary analysis of the relationship between social capital (Social Capital Scale score) and depression (Beck Depression Inventory-II scores) to determine whether depression predicted levels of social capital in a sample of 108 PLWH. Results Depression was significantly associated with lower social capital (r(105) = -.465 p < .001. Depression remained a significant predictor of social capital in the linear regression model, F(5,101) = 8.508, p < .000, R(2) = 0.296, when controlling for age and education level. Discussion Our results suggest that depression may be a significant predictor of low social capital, and these factors may have cyclical relationships that explain persistent depression in this population. Implications for practice Mental health nurses are particularly well-positioned to help PLWH who are living with depression by helping them build skills for building and maintaining relationships, adhering to co-administered HIV and mental health medical treatments, and helping these individuals to identify and address barriers to social connectedness.


OBJECTIVES: To investigate the patterns and frequency of multiple risk behaviours (alcohol, drugs, smoking, higher risk sexual activity) among men who have sex with men (MSM) living with HIV. METHODS: Cross sectional study. RESULTS: 147 out of 819 HIV-positive MSM exhibited a high-risk phenotype (defined as >3 of smoking, excess alcohol, sexually transmitted infection and recent recreational drug use). This phenotype was associated with younger age, depressive symptoms and <90% adherence in multivariable logistic regression. CONCLUSION: In a cohort of MSM, a small, but significant proportion exhibited multiple concurrent risk behaviours.


The Center for Epidemiological Studies-Depression Scale (CES-D) is the most widely used instrument to assess depressive symptoms in people living with HIV. However, its differential item functioning (DIF) by HIV status and sexual orientation has yet to be explored. This study examined DIF and measurement invariance of the CES-D using an item response theory (IRT) framework, and a more traditional factor analytic approach. Data from 841 HIV-infected and HIV-uninfected individuals, from Miami, Florida, were analyzed. Uniform DIF by HIV status was detected in Items 4, 12, and 16 from the Positive Affect factor. Nonuniform DIF was detected in Items 13 and 17. Uniform DIF by sexual orientation was detected in Items 2, 15, and 19, two of them from the Interpersonal factor. Nonuniform DIF was detected in Item 2. Using a factor analytic approach, the CES-D was invariant at the configural and metric levels by HIV and sexual orientation. These findings indicate that overall, however, using IRT, the magnitudes of DIF were negligible, the CES-D was somewhat invariant using factor analytic methods; the CES-D may be reliably used to compare by HIV status or sexual orientation.


INTRODUCTION: The incidence of some fatal diseases, including HIV/AIDS, accompanied by depression has become a significant concern in developed, developing and underdeveloped countries. A great deal of time and money are spent on controlling and reducing the complications of this infection across the world. Accordingly, the main purpose of this study was to clarify the global prevalence rate of depression in patients living with HIV/AIDS via a systematic review and meta-analysis. METHODOLOGY: All articles in English, published between 2000 and 2018, were systematically searched from the original databases of Web of Science, PubMed, Scopus, Cochrane Library, Google Scholar and Embase. As a result, a total of 118 articles were identified. RESULTS: The total sample size in these articles was 51143 people, and the number of patients suffering from moderate and severe levels of depression was 14942. The results of the analysis based on the random-effects (DerSimonian and Laird) model revealed that the prevalence rate of depression in patients with HIV/AIDS was 31% (95% CI 28% to 34%), with a 98% heterogeneity index which was reported significant. Meanwhile, the highest prevalence rate of depression based on continent was in South America at 44% (95% CI 35% to 53%) and the lowest rate was in Europe at 22% (95% CI 17% to 27%). CONCLUSION: In general, there was a higher prevalence rate of depression in developing and underdeveloped countries than in developed countries, which could be attributed to the advancement of science and the possibilities for early diagnosis of this syndrome. TRIAL REGISTRATION NUMBER: CRD42019119137.


Childhood trauma (CT) - emotional, physical or sexual abuse, or emotional or physical neglect - has been associated with HIV infection and can lead to poor health outcomes and depression in adulthood. Though the impact of CT on depression may be decreased by social support, this may not be true of individuals living with HIV, due to the additive traumatic effects of both CT and acquisition of HIV. This study examined social support, depression, and CT among HIV-infected (n = 134) and HIV-uninfected (n = 306) men and women. Participants (N = 440) were assessed regarding sociodemographic characteristics, CT, depression, and social support. Participants were racially and ethnically diverse, 36 +/- 9 years of age on average, and 44% had an income of less than USD$500 a month. Among HIV-uninfected individuals, social support explained the association between depression in persons with CT (b = 0.082, bCI [0.044, 0.130]). Among HIV-infected individuals, after accounting for sociodemographic characteristics, social support did not explain the association between depression and CT due to lower levels of social support among HIV-infected individuals [95% CI: -0.006, 0.265]. The quality of social support may differ among HIV-infected persons due to decreased social support and smaller social networks among those living with HIV. Depressive symptoms among those living with HIV appear to be less influenced by social support, likely due to the additive effects of HIV infection combined with CT.
To assess the prevalence and correlates of perinatal depression, 200 HIV-positive pregnant/post-partum women receiving antiretroviral therapy (ART) were interviewed at eight government ART centers in four states across India. 52.5% (105) participants had depressive symptomology (Edinburgh Postnatal Depression Scale score > 13) while 23% of the participants had elevated depressive scores, compared to 33% of HIV- individuals (p < 0.001). The proportion of individuals reporting elevated depressive symptoms only differed among individuals 36-45 years old (H+: 61.5%; H-: 17.9%; p < 0.001). Individuals in the H+/D+ group reported the lowest HRQoL, resilience, grit, and SRSA across age cohorts. However, there were no differences on HRQoL or positive psychological factors between H+/D- and H-/D- groups; in fact, individuals 56-65 years in the H+/D- group endorsed aging the most successfully. LIMITATIONS: Small sample size within the groups and the cross-sectional nature of the analysis limit the ability to address onset of depressive symptoms in relation to HRQoL or positive psychological factors. CONCLUSIONS: Among PLWH depressive symptoms show a strong association with HRQoL and positive psychological factors compared to HIV- individuals. In the absence of elevated depressive symptoms, however, PLWH report similar HRQoL and positive psychological factors to HIV- individuals.


Disparities in HIV treatment outcomes among youth living with HIV (YLWH) present a challenge for ending the HIV epidemic. Antiretroviral therapy (ART) adherence can be impacted by comorbidities such as mental health and substance use. Technology use has shown promise in increasing access to mental health and substance use services. Using a mixed-methods approach, we conducted formative research to describe the relationship between mental health, substance use, and medication adherence in 18-29 year-old YLWH, and explored technology use as an approach to supporting these services. Among 101 YLWH, ART adherence was significantly negatively associated with mental health measures such as depression, trauma, and adverse childhood experiences and marijuana and stimulants use. Depression had the highest level of relative importance in its association with ART adherence. During in-depth interviews with 29 participants, barriers to and facilitators of accessing and maintaining mental health services were identified. Most participants favored technology use for mental health and substance use service delivery, including videoconferencing with a counselor. Provision of ongoing mental health and substance use treatment is an important mechanism to achieving HIV treatment engagement. Technology, particularly videoconferencing, may have the capacity to overcome many barriers to care by increasing accessibility of these services.

We investigated changes in CD4 T cell counts related to sleep quality, depression, anxiety, and sociodemographic variables in heterogeneous groups of people living with HIV in a 6-month prospective study. Our longitudinal study involved 247 ambulatory patients living with HIV and using antiretroviral therapy. Sleep quality, anxiety, depression, and CD4 T cell counts were assessed three times at 3-month intervals. Growth curve mixture modeling was conducted to explore changes over time. A two-class mixture model with logarithmic change pattern fit the data best. For the majority of the sample


BACKGROUND: Substance use disorders (SUDs) and psychiatric disorders are common among people with HIV (PWH) and lead to poor outcomes. Yet these conditions often go unrecognized and untreated in primary care. METHODS: The Promoting Access to Care Engagement (PACE) trial currently in process examines the impact of self-administered electronic screening for SUD risk, depression and anxiety in three large Kaiser Permanente Northern California primary care clinics serving over 5000 PWH. Screening uses validated measures (Tobacco, Alcohol, Prescription medication, and other Substance use [TAPS]; and the Adult Outcomes Questionnaire [AOQ], which includes the Patient Health Questionnaire [PHQ-9] and Generalized Anxiety Disorder [GAD-2]) delivered via three modalities (secure messaging, tablets in waiting rooms, and desktop computers in exam rooms). Results are integrated automatically into the electronic health record. Based on screening results and physician referrals, behavioral health specialists embedded in primary care initiate motivational interviewing- and cognitive behavioral therapy-based brief treatment and link patients to addiction and psychiatry clinics as needed. Analyses examine implementation (screening and treatment rates) and effectiveness (SUD, depression and anxiety symptoms; HIV viral control) outcomes using a stepped-wedge design, with a 12-month intervention phase implemented sequentially in the clinics, and a 24-month usual care period prior to implementation in each clinic functioning as sequential observational phases for comparison. We also evaluate screening and treatment costs and implementation barriers and facilitators. DISCUSSION: The study examines innovative, technology-facilitated strategies for improving assessment and treatment in primary care. Results may help to inform substance use, mental health, and HIV services. TRIAL REGISTRATION: NCT03217058.


Purpose: Increased incidence of depression in HIV+ patients is associated with lower adherence to treatment and increased morbidity/mortality. One possible underlying pathophysiology is serotonergic dysfunction. In this study, we used an animal model of HIV, the SIV-infected macaque, to longitudinally image serotonin transporter (SERT) expression before and after inoculation, using 11C-DASB (SERT ligand) PET imaging. Methods: We infected seven rhesus macaques with a neurovirulent SIV strain and imaged them at baseline and multiple time points after inoculation (group A). Pyrosequencing methylation analysis of the SERT promoter region was performed. We also measured SERT mRNA/protein in brain single-cell suspensions from another group (group B) of SIV-infected animals (n = 13). Results: Despite some animals showing early fluctuations, 86% of our group A animals eventually showed a net increase in midbrain/thalamus binding potential (BPND) over the course of their disease (mean increased binding between last time point and baseline = 30.2% and 32.2%, respectively). Repeated-measures mixed-model analysis showed infection duration to be predictive of midbrain BPND (p = 0.039). Thalamic BPND was statistically significantly associated with multiple CSF cytokines (P < 0.05). There was higher SERT protein levels in the second group (group B) of SIV-infected animals with SIV encephalitis (SIVE) compared to those without SIVE (p = 0.014). There were no longitudinal changes in SERT gene promoter region percentage methylation between baselines and last time points in group A animals. Conclusion: Upregulated SERT leading to lower synaptic levels of serotonin is a possible mechanism of depression in HIV+ patients, and extrapolating our conclusions from SIV to HIV should be sought using translational human studies.

OBJECTIVES: The contribution of depression to mortality in adults with and without HIV infection is unclear. We hypothesized that depression increases mortality risk and that this association is stronger among those with HIV infection. METHODS: Veterans Aging Cohort Study (VACS) data were analysed from the first clinic visit on or after 1 April 2003 (baseline) to 30 September 2015. Depression definitions were: (1) major depressive disorder defined using International Classification of Diseases, Ninth Revision (ICD-9) criteria and assessed by standardized, semi-structured interviews; (2) lifetime occurrence of a mood disorder using ICD-9 criteria and assessed by standardized, semi-structured interviews; (3) a self-report of a received diagnosis of depression; and (4) a self-report of a received diagnosis of depression and antidepressant medication use. All analyses were adjusted to the 2015 United States population using sampling weights. Survival was measured as all-cause mortality. RESULTS: Among 37,648 veterans, 23,539 (62.7%) were diagnosed with depression, 22,773 (60%) were prescribed antidepressants, and 2,647 (7.1%) were prescribed both. Depression increased all-cause mortality risk in veterans with and without HIV infection. The adjusted hazard ratio for depression with HIV was 1.44 (95% confidence interval [CI] 1.34 to 1.54) compared with 1.31 (95% CI 1.25 to 1.37) for HIV-uninfected veterans. The association was stronger among veterans with HIV compared with those without (1.45 vs. 1.31, p < 0.001). CONCLUSIONS: Depression is a significant risk factor for mortality in veterans with and without HIV infection. The association is stronger among veterans with HIV infection.
Classification of Diseases, Ninth Revision (ICD-9) codes; (2) depressive symptoms defined as Patient Health Questionnaire (PHQ)-9 scores $\geq 10$. The outcome was all-cause mortality. Covariates were demographics, comorbid conditions and health behaviours. RESULTS: Among 129,140 eligible participants, 30% had HIV infection, 16% had a major depressive disorder diagnosis, and 24% died over a median follow-up time of 11 years. The death rate was 25.3 [95% confidence interval (CI) 25.0-25.6] deaths per 1000 person-years. Major depressive disorder was associated with mortality [hazard ratio (HR) 1.04; 95% CI 1.01, 1.07]. This association was modified by HIV status (interaction P-value = 0.02). In HIV-stratified analyses, depression was significantly associated with mortality among HIV-uninfected veterans but not among those with HIV infection. Among those with PHQ-9 data (n = 7372), 50% had HIV infection, 22% had PHQ-9 scores $\geq 10$, and 28% died over a median follow-up time of 12 years. The death rate was 27.3 [95% CI 26.1-28.5] per 1000 person-years. Depressive symptoms were associated with mortality (HR 1.16; 95% CI 1.04, 1.28). This association was modified by HIV status (interaction P-value = 0.05). In HIV-stratified analyses, depressive symptoms were significantly associated with mortality among veterans with HIV infection but not among those without HIV infection. CONCLUSIONS: Depression was associated with all-cause mortality. This association was modified by HIV status and method of depression ascertainment.


Housing instability is common among sexual minority youth. Research suggests that psychological distress, such as depression, may mediate the association between housing instability and poor HIV-related outcomes, but this hypothesis remains underexplored. Housing instability was assessed using two variables (residential moves in 6 months, and self-reported homelessness at any time since age 15 years). We examined cross-sectional relationships between the housing instability variables and detectable HIV-1 viral load (VL) in a sample of young Black gay, bisexual, and other men who have sex with men (YB-GBMSM) living with HIV (N = 81) in Atlanta, GA, in 2015-2016. Additionally, we explored whether depressive symptoms mediated this relationship. Our exploratory study suggests that psychological distress may partially mediate the association between housing instability and detectable VL. In addition to structural interventions that ensure housing stability, increasing use of mental health services by unstably housed YB-GBMSM may improve VL suppression in this high-risk population.


Women with HIV have higher rates of psychiatric disorders than HIV-negative women, yet little is known about their postpartum mental health and associated service use. The purpose of this study was to characterize HIV-positive women's use of ambulatory and acute mental health services in the first year postpartum, relative to HIV-negative women. Using health administrative data, we identified 861,365 women who had a live birth delivery from April 1, 2002 to March 31, 2012 in Ontario, Canada, of whom 530 were identified to be HIV-positive. We described their use of mental health services, including outpatient mental health visits, psychiatric emergency department (ED) visits and hospitalizations using adjusted odds ratios (aORs) and 95% confidence intervals (CIs). HIV-positive women were more likely to access outpatient mental health services (31.5% vs. 21.0%, aOR, 1.26; 95% CI, 1.03-1.55), but more likely to remain engaged in psychiatrist services only (15.6% vs. 6.5%, aOR, 2.35; 95% CI, 1.41-3.72). They were also more likely to require a psychiatric ED visit or hospitalization (3.3% vs. 1.1%, aOR, 2.74; 95% CI, 1.72-4.12). Our findings highlight the importance of considering postpartum mental health as part of comprehensive reproductive health care for women with HIV.


Women who inject drugs are disproportionately affected by co-occurring intimate partner violence (IPV), poor mental health, and substance use. Less is known about the potentially synergistic effects of these factors on women's HIV risk behavior, and no known studies in Asia examine these relationships. This study assessed the additive and interactive effects of exposure to syndemic IPV, depressive symptoms and non-injection crystal methamphetamine (crystal meth) on HIV sexual risk behaviors in the largest cross-sectional sample of women who inject drugs in Indonesia. Seven hundred thirty-one women aged $\geq 18$ years, injecting drugs in the preceding 12 months, and residing in Greater Jakarta or Bandung, West Java, were recruited using respondent-driven sampling (RDS). Twenty-six percent of women experienced concurrent IPV, crystal meth use and depressive symptoms. In multivariate logistic regressions controlling for sociodemographic
confounders, all three factors were significantly positively associated with sexual risk outcomes. In adjusted marginal effects models, concurrent experience of IPV, crystal meth use and depressive symptoms was associated with increases in the prevalence of HIV risk outcomes: STI symptomatology (from 12% to 60%), inconsistent condom use (from 3% to 22%), and engagement in survival sex work (from 6% to 25%). Statistically significant interaction was detected on both multiplicative and additive scales. Specifically, an interaction was observed on the multiplicative scale between depressive symptoms and crystal meth on STI symptomatology (OR = 2.61; 95% CI = 1.24, 5.48; p = 0.011). There was also evidence of additive interaction, with most observed joint effects being greater than additive. Specifically, significant positive interaction was observed between IPV and crystal meth on inconsistent condom use (AP = 0.38, p < 0.05); depressive symptoms and crystal meth on STI symptomatology (RERI = 2.04, p < 0.001; AP = 0.63, p < 0.001) and survival sex (RERI = 1.20, p < 0.01; AP = 0.53, p < 0.01); and IPV and depressive symptoms on STI symptomatology (RERI = 3.01, p < 0.01; AP = 0.52, p < 0.001; S = 2.70, p < 0.01) and survival sex (RERI = 1.21, p < 0.05; AP = 0.40, p < 0.05). This study provides new empirical evidence showing that the syndemic conditions of IPV, depressive symptoms and crystal meth consumption interact synergistically to increase women's HIV risk. Interventions that consider the full scope of syndemic vulnerabilities, rather than addressing individual conditions separately, may be essential.


This study examines how social support and perceived discrimination influence depressive symptoms of sexual minorities (including, lesbian, gay, bisexual-identifying individuals, and others with same-sex sexual partners) relative to heterosexual peers, while considering the role of HIV-positive status. We surveyed low-income, predominantly Hispanic/Latino/as residents receiving STI-testing and/or HIV/AIDS care in the lower Rio Grande Valley of southernmost Texas. Respondents aged 18+ took a self-administered survey in English or Spanish in a clinic waiting room (N= 273). Based on OLS regression, HIV-positive status (OLS coefficient = 2.54, p< .01) and social support (OLS coefficient = -0.17, p< .001) were significant predictors of depressive symptoms among sexual minorities, but not those who identified as heterosexual. Perceived discrimination was uniquely associated with increased depressive symptoms among sexual minorities (interaction coefficient = 0.21, p< .05). Clinicians treating sexual minority patients for depression should consider developing and applying resources tailored to individuals' level of social support and ongoing experiences of social discrimination.


This study investigated whether screening for symptoms of mental disorders and referral to mental health services was associated with decreased depression symptoms among people living with HIV/AIDS (PLHIV) in Vietnam. Four hundred PLHIV (63.5% male, mean age 34.8 (SD = 6.8) years) at two outpatient clinics in Ho Chi Minh City were interviewed by psychiatrists and also completed the Center for Epidemiologic Studies-Depression scale (CES-D). One hundred and seventy-four (43.5%) were identified with symptoms of a range of mental illnesses, including depression, anxiety, alcohol use disorder, substance use disorder and HIV associated dementia and were referred to mental health services. Of the 174 PLHIV referred, 162 (93%) returned and completed the CES-D three months later and 125 of these 162 (77%) had attended a mental health service and undertaken treatment. A significant improvement was found in the mean CES-D scores of the 125 attendees from baseline (M = 19.0, SD = 7.5) to month three (M = 11.7, SD = 7.9, p < 0.001). PLHIV who had attended a mental health service and undertaken treatment demonstrated a greater reduction of mean scores on the CES-D compared to PLHIV who had either received a referral but not attended a mental health service to undertake treatment, or not been referred initially.


Depression in people living with HIV (PLWH) has become an urgent issue and has attracted the attention of both physicians and epidemiologists. Currently, 39% of HIV patients are reported to suffer from depression. This population is more likely to experience worsening disease states and, thus, poorer health outcomes. In this study, we analyzed research growth and current understandings of depression among HIV-infected individuals. The number of papers and their impacts have been considerably grown in recent years, and a total of 4872 publications published from 1990-2017 were retrieved from the Web of Science database. Research landscapes related to this research field include risk behaviors and attributable causes.
of depression in HIV population, effects of depression on health outcomes of PLWH, and interventions and health services for these particular subjects. We identified a lack of empirical studies in countries where PLWH face a high risk of depression, and a modest level of interest in biomedical research. By demonstrating these research patterns, highlighting the research gaps and putting forward implications, this study provides a basis for future studies and interventions in addressing the critical issue of HIV epidemics.


BACKGROUND: Food insecurity and mental health negatively affect the lives of women in the United States. Participants in the Women's Interagency HIV Study (WIHS) provided the opportunity to understand the association of food insecurity with depression and mental well-being over time. OBJECTIVE: We investigated the association between current and persistent food insecurity and depression among women at risk of or living with HIV in the United States. METHODS: We used longitudinal data from the WIHS, a prospective cohort study in women at risk of or living with HIV from multiple sites in the United States. Participants completed 6 semiannual assessments from 2013 to 2016 on food security (FS; high, marginal, moderate, low).


BACKGROUND: One mechanism through which social stigma of HIV affects health outcomes for people living with HIV (PLWH) is through internalization of stigma. However, this transformation of social stigma into internalized stigma may not be of the same magnitude for all PLWH. We examined the moderating effects of 3 personality traits-fear of negative social evaluation, attachment-related anxiety, and dispositional resilience-in transforming perceived stigma into internalized stigma. Furthermore, we investigated downstream effects of these moderated associations on depressive symptoms and antiretroviral treatment (ART) adherence. SETTING/METHODS: In study 1, data from 203 PLWH in the Southeast United States were analyzed controlling for age, sex, education, race, and time on ART. In study 2, data from 453 women in a multisite study were analyzed controlling for age, education, race, time on ART, and substance use. RESULTS: In both studies, fear of negative evaluation and attachment-related anxiety moderated the effect of perceived HIV stigma in the community on internalized HIV stigma: People higher on those moderating variables had stronger associations between perceived stigma in the community and internalized stigma. In study 2, resilience was assessed and also moderated the effect of perceived HIV stigma in the community on internalized stigma. In moderated mediation models, fear of negative evaluation, attachment-related anxiety, and resilience moderated the indirect effect of perceived HIV stigma in the community on ART adherence and depression through internalized stigma. CONCLUSIONS: Interventions to assure internalization of HIV stigma should focus on bolstering attachment-related security, social competence, and resilience.


OBJECTIVE: We investigated whether internalized HIV-related stigma predicts adherence to antiretroviral therapy (ART) longitudinally in women living with HIV in the United States, and whether depression symptoms mediate the relationship between internalized stigma and suboptimal ART adherence. DESIGN: Observational longitudinal study utilizing data from the Women's Interagency HIV Study cohort. METHODS: A measure of internalized HIV-related stigma was added to the battery of Women's Interagency HIV Study measures in 2013. For current analyses, participants' first assessment of internalized HIV-related stigma and assessments of other variables at that time were used as baseline measures (Time one or T1, visit occurring in 2013/14), with outcomes measured approximately 2 years later (T3, 2015/16; n = 914). A measure of depression symptoms, assessed approximately 18 months after the baseline (T2, 2014/15), was used in mediation analyses (n = 862). RESULTS: Higher internalized HIV-related stigma at T1 predicted lower odds of optimal ART adherence at T3 (adjusted odds ratio = 0.61, P = 0.001, 95% confidence interval [0.45, 0.82]). Results were similar when ART adherence at T1 was added as a control variable. Mediation analysis revealed a significant indirect effect of internalized HIV stigma at T1 on ART adherence at T3 through depression symptoms at T2 (while controlling for depression symptoms and ART adherence at T1; B = -0.05, SE = 0.03, 95% confidence interval [-0.11, -0.006]). CONCLUSION: These results provide strong longitudinal support for the hypothesis that internalized HIV-related stigma results in suboptimal ART adherence in a large sample of women living with HIV in the United States, working through the pathway of increased depression symptoms.

**BACKGROUND:** Compared to the general population, there is an increased prevalence of depression in people living with HIV (PLWH). Depression remains under-recognised and under-treated in PLWHA. A lower CD4 count is associated with more depressive symptomatology, most significantly in patients with a CD4 count of 50 or less. Conclusions: Depressive symptomatology was highly prevalent in the study patients. Despite the high prevalence, none of the study sample patients were treated for clinical depression. The findings reflect the importance of evaluating for depression in PLWHA, especially in high-risk groups such as patients presenting for their initiation visit or patients with a CD4 count of 50 or less. Depression remains under-recognised and under-treated in PLWHA.

**METHODS:** Data were drawn from a sample of 1002 depressed PLWH engaged in primary care at a metropolitan HIV clinic from 2007-2018, representing 2,569 person-years. Depression characteristics were derived from the Patient Health Questionnaire 9 (PHQ-9), administered during routine screening. Other characteristics were derived from clinic data. Unadjusted and covariate-adjusted survival analyses compared the time to depression remission between depressed participants with and without SI at their initial screening. **RESULTS:** At baseline, 38.4% of depressed PLWH endorsed SI. Depressed PLWH with SI took significantly longer to achieve remission from depression than those without SI. The association appeared to be mediated by depression symptom severity. When adjusted for age, depression diagnosis, any recent drug use, and depression symptom severity, baseline SI no longer predicted remission hazard. **LIMITATIONS:** Participants were assessed for depression with variable frequency. The analysis assumed all patients received comparable treatment for their depression. Some variables were based on clinic measurements that may be subject to misclassification bias. **CONCLUSIONS:** These data suggest that depressed PLWH with SI are at risk for greater chronicity of depression because their depression is more severe. Accordingly, PLWH should be urgently engaged in psychiatric care in the event of SI or severe depressive symptoms.


**BACKGROUND:** Chronicity of depression among people living with HIV (PLWH) is associated with poorer viral suppression and mortality risk. The extent to which suicidal ideation (SI) and other baseline characteristics predict a prolonged duration of depressive illness among PLWH is not known but could help identify PLWH most at risk. **METHODS:** Data were drawn from a sample of 1002 depressed PLWH engaged in primary care at a metropolitan HIV clinic from 2007-2018, representing 2,569 person-years. Depression characteristics were derived from the Patient Health Questionnaire 9 (PHQ-9), administered during routine screening. Other characteristics were derived from clinic data. Unadjusted and covariate-adjusted survival analyses compared the time to depression remission between depressed participants with and without SI at their initial screening. **RESULTS:** At baseline, 38.4% of depressed PLWH endorsed SI. Depressed PLWH with SI took significantly longer to achieve remission from depression than those without SI. The association appeared to be mediated by depression symptom severity. When adjusted for age, depression diagnosis, any recent drug use, and depression symptom severity, baseline SI no longer predicted remission hazard. **LIMITATIONS:** Participants were assessed for depression with variable frequency. The analysis assumed all patients received comparable treatment for their depression. Some variables were based on clinic measurements that may be subject to misclassification bias. **CONCLUSIONS:** These data suggest that depressed PLWH with SI are at risk for greater chronicity of depression because their depression is more severe. Accordingly, PLWH should be urgently engaged in psychiatric care in the event of SI or severe depressive symptoms.


**Background:** Compared to the general population, there is an increased prevalence of depression in people living with HIV and AIDS (PLWHA). The combination of these two common illnesses has profound consequences on the patient and on the healthcare system. **Objective:** This study determined the prevalence of depressive symptomatology in PLWHA attending the Kalafong Hospital ARV Clinic. The study also established if the patients received definitive treatment for unipolar depression. **Methods:** A cross-sectional, descriptive study was carried out on 622 adult patients, aged 18 years or older. A brief rating scale for depression, the Centre for Epidemiological Study Depression Scale (CES-D) was administered to participants. The CES-D is a 20-item self-rating scale that assesses current levels of depression as per DSM-IV criteria. The traditional score of 16 and above was used to define a case of depression. Results: The prevalence of depression according to CES-D scale was 53.8%. The study found that none of the 622 patients ever received definitive treatment for depression. A lower CD4 count is associated with more depressive symptomatology, most significantly in patients with a CD4 count of 50 or less. Conclusion: Depressive symptomatology was highly prevalent in the study patients. Despite the high prevalence, none of the study sample patients were treated for clinical depression. The findings reflect the importance of evaluating for depression in PLWHA, especially in high-risk groups such as patients presenting for their initiation visit or patients with a CD4 count of 50 or less. Depression remains under-recognised and under-treated in PLWHA.

Studies have documented how levels and change in depression correspond to ART non-adherence. However, few studies have examined how levels of and change in adherence may relate to levels of and change in depression, although one might expect mental health to be related to physical health and how successful one is in managing disease. To assess the bidirectional nature of the association between these two constructs, we examined data from a prospective trial of an ART adherence intervention in Uganda that followed 143 participants over 20 months. Adherence was measured using electronic monitoring caps; non-adherence was defined as missing >10% of prescribed doses; self-reported depression was measured using the Patient Health Questionnaire (PHQ-9), and PHQ-9 > 4 defined the presence of at least minor depression. Adjusted linear and logistic regression models were used to examine the longitudinal relationships between depression and non-adherence. At baseline, 40.6% had at least minor depression and 37.1% were non-adherent. Time varying change in the classification of depression (e.g., becoming depressed) predicted change in non-adherence status (e.g., becoming non-adherent), and this association remained when examining continuous measures of the constructs. Similarly, time varying measures of increases in non-adherence predicted increases in depression, regardless of whether continuous or binary classification measures were used. A temporal trend of increased non-adherence over time was observed, and this was accelerated by an increase in depression. Furthermore, those who had at least minor depression at baseline were more likely to be non-adherent at follow-up. These findings support the potential benefits of depression care and adherence support for improving adherence and mental health, respectively, and call for further research to examine such benefits. The trial has been registered with ClinicalTrials.gov (NCT02503072).


Background: Alcohol use disorders (AUDs) are highly prevalent in people living with HIV (PLWH) and are associated with increased HIV risk behaviors, suboptimal treatment adherence, potential interaction with medication pharmacodynamics, and greater risk for disease progression. Preclinical studies show that chronic binge alcohol administration accelerates disease progression and aggravates pathogenesis in the simian immunodeficiency virus (SIV)-infected rhesus macaque model despite viral suppression by antiretroviral therapy. Methods: To translate preclinical findings in the rhesus macaque model of chronic binge alcohol administration and SIV infection and to address areas of uncertainty surrounding the biological mechanisms and socioenvironmental modifiers that contribute to the relationship between alcohol use and HIV-associated comorbidities, precocious aging, and disease progression, we designed a translational multiproject, longitudinal, cohort study, and the New Orleans Alcohol Use in HIV (NOAH) Study. The NOAH Study is led by a multidisciplinary team of scientists, with a research focus on the interaction of AUD and HIV. The overarching hypothesis is that alcohol use will lead to adverse health outcomes in PLWH. In this report, we describe the study design and baseline descriptive characteristics of our cohort. Results: Three-hundred and sixty-five participants completed the baseline testing. The cohort is predominantly male (69%) and African American (83.5%). The majority of participants report incomes below 200% of the federal poverty level. CD4 counts <200 cells/μl were found in 12.8% and viral loads <50 copies/ml were found in 73.6%. These HIV status variables did not differ based upon alcohol use. Conclusions: The NOAH Study facilitates bidirectional translational investigation of alcohol's impact on PLWH. Translation of preclinical findings to PLWH permits confirmation of basic biological mechanisms in humans and also allows incorporation of sociobehavioral factors that may affect biology but are challenging to replicate in preclinical models. The NOAH Study is led by a multidisciplinary team of scientists at LSUHSC, with a research focus on the interaction of AUD, HIV, and cART. This clinical study translates preclinical findings in the rhesus macaque model of chronic binge alcohol administration and SIV infection and facilitates bidirectional translational investigation of alcohol's impact on PLWH. Studies address areas of uncertainty surrounding the biological mechanisms and socioenvironmental modifiers that contribute to the relationship between alcohol use and HIV-associated comorbidities, precocious aging, and disease progression. [ABSTRACT FROM AUTHOR]

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BACKGROUND: Food insecurity, which disproportionately affects marginalized women in the United States, is associated with depressive symptoms. Few studies have examined relations of food insecurity with other mental health outcomes.

OBJECTIVE: The aim of this study was to investigate the associations of food insecurity with symptoms of generalized anxiety disorder (GAD), stress, and posttraumatic stress disorder (PTSD) in the Women’s Interagency HIV Study (WIHS), a prospective cohort study of women with or at risk of HIV in the United States. METHODS: Participants were 2553 women with or at risk of HIV, predominantly African American/black (71.6%). Structured questionnaires were conducted during April 2013-March 2016 every 6 mo. Food security (FS) was the primary predictor, measured using the Household Food Security Survey Module. We measured longitudinal outcomes for GAD (GAD-7 score and a binary GAD-7 screener for moderate-to-severe GAD). Only cross-sectional data were available for outcomes measuring perceived stress (PSS-10 score) and PTSD (PCL-C score and a binary PCL-C screener for PTSD). We examined associations of FS with the outcomes through use of multivariable linear and logistic regression, including lagged associations with GAD outcomes. RESULTS: After adjusting for sociodemographic and health-related factors including HIV serostatus, current marginal, low, and very low FS were associated with increasingly higher GAD-7 scores, and with 1.41 (95% CI: 1.10, 1.80; P < 0.01), 2.03 (95% CI: 1.59, 2.61; P < 0.001), and 3.23 (95% CI: 2.43, 4.29; P < 0.001) times higher odds of screening positive for moderate-to-severe GAD, respectively. Low and very low FS at the previous visit (6 mo earlier) were independently associated with GAD outcomes at current visit. Associations of FS with PSS-10 and PCL-C scores exhibited similar dose-response relations. Very low FS was associated with 1.93 (95% CI: 1.15, 3.24; P < 0.05) times higher odds of screening positive for PTSD. CONCLUSIONS: Food insecurity may be associated with a range of poor mental health outcomes among women in the United States with or at risk of HIV.


INTRODUCTION: Youth and young adults living with HIV (YLWH) experience worse clinical outcomes than adults and high rates of behavioural health challenges that impact their engagement in care and adherence to antiretroviral therapy. This study in the San Francisco Bay area aims to evaluate the feasibility, acceptability and preliminary clinical outcomes of a 12-session telehealth counselling series provided to 80 YLWH, including education, motivational enhancement and problem-solving around HIV care, mental health, substance use and other challenges. Findings will provide information about benefits and challenges of telehealth counselling for YLWH and will guide the development of new technology-based strategies for care. METHODS AND ANALYSIS: The Youth to Telehealth and Text to Improve Engagement in Care study is a pilot randomised, crossover trial examining the feasibility and acceptability of a telehealth counselling intervention consisting of twelve 20-30 min weekly sessions focused on identifying and problem-solving around barriers to HIV care access and adherence and on addressing mental health, substance use and/or other issues. Participants also receive text messages for check-ins, appointment reminders and to improve engagement. Participants complete quantitative online surveys at baseline, 4 and 8 months and qualitative exit interviews. Clinical outcomes, including plasma HIV RNA and CD4+ cell count, are collected from medical records. Study staff will explore outcomes of the intervention using quantitative and qualitative methods. ETHICS AND DISSEMINATION: This study and its protocols have been approved by the University of California, San Francisco (UCSF) Institutional Review Board. Study staff will work with the UCSF Center for AIDS Prevention Studies’ Community Engagement Core and the Youth Advisory Panel to disseminate results to the community, participants and the academic community. TRIAL REGISTRATION: NCT03681145.


While persons with HIV (PWH) have benefited from significant advances in treatment and resulting longevity, mental health problems remain elevated in this population. Adverse childhood experiences (ACEs) are common among PWH and may negatively affect mental health and HIV-related outcomes. We examined the association between ACEs, depression and anxiety symptoms, substance use, antiretroviral therapy (ART) adherence, and HIV-clinical indicators in a sample of 584 PWH at risk for unhealthy alcohol use enrolled in a primary care-based alcohol intervention study. The sample was 96.9% male, 63.0% non-Hispanic white, with an average age of 49.0 years. ACEs were highly prevalent: 82.5% reported >/=1 ACE, including 34.2% reporting 1-2 ACEs, 25.0% reporting 3-4 ACEs, and 23.3% reporting >/=5 ACEs. Adjusting for demographics, having 1-2, 3-4 or >/=5 ACEs was significantly associated with anxiety (ORs (95%CI): 3.41 (1.13-10.33), 4.36 (1.42-3.36), and 3.96 (1.28-12.19), respectively) and poorer mental health quality of life (Betas (SE): -3.21 (1.40), -6.23 (1.51), and -7.09 (1.54), respectively), but not with other outcomes. Trauma-informed interventions to reduce anxiety and improve mental health quality of life in PWH may reduce the negative health sequelae of ACEs.
Older people living with HIV (PLWH) experience multimorbidity that can negatively impact quality of life (QoL). Exercise can improve physical function, but effects on QoL are not well understood. 32 PLWH and 37 controls aged 50-75 completed 12-weeks of moderate-intensity exercise, then were randomized to moderate or high-intensity for 12 additional weeks. Depressive symptoms (CES-D scores) were significantly greater and QOL (SF-36 mental and physical summary scores) significantly lower among PLWH at baseline (all p < 0.05). PLWH had significantly greater worsening in CES-D scores compared to controls (3.4 [0.7, 6.0]; p = 0.01) between 13and 24 weeks. Mental QoL changed minimally, with no significant difference in changes by serostatus between weeks 0 and 12 or weeks 13 and 24 (p <= 0.22). Changes in physical function summary scores were similar by serostatus between 0 and 12 weeks (1.5 [-1.6, 4.6], p = 0.35), but declined significantly more among PLWH between 13 and 24 weeks (-4.1 [-7.2, -1], p = 0.01). Exercise intensity had no significant effect on changes in CES-D or SF-36 summary scores; high-intensity exercise was associated with greater improvements in vitality/fatigue (4.1 [0.8, 7.3], p = 0.02), compared to moderate-intensity. Exercise initiation failed to improve depressive symptoms or QoL among PLWH. Additional interventions may be needed to maximize these patient-reported outcomes among older PLWH initiating an exercise program.
OBJECTIVE: The purpose of this systematic review and meta-analysis was to examine the effects of exercise on depression and anxiety in people living with HIV (PLWH), and to evaluate, through subgroup analysis, the effects of exercise type, frequency, supervision by exercise professionals, study quality, and control group conditions on these outcomes. METHOD: A literature search was conducted through four electronic databases from inception to February 2019. Considered for inclusion were randomized controlled trials (RCTs) investigating exercise interventions and depression or anxiety as outcomes in people living with HIV (≥18 years of age). Ten studies were included (n=479 participants, 49.67% females at baseline), and the standardized mean difference (SMD) and heterogeneity were calculated using random-effect models. An additional pre-post meta-analysis was also conducted. RESULTS: A large effect in favor of exercise when compared to controls was found for depression (SMD=-0.84, 95%CI=[-1.57, -0.11], p=0.02) and anxiety (SMD=-1.23, 95%CI=[-2.42, -0.04], p=0.04). Subgroup analyses for depression revealed large effects on depression for aerobic exercise only (SMD=-0.96, 95%CI=[-1.63, -0.30], p=0.004), a frequency of ≥3 exercise sessions per week (SMD=-1.39, 95%CI=[-2.24, -0.54], p<0.001), professionally supervised exercise (SMD=-1.40, 95%CI=[-2.46, -0.17], p=0.03), and high-quality studies (SMD=-1.31, 95%CI=[-2.46, -0.17], p=0.02). CONCLUSION: Exercise seems to decrease depressive symptoms and anxiety in PLWH, but other larger and high-quality studies are needed to verify these effects.


BACKGROUND: Pro-inflammatory cytokines expressed in human immune deficiency virus (HIV) infection, may induce oxidative stress likely to compromise the patency of the airways or damage the lung tissues/cardiac function. However, physical (aerobic and/or resistance) exercise-induced release of heat shock protein, immune function alteration or reduced tissue hypoxia, have been highlighted as possible mechanisms by which increasing physical activity may reduce plasma pro-inflammatory cytokines in uninfected individuals and should be appraised in the literature for evidence of similar benefits in people living with HIV (PLWH). Therefore, we evaluated the effects of physical exercises on 1) inflammatory biomarkers and 2) cardiopulmonary function (VO2 Max) in PLWH. METHOD: A systematic review was conducted using the Cochrane Collaboration protocol. Searching databases, up to January 2018. Only randomized control trials investigating the effects of either aerobic or resistance or a combination of both exercise types with a control/other intervention(s) for a period of at least 4 weeks among adults living with HIV, were included. Two independent reviewers determined the eligibility of the studies. Data were extracted and risk of bias (ROB) was assessed with the Cochrane Collaboration ROB tool. Meta-analyses were conducted with random effect models using the Review Manager (RevMan) computer software. RESULT: Twenty-three studies met inclusion criteria (n = 1073 participants at study completion) comprising male and female with age range 18-65 years. Three meta-analyses across three sub-groups comparisons were performed. The result showed no significant change in biomarkers of inflammation (IL-6 and IL-1beta) unlike a significant (Z = 3.80, p < 0.0001) improvement in VO2 Max. Overall, the GRADE evidence for this review was of moderate quality. CONCLUSION: There was evidence that engaging in either aerobic or resistance exercise, or a combination of both exercises, two to five times per week can lead to a significant improvement in cardiopulmonary function but not biomarkers of inflammation (IL-6 and IL-1beta). However, this should not be interpreted as "No evidence of effect" because the individual trial studies did not attain sufficient power to detect treatment effects. The moderate grade evidence for this review suggests that further research may likely have an important impact on our confidence in the estimate of effects and may change the estimate.


OBJECTIVES: Although exercise interventions have been shown to improve health outcomes among older people with HIV (PLWH), this population remains highly sedentary. The purpose of this study was to examine the differences in perceived barriers and benefits of exercise among older PLWH by self-identified exercise status. DESIGN: Five focus groups were formed among PLWH: two groups of exercising men, two groups of non-exercising men and one group of women (mixed exercisers and non-exercisers). Themes were analysed in relation to the social-ecological model, utilising the constant comparative approach. SETTING: Patients were recruited from an academic medical centre, HIV clinic and community locations. PARTICIPANTS: PLWH aged 50 or older, diagnosed with HIV for at least 2 years, with no other health conditions that would preclude exercise. PRIMARY AND SECONDARY OUTCOME MEASURES: Determine facilitators, barriers and the
BACKGROUND: Combined exercise (CE) has been recommended for individuals living with HIV/AIDS (ILWHA) undergoing antiretroviral therapy. However, depending on the intensity and duration, physical exercise may occasionally increase inflammatory parameters and reduce immunological responses that if not reversed, cause health injury specifically in this population. Information about immunological and hormonal responses after CE in ILWHA has not been completely elucidated. Therefore, the aim is to verify the acute effects of CE on cortisol, testosterone, and immunoglobulin A, and pro-inflammatory and anti-inflammatory cytokines over 24 hours in ILWHA.

METHODS: Noninfected individuals and ILWHA underwent 5 sessions of CE prior to the acute assessment session. Seventy-two hours after the last session, the subjects were submitted to one session of CE (aerobic exercise: 25 min at 60-70% reserve heart rate and resistance exercise: 3 sets of 15 maximum repetitions of 6 exercises). Saliva samples were collected before, immediately, 6 and 24 hours after CE.

RESULTS: CE reduced cortisol (6 h: 2.54 [0.58] vs 0.65 [0.22] pg.mL-1; P = .02), increased testosterone (all moments) and immunoglobulin A levels (24 h: 255.3 [44.7] vs 349.2 [41.9] mum.mL-1; P = .01) without significant difference in cytokines levels in ILWHA. CONCLUSION: CE modulates cortisol, testosterone, and immunoglobulin A levels without the change in immunological parameters in ILWHA.


Importance: Whether exercise reduces subsequent falls in high-risk older adults who have already experienced a fall is unknown. Objective: To assess the effect of a home-based exercise program as a fall prevention strategy in older adults who were referred to a fall prevention clinic after an index fall. Design, Setting, and Participants: A 12-month, single-blind, randomized clinical trial conducted from April 22, 2009, to June 5, 2018, among adults aged at least 70 years who had a fall within the past 12 months and were recruited from a fall prevention clinic. Interventions: Participants were randomized to receive usual care plus a home-based strength and balance retraining exercise program delivered by a physical therapist (intervention group; n = 173) or usual care, consisting of fall prevention care provided by a geriatrician (usual care group; n = 172). Both were provided for 12 months. Main Outcomes and Measures: The primary outcome was self-reported number of falls over 12 months. Adverse event data were collected in the exercise group only and consisted of falls, injuries, or muscle soreness related to the exercise intervention. Results: Among 345 randomized patients (mean age, 81.6 [SD, 6.1] years; 67% women), 296 (86%) completed the trial. During a mean follow-up of 338 (SD, 81) days, a total of 236 falls occurred among 172 participants in the exercise group vs 366 falls among 172 participants in the usual care group. Estimated incidence rates of falls per person-year were 1.4 (95% CI, 0.1-2.0) vs 2.1 (95% CI, 0.1-3.2), respectively. The absolute difference in fall incidence was 0.74 (95% CI, 0.04-1.78; P = .006) falls per person-year and the incident rate ratio was 0.64 (95% CI, 0.46-0.90; P = .009). No adverse events related to the intervention were reported. Conclusions and Relevance: Among older adults receiving care at a fall prevention clinic after a fall, a home-based strength and balance retraining exercise program significantly reduced the rate of subsequent falls compared with usual care provided by a geriatrician. These findings support the use of this home-based exercise program for secondary fall prevention but require replication in other clinical settings. Trial Registration: ClinicalTrials.gov Identifiers: NCT01029171; NCT00323596.
BACKGROUND AND AIM: Protein supplementation and resistance training (RT) are interventions that may counteract decline in muscle mass and increase in fat mass, thus reducing the risk of developing chronic diseases during the aging process. The objective of this study was to investigate the effect of whey protein (WP) pre- or post-RT on metabolic and inflammatory profile in pre-conditioned older women. METHODS AND RESULTS: Seventy older women participated in this investigation and were randomly assigned to one of three groups: WP pre-RT and placebo post-RT (WP-PLA, n = 24), placebo pre-RT and WP post-RT (PLA-WP, n = 23) and placebo pre and post-RT (PLA-PLA, n = 23). Each group ingested 35 g of PLA or WP pre- and post-RT. RT was carried out over 12 weeks (three times/week; 3 x 8-12 repetition maximum). Body composition, blood pressure, blood samples and dietary intake were assessed pre- and post-intervention. After the intervention, WP groups showed greater improvements in appendicular lean soft tissue (ALST: WP-PLA, 3.1%; PLA-WP, 3.9%; PLA-PLA, 1.8%) and total cholesterol/high density lipoprotein cholesterol ratio (TC/HDL-C: WP-PLA, -12.11%; PLA-WP, -13.2%; PLA-PLA, -0.7) when compared with PLA-PLA. WP post-RT also showed improvements (P < 0.05) in ALST/appendicular fat mass ratio (PLA-WP, 5.8%; PLA-PLA, 1.3%), total body fat (PLA-WP, -3.8%; PLA-PLA: -0.1) and trunk fat mass (WP-PLA, -3.1%; PLA-PLA, -0.3%) when compared with PLA-PLA. CONCLUSION: WP pre- or post- RT promotes improvements in ALST and TC/HDL-C ratio in pre-conditioned older women. WP administered after RT was more effective in improving metabolic health Z-score and in reducing body fat compared to placebo group.


Physical activity reduces the risk for comorbidities, but little is known about barriers to exercise among older adults living with HIV. Three focus groups were conducted among 19 adults living with HIV, aged >/= 50 years, who were enrolled in or recently completed a supervised exercise intervention. Sessions were recorded, transcribed, and coded first using inductive methods. All participants were male, and the majority were white, non-Hispanic; 53% were receiving disability benefits. All had suppressed HIV infection on antiretroviral therapy, with almost 20 years since HIV diagnosis. Participants noted a lack of self-efficacy, motivation, and physical limitations that contributed to a sense of "disability" as barriers to exercise prior to the intervention. Through social support and improvements in self-efficacy, participants were motivated to start and continue exercising. Perceived sense of disability may impede (or interfere with) exercise initiation and maintenance; self-efficacy and social support may facilitate exercise maintenance in older adults living with HIV.


Depressive symptoms and fatigue are prevalent among people living with human immunodeficiency virus. Resistance exercise is known to stimulate a positive affective response. OBJECTIVE: To examine the acute psychological effects of resistance-exercise intensity among Black/African-American people living with human immunodeficiency virus and experiencing depressive symptoms. METHODS: A total of 42 participants were randomized into a moderate- (n = 21) or high-intensity (n = 21) group. Assessments were collected before exercise (PRE), at the midpoint (MID), immediately following (POST) exercise, and 15 (DELAY 15) and 30 (DELAY 30) min after. RESULTS: In the moderate-intensity group, affect improved PRE to POST, PRE to DELAY 15 and DELAY 30, and perceived distress decreased from PRE to all time points. In the high-intensity group, affect declined PRE to MID, and perceived distress decreased PRE to DELAY 15 and DELAY 30. Perceived activation increased PRE to MID, and POST in both groups (ps < .01). CONCLUSIONS: The moderate-intensity group compared with the high-intensity group is more effective at improving affect and energy and at reducing distress.

Oliveira, V. H. F., et al. (2019). "Effects of a Combined Exercise Training Program on Health Indicators and Quality of Life of People Living with HIV: A Randomized Clinical Trial." AIDS Behav.

The aim of this study was to evaluate the effects of 16 weeks of combined exercise training (CET) on muscle strength, body composition, depression, anxiety and quality of life of people living with HIV (PLHIV). Twenty-three participants completed the study, 14 in trained group (TG) and 9 in control group (CG). TG consisted of resistance and aerobic training three times a week, while the CG was exposed to recreational activities twice a week. CET promoted increased muscle strength (25% in overall strength) and aerobic capacity (+ 20% in training speed and + 23% in VO2 during aerobic training; p < 0.05). In
BACKGROUND: Since the advent of antiretrovirals, people with HIV are living longer and have improved quality of life. However, 30-60% of these individuals experience cognitive impairment. Fortunately, physical activity has emerged as a management strategy for cognitive impairment. PURPOSE: To map the evidence on physical activity and cognition in HIV.

METHODS: We searched five databases using terms related to physical activity and HIV. Two authors independently reviewed titles and abstracts for studies that addressed physical activity/exercise and cognition in people with HIV. Authors reviewed full texts to identify articles that met our inclusion criteria. One author extracted the data, then we collated the reviewing.

RESULTS: People with HIV are living longer. However, co-morbidities are often more prevalent and severe than in the general population and have greater impacts on health status. Although compelling evidence exists about the health benefits of exercise in the HIV literature, many people living with HIV tend to be physically inactive. The purpose of this study was to use the Theoretical Domains Framework to investigate the barriers and facilitators to participation in exercise of older people living with HIV. This qualitative study involved in-depth, semi-structured interviews with 12 adults aged 45 years and older recruited from HIV organizations and health centres. Data were analyzed thematically using the Theoretical Domains Framework, and two investigators independently coded transcripts. Six prominent domains were identified from the interviews: Social influences, environmental context and resources, reinforcement, intentions, social and professional role, and knowledge. Themes emerging from the interviews fit into all 14 domains of the Theoretical Domains Framework, and 67% of themes fit into the six most prominent domains. The participants had a working knowledge of exercise and its health benefits but were unfamiliar with specific exercise parameters. The majority identified environmental or resource constraints as salient barriers for participation in exercise programmes. Co-morbidities, injuries, and the side effects of HIV disease and medication were also acknowledged as barriers. Stigma and discrimination from friends, family, people within the LGBTQ community, and health care providers were commonly discussed. Participants spoke of the importance of social support to facilitate participation in exercise programmes. Other facilitators included using technology and incorporating exercise into day-to-day activities. People aging with HIV experience many barriers to exercise. Those designing exercise interventions for people aging with HIV should incorporate strategies to address these obstacles.


results and summarized the characteristics of included studies. RESULTS: Sixteen studies from high-income countries were included; eight were interventional (five randomized controlled trials and three pre-post single group observational studies) and eight were non-interventional studies. The interventional studies included aerobic, resistive, and Tai Chi exercise for 8 weeks to 12 months in duration. Two of eight interventional studies found exercise to benefit self-reported cognition. All eight non-interventional studies showed a positive relationship between physical activity and cognitive function.

CONCLUSIONS: Results of this study suggest that physical activity may preserve or improve cognition in people living with HIV. Implications for Rehabilitation Physical activity may play a role in preserving or improving cognition in the human immunodeficiency virus population. Exercise should be prescribed for people with human immunodeficiency virus based on the stage of infection. Rehabilitation professionals should follow current exercise guidelines when prescribing exercise for people living with human immunodeficiency virus.


This study assessed the effectiveness of an 8-week aerobic exercise program on heart rate variability (HRV) in people living with HIV taking antiretroviral therapy. Twenty-six participants were randomly assigned to a control group or an aerobic exercise group. Resting HRV was measured for 5 min in supine position using an electrocardiogram. Estimated maximal oxygen uptake (VO2max) was assessed through a treadmill 6-min walk test. The training program consisted of aerobic exercise thrice per week at 65%-75% of heart rate max for 45 min per session. Repeated measures ANOVA was used to test for differences between groups, and Spearman’s rho was used to assess for the correlation between HRV measures and estimated VO2max. There was no significant group by time interactions for any of the HRV indices. However, the standard deviation of normal-to-normal (NN) R-R intervals increased significantly in the aerobic exercise group (pre: 46.97 +/- 32.70 ms vs. post: 59.49 +/- 37.20 ms, p = .045). There was a strong correlation between the VO2max and the standard deviation of NN intervals (SDNN) (r = 0.617; p = .002). There was a moderate correlation between VO2max and the square root of the mean squared differences of successive normal-to-normal intervals (rMSSD) (r = 0.424; p = .049), the low frequency power (r = 0.506; p = .016), and the standard deviation of differences between successive differences of normal-to-normal intervals (SDSD) (r = 0.424; p = .049). While differences in HRV were not observed between groups, our data suggest that overall autonomic function can improve across time with aerobic exercise, and these changes are associated with greater levels of VO2max. These results advocate the importance of improvements in HRV given their association with lower risk of cardiovascular disease and mortality.


Exercise is commonly prescribed to improve lipid profile and glucose levels in people living with HIV (PLWH). This systematic review was performed in order to examine the effects of exercise interventions on lipid profile and glucose levels on PLWH. Randomized controlled trials (RCTs) investigating the effects of exercise on blood glucose, triglycerides (TG), total cholesterol (TC), HDL and LDL published up to November 2017 were reviewed. Two reviewers assessed inclusion and exclusion criteria, methodological quality and extracted the data. The PEDro scale was used to assess the quality of the included studies. Nine RCTs involving 638 PLWH met inclusion criteria. The median PEDro scale score was 5 out of 10. Three combined aerobic exercise + resistance exercise studies (AE+RE) showed improvements in blood glucose levels, one study showed improvements in HDL, one showed improvements in TG, and one showed improvements in TC. The AE only study reported improvements in HDL, while the RE only study reported improvements in TG, TC, HDL and LDL. Exercise can be effective for the improvement of some metabolic parameters, especially blood glucose and HDL. However, due to methodological issues, small number of studies and differences in exercise protocols, these findings should be interpreted with caution.

People living with HIV (PLWH) have limited exercise capacity because of anemia, neuromuscular disorders, and pulmonary limitations. We used a meta-analysis to examine the effect of aerobic and resistance exercise alone and in combination on cardiovascular parameters. Subgroup meta-analyses were conducted and long-term effects of exercise were investigated. A systematic literature search was conducted up to July/August 2017. The Physiotherapy Evidence Database-scale was used to rate quality and assess the risk of bias on the papers. Standardized mean differences (SMDs) were calculated to assess the effect of exercise. Posttreatment comparison between the exercise and control groups revealed moderate and large effect sizes in favor of the intervention group for VO2max (SMD = 0.66, p < .0001) and the 6-minute walk test (SMD = 1.11, p = .0001). Exercise had a positive effect on cardiovascular parameters in PLWH. Exercise can be a prevention factor for PLWH dealing with multiple comorbidities.

Food insufficiency is associated with suboptimal HIV treatment outcomes. Less is known about psychosocial correlates of food insufficiency among PLWH. This sample includes 1176 adults initiating antiretroviral therapy at HIV clinics in Ethiopia. Logistic regression modeled the association of psychological distress, social support, and HIV-related stigma with food insufficiency. Among respondents, 21.4% reported frequent food insufficiency. Psychological distress [adjusted odds ratio
Background: Chronic inflammation is associated with AIDS-defining and non-AIDS-defining conditions. Limited research has considered how food insecurity influences chronic inflammation among people living with human immunodeficiency virus (HIV). We examined whether food insecurity was associated with higher levels of inflammation among women living with HIV (WWH) in the United States. Methods: We analyzed cross-sectional data collected in 2015 from 421 participants on antiretroviral therapy from the Women’s Interagency HIV Study. The exposure was any food insecurity. The outcome was inflammation, measured by proinflammatory cytokine interleukin-6 (IL-6) and tumor necrosis factor receptor 1 (TNFR1) levels. We conducted multivariable linear regressions, adjusting for sociodemographic, clinical, and nutritional factors.

Results: Nearly one-third of participants (31%) were food insecure and 79% were virally suppressed (<20 copies/mL). In adjusted analyses, food insecurity was associated with 1.23 times the level of IL-6 (95% confidence interval [CI], 1.06-1.44) and 1.13 times the level of TNFR1 (95% CI, 1.05-1.21). Findings did not differ by HIV control (virally suppressed with CD4

A summary of the findings from various studies is presented below:


- Background: Chronic inflammation is associated with AIDS-defining and non-AIDS-defining conditions. Limited research has considered how food insecurity influences chronic inflammation among people living with HIV (HIV). We examined whether food insecurity was associated with higher levels of inflammation among women living with HIV (WWH) in the United States. Methods: We analyzed cross-sectional data collected in 2015 from 421 participants on antiretroviral therapy from the Women’s Interagency HIV Study. The exposure was any food insecurity. The outcome was inflammation, measured by proinflammatory cytokine interleukin-6 (IL-6) and tumor necrosis factor receptor 1 (TNFR1) levels. We conducted multivariable linear regressions, adjusting for sociodemographic, clinical, and nutritional factors.

- Results: Nearly one-third of participants (31%) were food insecure and 79% were virally suppressed (<20 copies/mL). In adjusted analyses, food insecurity was associated with 1.23 times the level of IL-6 (95% confidence interval [CI], 1.06-1.44) and 1.13 times the level of TNFR1 (95% CI, 1.05-1.21). Findings did not differ by HIV control (virally suppressed with CD4 levels.

- South Africa has increasing numbers of persons living with HIV on antiretroviral treatment (ART). There is evidence for a relationship between food, food security and HIV. Despite increasing rates of people older than 50 living with HIV coinciding with greater levels of co-morbidity, the existing research is largely limited to those aged 15-49 years. In this paper, we therefore explore how older people living with HIV (OPLWH) in two urban communities within South Africa negotiate and ensure they have sufficient access to food and how food insecurity may affect their retention in care and ART adherence. This study used exploratory qualitative semi-structured in-depth interviews with 23 OPLWH to collect data in isiXhosa. Data were analysed using thematic content analysis. Factors at the community, household and individual levels influence (a) access to sufficient and quality food, and (b) beliefs about ART and food based on (mis)understandings of messaging from health care providers. The results demonstrate the need to explore further and clarify the nutritional guidelines that OPLWH receive from providers to ensure this does not result in reduced adherence or retention in care. They also demonstrate the role that social welfare and family or kin obligations plays in ensuring the food security of OPLWH.

- OBJECTIVE: Food insecurity, or self-reports of inadequate food access due to limited financial resources, remains prevalent among people living with HIV (PLHIV). We examined the impact of food insecurity on combination antiretroviral therapy (cART) adherence within an integrated care programme that provides services to PLHIV, including two meals per day.

- DESIGN: Adjusted OR (aOR) were estimated by generalized estimating equations, quantifying the relationship between food insecurity (exposure) and cART adherence (outcome) with multivariable logistic regression. SETTING: We drew on survey data collected between February 2014 and March 2016 from the Dr. Peter Centre Study based in Vancouver, Canada.

- PARTICIPANTS: The study included 116 PLHIV at baseline, with ninety-nine participants completing a 12-month follow-up interview. The median (quartile 1-quartile 3) age was 46 (39-52) years at baseline and 87 % (n 101) were biologically male at birth. RESULTS: At baseline, 74 % (n 86) of participants were food insecure (>2 affirmative responses on Health Canada’s Household Food Security Survey Module) and 67 % (n 78) were adherent to cART >/=95 % of the time. In the adjusted regression analysis, food insecurity was associated with suboptimal cART adherence (aOR = 0.47, 95 % CI 0.24, 0.93).

- CONCLUSIONS: While food provision may reduce some health-related harms, there remains a relationship between this prevalent experience and suboptimal cART adherence in this integrated care programme. Future studies that elucidate strategies to mitigate food insecurity and its effects on cART adherence among PLHIV in this setting and in other similar environments are necessary.

- OPLWH receive from providers to ensure this does not result in reduced adherence or retention in care. They also therefore explore how older people living with HIV (OPLWH) in two urban communities within South Africa negotiate and ensure they have sufficient access to food and how food insecurity may affect their retention in care and ART adherence. This study used exploratory qualitative semi-structured in-depth interviews with 23 OPLWH to collect data in isiXhosa. Data were analysed using thematic content analysis. Factors at the community, household and individual levels influence (a) access to sufficient and quality food, and (b) beliefs about ART and food based on (mis)understandings of messaging from health care providers. The results demonstrate the need to explore further and clarify the nutritional guidelines that OPLWH receive from providers to ensure this does not result in reduced adherence or retention in care. They also demonstrate the role that social welfare and family or kin obligations plays in ensuring the food security of OPLWH.


People aging with HIV face social stressors which may negatively affect their overall nutrition. Here, we assess relationships between self-reported measures of depression, perceived stress, social support, and food insecurity with diet quality in older adults with HIV. A retrospective analysis of self-reported data from parent study at The University of Alabama at Birmingham 1917 HIV Clinic was performed. The study sample consisted of sixty people living with HIV (PLWH) with controlled HIV infection (<50 copies/mL), aged 50 years or older who participated in a cross-sectional microbiome study. Dietary intake was measured using the NHANES 12-month Food Frequency Questionnaire (FFQ) and three Automated Self-Administered (ASA) 24-hr diet recalls to calculate diet quality scores using the Mediterranean Diet Score (MDS); alternative Healthy Eating Index (aHEI); and the Recommended Food Score (RFS) indices. Food insecurity was measured with the Food Security Questionnaire (FSQ). Participants completed the following psychosocial scales: (1) depression - Patient Health Questionnaire-8 (PHQ8); (2) perceived stress - Perceived Stress Scale (PSS-10); (3) social support - Multidimensional Scale of Perceived Social Support (MSPSS). Linear regression models were used to investigate relationships among variables controlling for gender and income. The cohort was characterized as follows: Mean age 56 +/- 4.6 years, 80% African-American, and 32% women. Mean body mass index (BMI) was 28.4 +/- 7.2 with 55% reporting food insecurity among WWH.
participants reported having post-secondary education (53%), although 77% reported annual incomes <20,000. Food insecurity was independently associated with measures of poor dietary intake: aHEI (beta = -0.08, p = .02) and MDS (beta = -0.23, p < 0.01) and with low dietary intake of fibre (beta = -0.27, p = .04), vitamin E (beta = -0.35, p = .01), folate (beta = -0.31, p = .02), magnesium (beta = -0.34, p = .01) and copper (beta = -0.36, p = .01). These data indicate food insecurity is associated with poor diet quality among PLWH. Clinical interventions are needed to improve food access for PLWH of low SES.


Stress and food insecurity (FI) are associated with poor perinatal and HIV outcomes. We hypothesized that FI would increase postpartum stress among women in Kenya, and that the impact would be greater in women with HIV. Among 371 pregnant women, we identified latent FI trajectories across the perinatal period, and estimated their association with postpartum stress. Stress metrics included the Perceived Stress Scale (PSS) and hair cortisol concentrations (HCC). We identified two FI trajectories: persistent moderate FI and persistent mild FI. Moderate FI (vs. mild) was associated with higher PSS; this association was stronger among HIV-negative women. We observed a trend towards higher HCC associated with moderate FI, which did not differ by HIV status. HCC and PSS were not correlated. In summary, moderate FI (vs. mild) was associated with increased stress. The lack of PSS-HCC correlation could reflect different physiological pathways.

Interventions to mitigate FI could alleviate postpartum stress.


OBJECTIVE: To assess the prevalence and determinants of food insecurity among people living with HIV (PLWH) in Pune, India and its association with biomarkers known to confer increased risks of morbidity and mortality in this population. DESIGN: Cross-sectional analysis assessing food insecurity using the standardized Household Food Insecurity Access Scale. Participants were dichotomized into two groups: food insecure and food secure. Logistic regression models were used to assess associations between socio-economic, demographic, clinical, biochemical factors and food insecurity. SETTING: Antiretroviral therapy (ART) centre of Byramjee Jeejeebhoy Government Medical College and Sassoon General Hospitals (BJGMC-SGH), Pune, a large publicly funded tertiary and teaching hospital in western India. Participants: Adult (/>=18 years) PLWH attending the ART centre between September 2015 and May 2016 who had received ART for either </=7d (ART-naive) or >/=1 year (ART-experienced). RESULTS: Food insecurity was reported by 40 % of 483 participants. Independent risk factors (adjusted OR; 95 % CI) included monthly family income <INR 5000 (~70 USD; 13.2; CI 5.4, 32.2) and consuming >/=4 non-vegetarian meals per week (4.7; 1.9, 11.9). High-sensitivity C-reactive protein (hs-CRP) >/=0.33 mg/dl (1.6; 1.04, 2.6) and d-dimer levels 0.19-0.31 microg/ml (1.6; 1.01, 2.6) and >/=0.32 microg/ml (1.9; 1.2, 3.2) were also associated with food insecurity. CONCLUSIONS: More than a third of the study participants were food insecure. Furthermore, higher hs-CRP and d-dimer levels were associated with food insecurity. Prospective studies are required to understand the relationship between food insecurity, hs-CRP and d-dimer better.


Objectives: Aging populations in the United States (US) exhibit high rates of both food insecurity and chronic illness. Few studies have explored in depth how food insecurity arises among such populations, and how it interacts with experiences of aging. We qualitatively explored how aging, low-income women experience food insecurity at multiple sites across the US, focusing on the neighborhood-level factors that influence these experiences. Methods: Study participants were drawn from the San Francisco, CA, Atlanta, GA, and Chapel Hill, NC sites of the Women’s Interagency HIV Study (WIHS), a cohort study of women with or at risk for HIV. Using purposive sampling, we recruited 38 women who were food-insecure, 50 years of age or older, either with or at risk for HIV, and from different neighborhoods within each site. Semi-structured interviews explored participants’ perceptions of how their neighborhood influenced their experiences with food security and aging. An inductive-deductive approach was used to thematically analyze the data. Results: Participants across the three sites explained that food insecurity was related to limited access to food stores. In San Francisco, this limited access primarily resulted from high food prices, whereas in Atlanta and Chapel Hill long distances to food stores and poor public transport systems were prominent. Most participants also described being dependent on food aid programs, but often found this...
BACKGROUND AND AIMs: Few longitudinal studies have examined the relationship between food insecurity and substance use. We aimed to investigate this relationship using longitudinal data among women with or at risk for HIV in the United States. DESIGN: Women's Intercagency HIV Study (WIHS), a prospective cohort study. SETTING: Nine sites across the United States. PARTICIPANTS: A total of 2553 women with or at risk for HIV. MEASUREMENTS: Semi-annual structured interviews were conducted during April 2013-March 2016. Food security (FS) was the primary predictor, measured using the Household Food Security Survey Module. Outcomes were: any illicit substance use except cannabis; licit or illicit cannabis use; stimulant use (crack, cocaine, or methamphetamine); opioid use (heroin or methadone in a non-prescribed way); and prescription drug misuse (prescription narcotics, amphetamines, or tranquilizers in a non-prescribed way) since the last visit. We used multivariable logistic regression with random effects to examine longitudinal associations of current and previous FS with the outcomes simultaneously, adjusting for socio-demographic factors, HIV serostatus, physical health and health insurance. FINDINGS: Average number of visits was 4.6. At baseline, 71% of participants were HIV-seropositive, 44% reported marginal, low, or very low FS, and 13% were using illicit substances. In adjusted analyses, current low and very low FS were significantly associated with 1.59 (95% confidence interval (CI) = 1.02, 2.64; P = 0.039) and 2.48 (95% CI = 1.52, 4.04; P < 0.001) higher odds of any illicit substance use, compared to high FS, and also with higher odds of cannabis, stimulant and opioid use, exhibiting a consistent dose-response relationship. Marginal, low, and very low FS at the previous visit were associated with 1.66 (95% CI = 1.08, 2.54; P = 0.020), 1.77 (95% CI = 1.14, 2.74; P = 0.011), and 2.28 (95% CI = 1.43, 3.64; P < 0.001) higher odds of current illicit substance use. CONCLUSIONS: Food insecurity appears to be longitudinally associated with substance use among US women with or at risk for HIV.
BACKGROUND: Food insecurity, which disproportionately affects marginalized women in the United States, is associated with depressive symptoms. Few studies have examined relations of food insecurity with other mental health outcomes.

OBJECTIVE: The aim of this study was to investigate the associations of food insecurity with symptoms of generalized anxiety disorder (GAD), stress, and posttraumatic stress disorder (PTSD) in the Women's Interagency HIV Study (WIHS), a prospective cohort study of women with or at risk of HIV in the United States. METHODS: Participants were 2553 women with or at risk of HIV, predominantly African American/black (71.6%). Structured questionnaires were conducted during April 2013-March 2016 every 6 mo. Food security (FS) was the primary predictor, measured using the Household Food Security Survey Module. We measured longitudinal outcomes for GAD (GAD-7 score and a binary GAD-7 screener for moderate-to-severe GAD). Only cross-sectional data were available for outcomes measuring perceived stress (PSS-10 score) and PTSD (PCL-C score and a binary PCL-C screener for PTSD). We examined associations of FS with the outcomes through use of multivariable linear and logistic regression, including lagged associations with GAD outcomes. RESULTS: After adjusting for sociodemographic and health-related factors including HIV serostatus, current marginal, low, and very low FS were associated with increasingly higher GAD-7 scores, and with 1.41 (95% CI: 1.10, 1.80; P < 0.01), 2.03 (95% CI: 1.59, 2.61; P < 0.001), and 3.23 (95% CI: 2.43, 4.29; P < 0.001) times higher odds of screening positive for moderate-to-severe GAD, respectively. Low and very low FS at the previous visit (6 mo earlier) were independently associated with GAD outcomes at current visit. Associations of FS with PSS-10 and PCL-C scores exhibited similar dose-response relations. Very low FS was associated with 1.93 (95% CI: 1.15, 3.24; P < 0.05) times higher odds of screening positive for PTSD. CONCLUSIONS: Food insecurity may be associated with a range of poor mental health outcomes among women in the United States with or at risk of HIV.


BACKGROUND/OBJECTIVES: Body composition changes markedly during reproduction. In sub-Saharan Africa, impacts of HIV infection on body composition across pregnancy and lactation in the context of Option B+ antiretroviral therapy are unknown. Therefore, we sought to evaluate the role of HIV infection on body composition during pregnancy and lactation among Kenyan women. SUBJECTS/METHODS: A cohort of pregnant women (n = 333; 50.5% HIV+, receiving ART) were enrolled at seven clinics in western Kenya. Two prenatal (mean +/- SD: 23.6 +/- 4.4 and 33.4 +/- 2.0 weeks gestation) and three postpartum (6, 14, and 36 weeks) measurements included: individual-level food insecurity, height, weight, fat mass (FM), and fat-free mass (FFM) by bioimpedance analysis (BIA), mid-upper arm circumference (MUAC), and triceps skinfold (TSF), allowing for AMA (arm muscle area) and AFA (arm fat area) derivation. Multivariable longitudinal regression models were used to relate HIV to body composition changes. RESULTS: In longitudinal models, HIV-infected women had lower weight (ss = -3.0 kg, p = 0.003), fat mass (ss = -1.5 kg, p = 0.02), fat-free mass (ss = -1.5 kg, p = 0.01), TSF (ss = -2.6 mm, p < 0.001), AFA (ss = -3.9 cm(3), p < 0.001), and MUAC (ss = -1.0 cm, p = 0.001), but not AMA (p = 0.34), across all observations. Food insecurity was inversely associated with AMA and MUAC postpartum (AMA ss-range = -0.47 to -0.92 cm(3); MUAC ss-range = -0.09 to -0.15 cm, all p < 0.05). CONCLUSIONS: HIV infection was associated with lower weight, fat mass, fat-free mass, TSF, AFA, and MUAC values during pregnancy and lactation, while food insecurity was intermittently associated with body composition. This suggests that pregnant and lactating women living with HIV and food insecurity could benefit from nutritional support.


BACKGROUND: Little is known about the relationship between food insecurity and depression among African American low-income single mothers living with HIV/AIDS in rural Alabama. Food insecurity is a neglected variable in bioethics, biomedical, behavioral, and health disparities research. METHODS: Regression analyses of data from a survey of African American single mothers living with HIV/AIDS in Alabama’s Black Belt were used to evaluate the association between food insecurity and depression. RESULTS: As determined by the USDA food insecurity scale, about 53% of the sample was classified as food insecure. In the bivariate regression model, food insecurity was associated with depression. After controlling for sociodemographic variables, food insecurity remained positively associated with depression in this sample. CONCLUSIONS: Food insecurity places low-income African American women at risk of depression. Given widespread
poverty among HIV-positive individuals in the Black Belt, access to food should be considered in HIV-related prescriptions and in health disparities research.

FRAILTY


**BACKGROUND:** Patients with HIV infection suffer from accelerated aging. In this context, frailty could be a relevant problem that aggravates the quality of life (QoL) and morbi-mortality of these patients. Our objective was to determine the prevalence of frailty and pre-frailty in HIV-infected patients in our cohort as well as their risk factors and QoL. METHODS: This was a prospective cross-sectional study of HIV-infected people aged >/=18 years on a stable antiretroviral regimen (ART) >/=1 year. Frailty was defined by >/=3 of 5 Fried's criteria: weight loss, low physical activity, exhaustion, weak grip strength and slow walking time. Variables related to sociodemographics, HIV infection, comorbidities, polypharmacy, and QoL were evaluated. Independent predictors of frailty were evaluated using collinearity in a multivariate logistic regression analyses (backward stepwise elimination). RESULTS: The 248 people studied has a mean age of 49 years, 63.7% were male, and 81% were Caucasian. The prevalence of pre-frailty and fragility was 39.1% and 4.4%, respectively. The main route of HIV acquisition was heterosexual (47.2%). At the inclusion time 26.6% of the patients had AIDS events, 60.9% were anti-HCV negative, and 91.5% had HIV RNA <50 copies/ml (84.3% for >/=1 year); 10.9% had >2 comorbidities, and 13.3% were receiving >5 non-HIV drugs. Frailty patients had a higher age (p 0.006), more sensitive deficits (visual or auditory) (p 0.002), a greater number of falls during the previous year (p 0.0001), a higher Charlson comorbidity index (p 0.001), and a higher VACS index (p 0.001). All comorbidities, excluding bone and liver, were significantly more frequent in fragile patients. The presence of >2 comorbidities and treatment with >5 drugs not related to HIV they were also more frequent in frail patient (p 0.0001 and p 0.004, respectively). Independent predictors of pre-frailty/frailty in the multivariable analysis differ in men (VACS index, C-reactive protein [CRP], and falls) and women (CRP, AIDS, and menopause). Patients with pre-frailty/frailty had some indicator of a lower QoL. CONCLUSION: Factors associated with pre-frailty/frailty in HIV-infected patients differ by gender, which should be considered when establishing measures for prevention. The role of menopause in the risk of pre-frailty/frailty warrants further investigations.


Purpose: To review the concept of frailty and its measurement, describe the existing data on frailty in people living with HIV, examine the limits of frailty as a marker of vulnerability in people living with HIV, and explore how frailty measurement could be incorporated into HIV care. METHODS: Narrative literature review. RESULTS: Frailty is an emerging marker of vulnerability that is increasingly being assessed among people aging with HIV. Which frailty measurement tool is best for people with HIV has not yet been established, and likely depends on clinical context. Evaluation of vulnerability should take into account social and structural factors. Frailty assessment can be incorporated into clinical care as a part of comprehensive geriatric assessment. Models of HIV-geriatric care are being established. CONCLUSIONS: As a group, people with HIV are aging and increasingly face multiple interacting age-related medical and social problems. It requires remarkable resilience to age successfully with HIV. The clinical care of people aging with HIV could benefit from a focus on frailty and related social vulnerability to better understand patients' needs and develop appropriate goals and care plans. [ABSTRACT FROM AUTHOR]
Background: Neurocognitive impairment (NCI) is strongly associated with frailty in people living with human immunodeficiency virus (PLWH); the overlap of frailty and NCI and the impact on health outcomes in PLWH are unknown.

Methods: PLWH in a longitudinal, observational study of aging completed entry evaluations for frailty and NCI. Outcomes of falls (recurrent) increased limitations in independent activities of daily living (IADL), or mortality were combined. Poisson regression models estimated prevalence ratios (PR) for ≥1 outcome over 2 years. Results: Among 987 participants, the median age at entry was 51 years; 19% were female; the median CD4 count was 616 cells/μL; and HIV-1 RNA was <200 copies/mL in 94%. Most (79%) participants had neither frailty nor NCI; 2% had both; 4% frailty only; and 15% NCI only. Over 2 years of observation, 100 (10%) participants experienced recurrent falls; 175 (18%) had worsening IADL limitations; 17 (2%) died; and 254 (26%) experienced ≥1 poor health outcome. In adjusted models, frailty with NCI was associated with more than double the risk of a poor health outcome (PR 2.65; 95% CI 1.98, 3.54); a significant association was also seen with frailty alone (PR 2.26; 95%CI 1.71, 2.99) and NCI alone (PR 1.73; 95% CI 1.36, 2.20). Conclusions: The presence of frailty with NCI was associated with a greater risk of falls, disability, or death in PLWH than NCI alone. Interventions that target prevention or reversal of both frailty and NCI (such as increased physical activity) may significantly limit poor health outcomes among PLWH.


Between 2006 and 2017, frailty prevalence decreased in HIV-positive individuals aged 50 years but presented a 3-fold increase among those 75 years of age. This dynamic relationship, defined as the frailty compression ratio, represents the net result of gero-inducing and gero-protective competing forces, described in the cohort.


In the context of an emerging aging epidemic affecting people living with HIV (PLWH), we critically discuss existing data regarding two different conceptual models of aging-frailty and intrinsic capacity, respectively, both in a clinical and public health perspective. These constructs have not yet been integrated in the general population. Nevertheless, the holistic HIV care, which goes beyond the viro-immunological success, may offer an ideal setting to test a possible integration of these models in older adults living with HIV. We suggest a new framework to assess health in PLWH, shifting from an infectious disease (ID)/internal medicine approach, which includes quality of life in the definition of healthy living with HIV, to an ID/geriatric medicine approach, focused on the maintenance of functional ability in frail and geriatric PLWH.


Objective: To investigate the association between current CD4+ T-cell count and CD4/CD8+ ratio with severity of frailty among people aging with HIV. Methods: Cross-sectional observational study analysing data from all study visits in the ongoing prospective Modena HIV Metabolic Clinic Cohort between 2006 and 2015. Frailty severity was assessed using a frailty index (FI). We visualized the relationships between frailty index score and current CD4 cell count and CD4/CD8 ratio on two different curves adjusted for age, sex, and duration of HIV infection. Results: Frailty index scores exhibited an inverse relationship with current CD4 count, up to 900 cells/μL. The CD4/CD8 ratio was inversely correlated with frailty index both below and above the cut-off of 900 CD4 cells/μL. Conclusions: Frailty in PLWH is inversely associated with both immune-activation, depicted by CD4/CD8 ratio and immune-deficit depicted by CD4 count. The first association shows a linear shape while the second shows a hook-shape with a turning point at 900 cells. Above this cut off level CD4 do not represent a significant risk factor for frailty. [ABSTRACT FROM AUTHOR]
Aging researchers have been studying frailty for decades. Experts agree that frailty is a medical syndrome marked by reduced physiologic function, which increases the risk of vulnerability and short-term mortality, particularly in the face of a stressor. Frailty has been shown to predict poor outcomes including falls, disability, major morbidity following surgery, and mortality among older adults. Despite hundreds of papers identifying frailty as a useful marker of risk, its translation into clinical practice has lagged. The Successful Aging and Frailty Evaluation (SAFE) clinic was established in 2011 specifically to implement routine and structured frailty assessment and management in a variety of referred patients. Now, more than 7 years after its inception, we offer our “in the trenches” clinical perspective on logistical challenges, the clinical utility of the frailty assessment, and future frailty needs and targets to help further the frailty translation research efforts.


Frailty is a common geriatric syndrome and a risk factor for many diseases, even mortality. However, the specific molecular biomarkers for diagnosis and therapeutic targets of frailty are still lacking. Studies focusing on molecular profiling in the development of frailty will help address this problem and others. Recently, a series of high-throughput “-omics” technologies have been used to measure thousands of dynamic molecules, including genetic, metabolic, microorganic variables and so on. These omics data extend our understanding of the pathological processes that change with frailty. In this review, we introduce frailty syndrome and summarize current advancements in the applications of omics technologies in the field of frailty.


Aging is characterized by significant immune remodeling at both cellular and molecular levels, also known as immunosenescence. Older adults often manifest a chronic low-grade inflammatory phenotype. These age-related immune system changes have increasingly been recognized not only to lead to immune functional decline and increased vulnerability to infections, but also to play an important role in many chronic conditions such as frailty in older adults. In addition to sex as an important biological factor, chronic viral infections including that by human immunodeficiency virus (HIV) and cytomegalovirus (CMV) are all known to have major impact on the aging immune system. This article provides an overview of our current understanding of aging immunity, sex, inflammation, frailty, and HIV and CMV infections.


HIV and methamphetamine (MA) use disorder are commonly comorbid and individually associated with adverse health consequences, including frailty; however, less is known about the combined effects of both conditions. The current cross-sectional study examined how HIV and lifetime MA use disorder relate to frailty and explored associations between frailty and relevant clinical outcomes (i.e., neurocognitive and everyday functioning). Participants were categorized into three groups based on HIV status and lifetime MA diagnosis: HIV+/MA+ (n = 43), HIV+/MA- (n = 75), and HIV-/MA- (n = 92). A frailty index score (representing proportion of accumulated multisystem deficits) was calculated from 27 medical and psychiatric deficits. Multiple regression was used to examine frailty index score by HIV/MA group. Additional multiple regression models examined the interaction between frailty and HIV/MA group on cognitive and everyday functioning. Comorbid HIV+/MA+ participants had higher frailty index scores than both HIV-/MA- (b = -0.13, p < .001) and HIV+/MA- participants (b = -0.06, p = .007). Additional models linked higher frailty index score to worse global neurocognition (b = -17.6, p = .018) and greater likelihood of everyday functioning dependence (odds ratio = 1.56, p = .021). Although these relationships did not significantly differ by HIV/MA status, group-stratified analyses showed that associations of frailty with neurocognitive and everyday functioning were strongest among the HIV+/MA+ group. Multimodal public health interventions aimed at reducing frailty may help to decrease the likelihood of neurocognitive and everyday functioning.
problems. Current findings additionally lay groundwork for future longitudinal research examining whether frailty predicts onset of neurocognitive and functional decline in individuals with comorbid HIV and MA use disorder.


The life-span of people aging with HIV (PHIV) tends to reach people without infection, reflecting the effectiveness and tolerance of antiretroviral treatment and improvement of multidisciplinary management. Comorbidities or HIV-inflaming seems to be the main determinants of frailty phenotype in PHIV. Prevalence of frailty in PHIV is frequent (5% from 28%) and appears earlier than in general population (50 versus 65 years). Almost half of people with HIV present prefrail phenotype before 50 years. The usefulness of integrate routinely measures of frailty phenotype is not yet known but several data are encouraging in terms of feasibility and prediction. Early determination of frailty in PHIV could lead to target interventions to improve global health and decrease adverse outcomes such as incapacities and early death.


AIM: To evaluate the association between DNA methylation and frailty in the HIV-infected population and to investigate the usefulness of assessing frailty as a clinical marker to identify age acceleration. METHODS: Frailty was assessed according to Fried’s frailty phenotype. DNA methylation was analyzed in 10 frail patients, and compared with 10 robust control patients, all with HIV. Predicted age was inferred using the Weidner's formula. Age acceleration was assessed using the difference between predicted and chronological age. RESULTS: HIV-infected frail patients had significantly higher biological predicted ages than chronological ages (mean acceleration: 10.3 years; p = 0.012). CONCLUSIONS: We link age acceleration and frailty in an older HIV population. Frailty could be used in this population for implementing specific clinical approaches.


BACKGROUND: Frailty and falls occur commonly and prematurely in HIV-infected populations. Whether frailty in middle-age predicts future falls among HIV-infected women is unknown. METHODS: We evaluated associations of frailty with single and recurrent falls 10 years later among 729 HIV-infected and 326 uninfected women in the Women’s Interagency HIV Study (WIHS) with frailty measured in 2005 and self-reported falls in 2014-2016. Frailty was defined as >/=3 of 5 Fried Frailty Index components: slow gait, reduced grip strength, exhaustion, unintentional weight loss and low physical activity. Stepwise logistic regression models determined odds of single (versus 0) or recurrent falls (>/=2 versus 0) during the 2-year period; separate models evaluated frailty components. RESULTS: HIV-infected women were older (median 42 versus 39 years; P<0.0001) and more often frail (14% versus 9%; P=0.04) than uninfected women. Over 2 years, 40% of HIV-infected versus 39% of uninfected women reported a fall (single fall in 15% HIV+ versus 18% HIV- women; recurrent falls in 25% HIV+ versus 20% HIV- women [overall P=0.20]). In multivariate models, frailty independently predicted recurrent falls [adjusted odds ratio [aOR] 1.84, 95% CI: 1.13, 2.97; P=0.01], but not a single fall. Among frailty components, unintentional weight loss independently predicted single fall (aOR 2.31, 95% CI: 1.28, 4.17; P=0.005); unintentional weight loss (aOR 2.26, 95% CI: 1.32, 3.86; P=0.003) and exhaustion (aOR 1.66, 95% CI: 1.10, 2.50; P=0.02) independently predicted recurrent falls. CONCLUSIONS: Early frailty measurement among middle-aged women with or at-risk for HIV may be a useful tool to assess future fall risk.


OBJECTIVE: To determine associations between frailty and fracture in women with and without HIV infection. DESIGN: Prospective longitudinal cohort study evaluating associations between baseline frailty status and frailty components, with first and second incident fractures. METHODS: We evaluated associations of frailty with fracture among 1332 women with HIV and 532 uninfected women without HIV. Frailty was defined as at least three of five Fried Frailty Index components: slow gait, reduced grip strength, exhaustion, unintentional weight loss, and low physical activity. Cox proportional hazards models determined predictors of time to first and second fracture; similar models evaluated Fried Frailty Index components. RESULTS: Women with HIV were older (median 42 vs. 39 years, P < 0.0001) and more often frail (14% vs. 8%, P = 0.04) than women without HIV; median follow-up was 10.6 years. Frailty was independently associated with time to first fracture in women with and without HIV combined [adjusted hazard ratio (aHR) 1.71, 95% confidence interval (CI): 1.30-
Both aging and treated human immunodeficiency virus (HIV) infection are characterized by low-level chronic inflammation and immune activation which contribute to the development of age-related diseases, frailty, and early mortality. Chronic cytomegalovirus (CMV) infection is highly prevalent in older adults and HIV-infected populations. A number of studies have shown that CMV induces broad and strong T-cell responses in CMV-seropositive older adults and HIV-infected individuals. CMV infection rarely develops into clinical disease in immunocompetent individuals. However, a large body of literature has shown adverse effects of chronic CMV infection on the health and longevity of these populations. It has been hypothesized that chronic CMV infection may be a driver of chronic inflammation and immune activation, and may further contribute to the development of frailty. Thus, there is a need to better understand the extent of the impact of chronic CMV infection on T-cell immunity and health in aging and HIV infection. In this review, we will address important considerations and challenges in the assessment of chronic CMV infection and CMV-specific T-cell responses. We will then review recent data on relationships between T-cell responses to CMV and levels of inflammatory markers and immune activation, as well as the onset of frailty.

INFLAMMATION


The ART program in low- and middle-income countries (LMIC) like India, follows a public health approach with a standardized regimen for all people living with HIV (PLHIV). Based on the evidence from high-income countries (HIC), the risk of an enhanced, and accentuated onset of premature-aging or age-related diseases has been observed in PLHIV. However, very limited data is available on residual inflammation and immune activation in the populations who are on first-generation anti-HIV drugs like zidovudine and lamivudine that have more toxic side effects. Therefore, the aim of the present study was to evaluate the levels of systemic inflammation and understand the risk of age-associated diseases in PLHIV on long-term suppressive ART using a large number of biomarkers of inflammation and immune activation. Blood samples were obtained from therapy naive PLHIV (Pre-ART, n = 43), PLHIV on ART for >5 years (ART, n = 53), and HIV-negative healthy controls (HIVNC, n = 41). Samples were analyzed for 92 markers of inflammation, sCD14, sCD163, and telomere length. Several statistical tests were performed to compare the groups under study. Multivariate linear regression was used to investigate the associations. Despite a median duration of 8 years of successful ART, sCD14 (p < 0.001) and sCD163 (p = 0.04) levels continued to be significantly elevated in ART group as compared to HIVNC. Eleven inflammatory markers, including 4E-BP1, ADA, CCL23, CD5, CD8A, CST5, MMP1, NT3, SLAMF1, TRAIL, and TRANCE, were found to be significantly different (p < 0.05) between the groups. Many of these markers are associated with age-related co-morbidities including cardiovascular disease, neurocognitive decline and some of these markers are being reported for the first time in the context of HIV-induced inflammation. Linear regression analysis showed a significant negative association between HIV-1-positivity and telomere length (p < 0.0001). In ART-group CXCL1 (p = 0.048) and TGF-alpha (p = 0.026) showed a significant association with the increased telomere length and IL-10RA was significantly associated with decreased telomere length (p = 0.042). This observation warrants further mechanistic studies to generate evidence to highlight the need for enhanced treatment monitoring and special interventions in HIV-infected individuals.

**AIM:** Ageing HIV-infected patients controlled by antiretroviral therapy (ART) frequently present age-related comorbidities, such as cardiovascular (CV) events, diabetes, dyslipidaemia, hypertension and chronic kidney disease (CKD). The prevalence of these comorbidities was evaluated in a cohort of long-term-monitored ART-controlled HIV-infected patients, then followed by a search into whether oxidative stress, like inflammation, might be associated with metabolic parameters and/or comorbidities. METHODS: Included were 352 long-term ART patients who started with protease inhibitors (PIs) in 1997-1999. They were evaluated at their final visit, 11 years later, for previous CV events, prevalence of diabetes, LDL-related and atherogenic (high TG/HDL) dyslipidaemias, hypertension and CKD. Also measured were circulating biomarkers to explore oxidative stress (LP-PLA2, oxLDL, oxLDL/LDL ratio, paraoxonase and arylesterase activities), inflammation/immune activation (hsCRP, hsIL-6, D dimmer, soluble CD14, beta2 microglobulin, cystatin C), adipokines and insulin resistance. Levels were compared in patients with and without each comorbidity or condition using non-parametric correlation tests and multivariate adjusted analyses. RESULTS: At the final visit, 81.5% of patients were male and were aged (median, IQR) 49 years (45-56); BMI was 23.0 kg/m(2) (21.1-25.4), CD4+ lymphocytes were 620 cells/mm(3) (453-790) and 91.5% had undetectable HIV-1 viral loads. The prevalence of diabetes was 11%, and LDL-related dyslipidaemia 28%, othergenic dyslipidaemia 9%, hypertension 28%, CKD 9% and previous CV events 9%. Diabetes and othergenic dyslipidaemia were associated with increased oxidative stress and independently with inflammation. LDL-related dyslipidaemia and impaired fasting glucose were associated with increased oxidative stress. No association of these biomarkers was detected with hypertension, CKD and previous CV events. CONCLUSION: In long-term-treated HIV-infected patients with frequent comorbid conditions, oxidative stress could be contributing to diabetes and LDL-related and othergenic dyslipidaemias independently of inflammation.


**BACKGROUND:** Statins exert pleiotropic anti-inflammatory and immune-modulatory effects, which might translate into antiviral activity. We evaluated whether reported current statin exposure is associated with lower levels of markers of HIV persistence and immune activation/inflammation. METHODS: We compared levels of markers of HIV viral persistence [cell-associated HIV RNA (CA-RNA), CA-DNA, and single copy assay plasma HIV RNA] and immune activation/inflammation (IL-6, IP-10, neopterin, sCD14, sCD163, and TNF-alpha) between statin users and nonusers among participants of ACTG A5321 who initiated antiretroviral therapy (ART) during chronic infection and maintained virologic suppression (HIV-1 RNA levels <50 copies/mL for >/=3 years. RESULTS: A total of 303 participants were analyzed. Median time on the current statin was 2.9 years (1.2-5.1). There were no differences between statin users and nonusers in levels of CA-DNA (median 650 vs. 540 copies/10 CD4 T cells; P = 0.58), CA-RNA (53 vs. 37 copies/10 CD4 T cells; P = 0.12), or single copy assay (0.4 vs. 0.4 copies/mL; P = 0.45). Similarly, there were no significant differences between statin users and nonusers in markers of inflammation/activation, except for IP-10 (137 vs. 118 pg/mL; P = 0.028). Findings were unchanged after adjustment for factors including pre-ART CD4 and HIV RNA, and years on ART. CONCLUSIONS: In this cohort of persons on long-term suppressive ART, current statin use was not associated with lower levels of HIV persistence or immune activation/inflammation. These results do not support a major role for statins in reducing HIV persistence, although an early transient effect cannot be excluded. Prospective, randomized studies are needed to confirm these findings.


Long-term cotrimoxazole prophylaxis reduces mortality and morbidity in HIV infection, but the mechanisms underlying these clinical benefits are unclear. Here, we investigate the impact of cotrimoxazole on systemic inflammation, an independent driver of HIV mortality. In HIV-positive Ugandan and Zimbabwean children receiving antiretroviral therapy, we show that plasma inflammatory markers were lower after randomization to continue (n = 144) versus stop (n = 149) cotrimoxazole. This was not explained by clinical illness, HIV progression, or nutritional status. Because subclinical enteropathogen carriage and enteropathy can drive systemic inflammation, we explored cotrimoxazole effects on the gut microbiome and intestinal inflammatory biomarkers. Although global microbiome composition was unchanged, viridans group Streptococci and streptococcal mevalonate pathway enzymes were lower among children continuing (n = 36) versus stopping (n = 36) cotrimoxazole. These changes were associated with lower fecal myeloperoxidase. To isolate direct effects of cotrimoxazole on immune activation from antibiotic effects, we established in vitro models of systemic and intestinal
inflammation. In vitro cotrimoxazole had modest but consistent inhibitory effects on proinflammatory cytokine production
by blood leukocytes from HIV-positive (n = 16) and HIV-negative (n = 8) UK adults and reduced IL-8 production by gut
epithelial cell lines. Collectively we demonstrate that cotrimoxazole reduces systemic and intestinal inflammation both
indirectly via antibiotic effects on the microbiome and directly by blunting immune and epithelial cell activation. Synergy
between these pathways may explain the clinical benefits of cotrimoxazole despite high antimicrobial resistance, providing
further rationale for extending coverage among people living with HIV in sub-Saharan Africa.

Insight 4(22).

Cardiomyopathies are complex heart muscle diseases that can be inherited or acquired. Dilated cardiomyopathy can result
from mutations in LMNA, encoding the nuclear intermediate filament proteins lamin A/C. Some LMNA mutations lead to
accumulation of the lamin A precursor, prelamin A, which is disease causing in a number of tissues, yet its impact upon the
heart is unknown. Here, we discovered myocardial prelamin A accumulation occurred in a case of dilated cardiomyopathy,
and we show that a potentially novel mouse model of cardiac-specific prelamin A accumulation exhibited a phenotype
consistent with inflammatory cardiomyopathy, which we observed to be similar to HIV-associated cardiomyopathy, an
acquired disease state. Numerous HIV protease therapies are known to inhibit ZMPSTE24, the enzyme responsible for
prelamin A processing, and we confirmed that accumulation of prelamin A occurred in HIV+ patient cardiac biopsies. These
findings (a) confirm a unifying pathological role for prelamin A common to genetic and acquired cardiomyopathies; (b) have
implications for the management of HIV patients with cardiac disease, suggesting protease inhibitors should be replaced
with alternative therapies (i.e., nonnucleoside reverse transcriptase inhibitors); and (c) suggest that targeting inflammation
may be a useful treatment strategy for certain forms of inherited cardiomyopathy.


Several studies evidenced that a sedentary lifestyle is related with higher levels of systemic inflammation and highlighted
that physical activity can trigger anti-inflammatory effects. To evaluate the impact of self-prescribed physical activity on
fitness status, metabolism, inflammation and immune-activation in people living with HIV, an interim analysis of the results
of the clinical trial PRIMO (NCT03392805) was performed. Patients enrolled were divided in 2 groups on the basis of self-
prescribed physical activity: a physically active group (self-prescribed physical activity) and a sedentary group. Physical
fitness was evaluated by sport medicine specialists and related to nutritional status, anthropometric variables, adipokines
levels (adiponectin, leptin, resistin), peripheral immune-activation (CD38, HLA-DR on CD4 and CD8), and plasma
inflammatory markers (IL-6 and TNF-alpha). The physically active group had a better profile in anthropometric measures
and aerobic fitness but did not show lower levels of immune-activation compared to sedentary group. Also serum IL-6, TNF-
alpha, and adipokines levels showed no statistical differences. On the basis of these data, a regular self-organized physical
activity seems useful to improve cardio-respiratory fitness, but unable to control HIV-related immune-activation.


Introduction: Ectopic fat deposition may contribute to chronic inflammation in people with HIV (PWH). To provide
information for future mechanistic studies of metabolic risk in this population, we sought to determine which fat measures
relate more strongly to inflammation and whether the fat-inflammation relationship is modified by sex or HIV status.
Methods: We conducted a cross-sectional study of 105 PWH and 20 age- and sex-matched HIV-negative controls. Interleukin-6 (IL-6) and high-sensitivity C reactive protein (hs-CRP) levels were measured from plasma. Percardial fat (PCF) and thoracic periaortic adipose tissue (TAT) volumes and peri-right coronary artery (RCA), left atrium (LA) roof, and liver
densities were measured from cardiac CT scans. Unadjusted and multivariate adjusted linear regression models were used
to determine the relationship between ectopic fat measures and inflammation biomarkers. Results: Forty participants had
BMI < 25, 33 had BMI 25 to 30, and 52 had BMI > 30. Systolic blood pressure and insulin resistance increased with BMI.
Participants with higher BMI had a higher CD4+ count. In models adjusted for demographics, HIV status, and metabolic risk
factors, BMI was positively associated with IL-6 and hs-CRP. Ectopic PCF and TAT volumes were positively associated with IL-
6 and hs-CRP; however, these relationships were somewhat attenuated in adjusted models. LA roof (but not peri-RCA) fat
radiodensity was inversely associated with hs-CRP in fully adjusted models, and the association with IL-6 was borderline
null
OBJECTIVE: To compare levels of advanced glycation end products (AGEs) between HIV-infected patients and uninfected controls.


OBJECTIVE: To compare levels of advanced glycation end products (AGEs) between HIV-infected patients and uninfected controls and assess the relationship between AGEs, HIV, inflammation, and endothelial dysfunction.

METHODS: This is a phase I open-labeled randomized double-arm study, exploring the efficacy and safety of zinc supplementation on inflammation in >/=18-year-old people living with HIV in the US, on stable antiretroviral therapy and with zinc levels </=75 microg/dL in the last 60 days. Patients were randomized 1:1 to zinc gluconate capsules at a dose of 45 mg (low-dose), or 90 mg (high-dose) elemental zinc daily for 16 weeks. We assessed inflammatory and gut integrity biomarkers at baseline and 16 weeks.

RESULTS: Overall, a total of 52 participants were enrolled (25 participants in the low-dose arm and 27 participants in the high-dose arm). Median (Interquartile range) age was 49 (38, 60) years, 77% were men and 73% were African Americans. At baseline, median zinc levels were 73 (64, 86) microg/dL. Median circulating zinc levels increased to 91 microg/dL in the low-dose arm and to 100 microg/dL in the high-dose arm. Overall, 48%-60% of participants experienced a reduction in biomarkers levels. The margin of reduction ranged between 8% and 21%. This change was meaningful with large effect size (Cohen D ranging from 5 to 19).

CONCLUSIONS: In this pilot study, we found that zinc supplementation is effective at increasing circulating zinc levels. In addition, our findings provide novel data suggesting that zinc can affect a biological signature in people living with HIV and modulate biomarkers associated with clinical comorbidities.


OBJECTIVE: In this study, we explored the effect of zinc supplementation on markers of inflammation and monocyte activation in antiretroviral therapy-treated HIV infection.

METHODS: This is a phase I open-labeled randomized double-arm study, exploring the efficacy and safety of zinc supplementation on inflammation in >/=18-year-old people living with HIV in the US, on stable antiretroviral therapy and with zinc levels </=75 microg/dL in the last 60 days. Patients were randomized 1:1 to zinc gluconate capsules at a dose of 45 mg (low-dose), or 90 mg (high-dose) elemental zinc daily for 16 weeks. We assessed inflammatory and gut integrity biomarkers at baseline and 16 weeks.

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Objectives: The relationship between lipid levels in plasma and inflammatory indices is complex and fatty meals alter the monitoring of inflammatory and homeostatic indices in people with HIV, as they have been linked to risk for morbid outcomes and HIV persistence. Understanding the effects of feeding and time of specimen acquisition is important for the correct scheduling of clinical sampling.

Methods: We examined the effects of feeding on plasma inflammatory, coagulation and homeostatic indices among 24 non-diabetic people with HIV, with controlled viraemia and on antiretroviral therapy after fasting and then 1, 3 and 6 hours after ingesting a fatty meal, and also approximately 1 week later after fasting and after an isocaloric non-fatty meal. Plasma levels of IL-6, IL-7, IP-10, sCD14, sCD163, sTNFrII and D-dimer were monitored by immunoassay.

Results: Fasting levels of all markers obtained approximately 1 week apart were significantly correlated (P<0.001). Mild alterations in plasma concentrations of inflammatory markers were observed after feeding but geometric means varied more than 10% from baseline for only IL-6 and IL-7. Meatal type was differentially associated with changes in plasma levels for IL-7 only. Antiretroviral treatment regimen, body mass index and changes in plasma triglyceride levels were not linked to post-feeding changes in these biomarkers. Conclusions: These plasma inflammatory, coagulation and homeostatic indices are relatively stable at fasting and are only minimally affected by feeding or time of day. These findings will aid in the monitoring of inflammatory and homeostatic indices that may contribute to control of HIV expression and its persistence.


OBJECTIVE: To compare levels of advanced glycation end products (AGEs) between HIV-infected patients and uninfected controls and assess the relationship between AGEs, HIV, inflammation, and endothelial dysfunction.

METHODS: Cross-sectional study involving 90 individuals (68 HIV+ and 22 healthy controls matched by age and sex).

RESULTS: Among HIV-infected mothers, 79% had HIV-RNA less than 400 copies/ml prior to delivery. Compared with HIV-unexposed, HEU infants had a lower mean gestational age (38.7 vs. 39.3 weeks) and weight (3.1 vs. 3.3 kg); and reached lower weight (5.9 vs. 8.5 kg) and height (53.6 vs. 68.8 cm) at 6 months. With the exception of vascular cell adhesion molecule, inflammatory markers were generally higher (P </= 0.005) in HEU at birth, but at 6 months only sTNF-R1 and IL-6 remained higher. For HEU pairs, only IP-10 was associated with maternal levels at birth (P < 0.001). In HEU, elevated levels of high-sensitivity C-reactive protein and IP-10 at birth were associated with lower weight at birth (P = 0.04) and at 6 months (P = 0.04). CONCLUSION: HIV-exposed infants have heightened inflammation and monocyte activation at birth, which for some markers persisted to 6 months of life and was not related to maternal inflammatory status. Inflammation may contribute to the increased HEU infectious morbidity and poor growth.
were assessed using 3 different modalities: free AGEs were measured in the serum, skin autofluorescence (AF) was determined with a noninvasive reader, and dietary AGEs were estimated using 24-hour dietary recalls. Markers of inflammation, immune activation, and endothelial dysfunction were also measured. Wilcoxon rank-sum and chi tests were used to compare AGEs between groups. Spearman correlations were used to explore relationships between variables while adjusting for different covariates. RESULTS: Overall, 71% were men and 68% were African American, with a median age of 53 years. Among HIV-infected individuals, all participants were on antiretroviral therapy by design, and most participants (78%) had an undetectable HIV-1 RNA level (<20 copies/mL). Skin AF and serum AGEs were significantly higher in HIV-infected participants compared with uninfected controls (P < 0.01), whereas no differences in dietary AGEs were found between groups (P = 0.2). In the HIV-infected group, but not in controls, skin AF and circulating AGEs were significantly associated with inflammatory and oxidative markers, and with markers of endothelial dysfunction. CONCLUSIONS: These results suggest intrinsic production of AGE in HIV-infected individuals. The relationship between serum/skin AGE and inflammatory, oxidative, and cardiovascular markers highlights the potential implications of AGEs in chronic inflammation and endothelial dysfunction in HIV, suggesting a new potential target for HIV-associated heightened inflammation and cardiovascular risk.


BACKGROUND: While both adipose tissue accumulation and tryptophan metabolism alterations are features of HIV infection, their interplay is unclear. We investigated associations between abdominal adipose tissue, alterations in kynurenine pathway of tryptophan metabolism, and systemic inflammation in people with HIV (PWH). METHODS: 864 PWH and 75 uninfected controls were included. Plasma samples were collected and analyzed for kynurenine metabolites, neopterin, high-sensitivity CRP (hs-CRP), lipids. Regression models were used to test associations in PWH. RESULTS: PWH had higher kynurenine-to-tryptophan ratio than uninfected individuals (p-value < 0.001). In PWH, increase in waist-to-hip ratio was associated with higher kynurenine-to-tryptophan ratio (p-value 0.009) and quinolinic-to-kynurenic acid ratio (p-value 0.006) and lower kynurenic acid concentration (p-value 0.019). Quinolinic-to-kynurenic acid ratio was associated with higher hs-CRP (p-value < 0.001) and neopterin concentrations (p-value < 0.001), while kynurenic acid was associated with lower hs-CRP (p-value 0.025) and neopterin concentrations (p-value 0.034). CONCLUSION: In PWH increase in abdominal adipose tissue was associated with increased quinolinic-to-kynurenic acid ratio, suggesting activation of pro-inflammatory pathway of kynurenine metabolism, with reduction of anti-inflammatory molecules, and increase in systemic inflammation. Our results suggest dysregulation of kynurenine metabolism associated with abdominal fat accumulation to be a potential source of inflammation in HIV infection.


BACKGROUND: Extracellular vesicles (EVs) are nano-sized particles present in most body fluids including cerebrospinal fluid (CSF). Little is known about CSF EV proteins in HIV+ individuals. Here, we characterize the CSF EV proteome in HIV+ subjects and its relationship to neuroinflammation, stress responses, and HIV-associated neurocognitive disorders (HAND).

METHODS: CSF EVs isolated from 20 HIV+ subjects with (n = 10) or without (n = 10) cognitive impairment were characterized by electron microscopy, nanoparticle tracking analysis, immunoblotting, and untargeted LC/MS/MS mass spectrometry. Functional annotation was performed by gene ontology (GO) mapping and expression annotation using Biobase Transfac and PANTHER software. Cultured astrocytic U87 cells were treated with hydrogen peroxide for 4 h to induce oxidative stress and EVs isolated by ultracentrifugation. Selected markers of astrocytes (GFAP, GLUL), inflammation (CRP), and stress responses (PRDX2, PARK7, HSP70) were evaluated in EVs released by U87 cells following induction of oxidative stress and in CSF EVs from HIV+ patients by immunoblotting. RESULTS: Mass spectrometry identified 2727 and 1626 proteins in EV fractions and EV-depleted CSF, respectively. CSF EV fractions were enriched with exosomal markers including Alix, syntenin, tetraspanins, and heat-shock proteins and a subset of neuronal, astrocyte, oligodendrocyte, and choroid plexus markers, in comparison to EV-depleted CSF. Proteins related to synapses, immune/inflammatory responses, stress responses, metabolic processes, mitochondrial functions, and blood-brain barrier were also identified in CSF EV fractions by GO mapping. HAND subjects had higher abundance of CSF EVs and proteins...


In the era of combined antiretroviral therapy (cART), HIV-1 infection has transformed from a death sentence to a manageable, chronic disease. Although the life expectancy of HIV+ individuals is comparable to that of the uninfected subjects paradoxically, there is an increased prevalence of age-associated comorbidities such as atherosclerosis, diabetes, osteoporosis & neurological deficits in the context of HIV infection. Drug abuse is a common comorbidity of HIV infection and is often associated with increased neurological complications. Chronic neuroinflammation (abnormal microglial and astrocyte activation) and neuronal synaptic injury are the features of CNS pathology observed in HIV (+) individuals that are taking cART & that abuse drugs. Neuroinflammation is the driving force underlying premature aging associated with HIV (+) infection, cART and drugs of abuse. Autophagy is a highly conserved process critical for maintaining cellular homeostasis. Dysregulated autophagy has been shown to be linked with abnormal immune responses & aging.

Recent emerging evidence implicates the role of HIV/HIV proteins, cART, & abused drugs in disrupting the autophagy process in brain cells such as microglia, astrocytes, and neurons. It can thus be envisioned that co-exposure of CNS cells to HIV proteins, cART and/or abused drugs could have synergistic effects on the autophagy process, thereby leading to exaggerated microglial/astrocyte activation, ultimately, promoting the aging process. Restoration of autophagic function could thus provide an alternative therapeutic strategy for mitigating neuroinflammation & ameliorating the premature aging process. The current review aims to unravel the role of dysregulated autophagy in the context of single or co-exposure of microglia, astrocytes, and neurons to HIV/HIV proteins, drugs of abuse &/or cART and will also discuss the pathways involved in dysregulated autophagy-mediated neuroinflammation.


Introduction: The massive implementation of combination antiretroviral therapy (cART) has forever changed the landscape of HIV infection. This unprecedented success has turned HIV infection into a manageable chronic disease. The increased survival of people living with HIV is, however, shadowed by a high burden of aging-related comorbidities. The pathogenic basis underlying this excess of co-morbid conditions is most likely a persistent inflammatory and immune activation state, despite an optimal control of HIV replication, which in turn has largely been attributed to bacterial or bacterial products translocation from the gut. Area covered: This review is focused on the relationship between cART and the chronic inflammatory and immune activation status in otherwise virologically well-controlled people living with HIV (PLWH).

Particular focus will be placed on the differences, if any, between distinct cART modalities, with emphasis on less-drug cART regimens, and especially on dual therapies. Expert opinion: Research to address the increased inflammatory and immune activation status of cART-treated, HIV-infected patients, should focus on adjuvant means of therapy, rather than on the cART regime itself. With current antiretrovirals, no difference between dual and triple regimens has been demonstrated, provided that virological and immunological outcomes be non-inferior. [ABSTRACT FROM AUTHOR]

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Inflammation, over-reacting innate immunity, and CD4(+) T cell depletion are hallmarks of HIV-1 infection. Self-DNA is usually not considered in the context of HIV-1-associated inflammation, although self-DNA contributes to inflammation in diverse pathologies, including autoimmune diseases, cancer, multiorgan failure after trauma, and even virus infections. Cells undergoing HIV-1-associated pyroptotic bystander cell death release self-DNA and other damage-associated molecular
OBJECTIVES: Adipose tissue (AT) density measurement may provide information about AT quality among people living with HIV. Are Independent of Fat Quantity.” Eur J Endocrinol.


OBJECTIVES: Adipose tissue (AT) density measurement may provide information about AT quality among people living with HIV (PLWH). We assessed AT density and evaluated relationships between AT density and immuno-metabolic biomarker patterns (DAMPs), including chaperones and histones. In complexes with such DAMPs or extracellular vesicles, self-DNA gains immunogenic potential and becomes accessible to intracellular DNA sensors. Therefore, we hypothesize that self-DNA can contribute to HIV-1-associated inflammation. Self-DNA might not only drive HIV-1-associated ‘inflamm-ageing’ but also provide new opportunities for ‘shock and kill’ strategies aimed at eliminating latent HIV-1.


PURPOSE OF REVIEW: People infected with HIV through injection drug use are more likely to experience progression to AIDS, death due to AIDS, and all-cause mortality even when controlling for access to care and antiretroviral therapy. While high-risk behavior and concurrent infections most certainly are contributors, chronic immune activation, downstream metabolic comorbidities may play an important role. RECENT FINDINGS: Altered intestinal integrity plays a major role in HIV-related immune activation and microbial translocation markers are heightened in active heroin users. Additionally, greater injection frequency drives systemic inflammation and is associated with HIV viral rebound. Finally, important systemic inflammation markers have been linked with frailty and mortality in people who inject drugs with and without concurrent HIV infection. Heroin use may work synergistically with HIV infection to cause greater immune activation than either factor alone. Further research is needed to understand the impact on downstream metabolic comorbidities including cardiovascular disease. Medication-assisted treatment for opioid use disorder with methadone or buprenorphine may ameliorate some of this risk; however, there is presently limited research in humans, including in non-HIV populations, describing changes in immune activation on these treatments which is of paramount importance for those with HIV infection.

HIV controllers (HIC) maintain control of HIV replication without combined antiretroviral treatment (cART). The mechanisms leading to virus control are not fully known. We used gene expression and cellular analyses to compare HIC and HIV-1-infected individuals under cART. In the blood, HIC are characterized by a low inflammation, a downmodulation of natural killer inhibitory cell signaling, and an upregulation of T cell activation gene expression. This balance that persists after stimulation of cells with HIV antigens was consistent with functional analyses showing a bias toward a Th1 and cytotoxic T cell response and a lower production of inflammatory cytokines. Taking advantage of the characterization of HIC based upon their CD8(+) T lymphocyte capacity to suppress HIV-infection, we show here that unsupervised analysis of differentially expressed genes fits clearly with this cytotoxic activity, allowing the characterization of a specific signature of HIC. These results reveal significant features of HIC making the bridge between cellular function, gene signatures, and the regulation of inflammation and killing capacity of HIV-specific CD8(+) T cells. Moreover, these genetic profiles are consistent through analyses performed from blood to peripheral blood mononuclear cells and T cells. HIC maintain strong HIV-specific immune responses with low levels of inflammation. Our findings may pave the way for new immunotherapeutic approaches leading to strong HIV-1-specific immune responses while minimizing inflammation.IMPORTANCE A small minority of HIV-infected patients, called HIV controllers (HIC), maintains spontaneous control of HIV replication. It is therefore important to identify mechanisms that contribute to the control of HIV replication that may have implications for vaccine design. We observed a low inflammation, a downmodulation of natural killer inhibitory cell signaling, and an upregulation of T-cell activation gene expression in the blood of HIC compared to patients under combined antiretroviral treatment. This profile persists following in vitro stimulation of peripheral blood mononuclear cells with HIV antigens, and was consistent with functional analyses showing a Th1 and cytotoxic T cell response and a lower production of inflammatory cytokines. These results reveal significant features of HIC that maintain strong HIV-specific immune responses with low levels of inflammation. These findings define the immune status of HIC that is probably associated with the control of viral load.


OBJECTIVES: Adipose tissue (AT) density measurement may provide information about AT quality among people living with HIV (PLWH). We assessed AT density and evaluated relationships between AT density and immuno-metabolic biomarker patterns (DAMPs), including chaperones and histones. In complexes with such DAMPs or extracellular vesicles, self-DNA gains immunogenic potential and becomes accessible to intracellular DNA sensors. Therefore, we hypothesize that self-DNA can contribute to HIV-1-associated inflammation. Self-DNA might not only drive HIV-1-associated 'inflamm-ageing' but also provide new opportunities for 'shock and kill' strategies aimed at eliminating latent HIV-1.
BACKGROUND: The mechanisms behind ART-induced bone changes in HIV-infected patients are poorly known. We aimed to analyse changes in inflammatory and bone markers in HIV after tenofovir disoproxil fumarate initiation, and the associations with changes in the bone strength parameters.

METHODS: HIV-positive participants starting tenofovir disoproxil fumarate-based ART underwent dual-energy X-ray absorptiometry (QDR 4500 SL(R), Hologic, Waltham, MA, USA) for bone mineral density (BMD), a microindentation test (OsteoProbe(R), Active Life Scientific, Santa Barbara, CA, USA) for bone quality [bone material strength index (BMSi)] and phlebotomy at baseline and 48 weeks after ART. A panel of inflammatory biomarkers and bone turnover markers were measured by ELISA. HIV-negative controls underwent identical procedures once. Values are expressed as medians and IQRs, and non-parametric tests were used to perform the analysis.

RESULTS: Twenty HIV-infected individuals and 20 HIV-negative control individuals were matched in terms of age and gender. HIV individuals showed higher levels of inflammatory markers. We found no differences in bone turnover markers. In adjusted models, a 1 standard deviation (SD) greater SAT or VAT density was associated with higher levels of adiponectin, leptin, HOMA-IR and triglyceride:HDL cholesterol ratio and lower hs-CRP concentrations in HIV- men. Conversely, in HIV+ men, each SD greater SAT density was not associated with metabolic parameter improvements and was significantly (p<0.05) associated with greater systemic inflammation. Trends toward higher inflammatory biomarker concentrations per 1 SD greater VAT density were also observed among HIV+ men.

CONCLUSIONS: Among men living with HIV, greater SAT density was associated with greater systemic inflammation independent of SAT area. AT density measurement provides additional insight into AT density beyond measurement of AT quantity alone, and may have implications for metabolic disease risk.


Background: Chronic inflammation is associated with AIDS-defining and non-AIDS-defining conditions. Limited research has considered how food insecurity influences chronic inflammation among people living with human immunodeficiency virus (HIV). We examined whether food insecurity was associated with higher levels of inflammation among women living with HIV (WWH) in the United States. Methods: We analyzed cross-sectional data collected in 2015 from 421 participants on antiretroviral therapy from the Women's Interagency HIV Study. The exposure was any food insecurity. The outcome was inflammation, measured by proinflammatory cytokine interleukin-6 (IL-6) and tumor necrosis factor receptor 1 (TNFR1) levels. We conducted multivariable linear regressions, adjusting for sociodemographic, clinical, and nutritional factors.

Results: Nearly one-third of participants (31%) were food insecure and 79% were virally suppressed (<20 copies/mL). In adjusted analyses, food insecurity was associated with 1.23 times the level of IL-6 (95% confidence interval [CI], 1.06-1.44) and 1.13 times the level of TNFR1 (95% CI, 1.05-1.21). Findings did not differ by HIV control (virally suppressed with CD4 counts >/=500 cells/mm3 or not) in adjusted stratified analyses. Conclusion: Food insecurity was associated with elevated inflammation among WWH regardless of HIV control. Findings support the need for programs that address food insecurity among WWH.


Aging is characterized by significant immune remodeling at both cellular and molecular levels, also known as immunosenescence. Older adults often manifest a chronic low-grade inflammatory phenotype. These age-related immune system changes have increasingly been recognized not only to lead to immune functional decline and increased vulnerability to infections, but also to play an important role in many chronic conditions such as frailty in older adults. In addition to sex as an important biological factor, chronic viral infections including that by human immunodeficiency virus (HIV) and cytomegalovirus (CMV) are all known to have major impact on the aging immune system. This article provides an overview of our current understanding of aging immunity, sex, inflammation, frailty, and HIV and CMV infections.


BACKGROUND: The mechanisms behind ART-induced bone changes in HIV-infected patients are poorly known. We aimed to analyse changes in inflammatory and bone markers in HIV after tenofovir disoproxil fumarate initiation, and the associations with changes in the bone strength parameters.

METHODS: HIV-positive participants starting tenofovir disoproxil fumarate-based ART underwent dual-energy X-ray absorptiometry (QDR 4500 SL(R), Hologic, Waltham, MA, USA) for bone mineral density (BMD), a microindentation test (OsteoProbe(R), Active Life Scientific, Santa Barbara, CA, USA) for bone quality [bone material strength index (BMSi)] and phlebotomy at baseline and 48 weeks after ART. A panel of inflammatory biomarkers and bone turnover markers were measured by ELISA. HIV-negative controls underwent identical procedures once. Values are expressed as medians and IQRs, and non-parametric tests were used to perform the analysis.

RESULTS: Twenty HIV-infected individuals and 20 HIV-negative control individuals were matched in terms of age and gender. HIV individuals showed higher levels of inflammatory markers. We found no differences in bone turnover markers.
HIV-positive individuals presented lower BMSi values at baseline compared with controls [86 (83-90) versus 89 (88-93), respectively; P = 0.034]. We found no difference in BMD (at either of the sites evaluated). BMSi tended to increase with treatment. IL-1beta at baseline was positively correlated with changes in BMSi after ART (rho = 0.564, P = 0.014). Baseline levels of sclerostin tended to be negatively correlated with changes in BMSi (rho = -0.402, P = 0.097). We found a negative correlation between time since HIV diagnosis and changes in BMSi (rho = -0.466, P = 0.04). CONCLUSIONS: We observed a correlation between changes in bone quality and the inflammatory environment in HIV-positive individuals. Moreover, among the underlying mechanisms we highlight the Wnt pathway as having a potentially significant role in ART bone quality recovery.


Studies suggest that inflammation might be involved in the pathogenesis of depression. Individuals with human immunodeficiency virus (HIV) have a higher risk of depression and elevated inflammatory profiles. Despite this, research on the link between inflammation and depression among this high-risk population is limited. We examined a sample of men who have sex with men from the Multicenter AIDS Cohort Study in prospective analyses of the association between inflammation and clinically relevant depression symptoms, defined as scores >20 on Center for Epidemiological Studies Depression Scale. We included 1,727 participants who contributed 9,287 person-visits from 1984 to 2010 (8,218 with HIV (HIV+)) and 1,069 without (HIV-)). Exploratory factor analysis (EFA) was used to characterize underlying inflammatory processes from 19 immune markers. Logistic regression with generalized estimating equations was used to evaluate associations between inflammatory processes and depressive symptoms stratified by HIV serostatus. Three EFA-identified inflammatory processes (EIPs) were identified. EIP-1 scores—described by soluble tumor necrosis factor receptor 2 (sTNFR2), soluble interleukin-2 receptor alpha (sIL-2Ralpha), sCD27, B-cell activating factor, interferon gamma-induced protein 10 (IP-10), soluble interleukin-6 receptor (sIL-6R), sCD14, and sGP130—were significantly associated with 9% higher odds of depressive symptoms in HIV+ participants (odds ratio = 1.09; 95% confidence interval: 1.03, 1.16) and 33% higher odds in HIV- participants (odds ratio = 1.33; 95% confidence interval: 1.09, 1.61). Findings suggest that immune activation might be involved in depression risk among both HIV+ and HIV- men who have sex with men.


OBJECTIVE: This study aimed to investigate whether cerebrospinal fluid (CSF) EBV or CMV DNA was associated with viral, inflammatory and neuronal damage biomarkers in people living with HIV (PLWH). DESIGN: Epstein-Barr virus (EBV) and Cytomegalovirus (CMV) can infect several cells, replicate in the central nervous system and affect blood-brain barrier (BBB) integrity. METHODS: EBV, CMV DNA and HIV RNA were measured on CSF, through RT-PCR, from PLWHs undergoing lumbar punctures for clinical reasons (excluding oncho-haematological comorbidities). Immune-enzymatic assays evaluated BBB inflammation and damage. Patients were stratified according to plasma HIV RNA levels in viremic (>50 copies/mL) and aviremic (<50 copies/mL). RESULTS: We included 297 participants. Among 167 viremic patients CSF EBV and CMV DNA were detectable in 42 (25.1%) and 10 (6.3%) participants; among 130 aviremic subjects CSF EBV and CMV DNA were detectable in 12 (9.2%) and 0 (0%) participants, respectively. In viremic group detectable CSF EBV DNA was associated with CSF pleocytosis (p < 0.001), higher CSF HIV RNA (p < 0.001) and neopterin levels (p = 0.002). In aviremic participants detectable EBV DNA was associated with pleocytosis (p = 0.056), higher neopterin (p = 0.027) and immune globulins (p = 0.016) in the CSF; CSF escape was more common in those with detectable EBV DNA (50% vs 21.2%, p = 0.036). CONCLUSIONS: EBV DNA was frequently detected in the CSF of viremic and fewer aviremic patients on antiretroviral treatment. In PLWH without clinical evidence of encephalitis CSF EBV DNA was associated with higher biomarkers levels of neuronal damage/inflammation. The role of EBV reactivation in HIV-associated CNS disorders warrants further studies.


BACKGROUND: Adenosine is a potent immunoregulatory nucleoside produced during inflammatory states to limit tissue damage. We hypothesized that dipyridamole, which inhibits cellular adenosine uptake, could raise the extracellular adenosine concentration and dampen chronic HIV-1 associated inflammation. METHODS: Virally-suppressed participants on antiretroviral therapy were randomized 1:1 for 12 weeks of dipyridamole 100mg 4x/day vs placebo capsules. All participants took open-label dipyridamole during weeks 12 to 24. Study endpoints included changes in systemic
inflammation [soluble (s) CD163, sCD14, and interleukin-6] and levels of T cell immune activation (HLA-DR+CD38+).

RESULTS: Forty participants were randomized: 17 dipyridamole and 18 placebo recipients had baseline and week 12 data available for analyses. There were no significant changes in soluble markers apart from a trend towards decreased sCD163 levels (p=0.087). There was a modest decrease in CD8+ T cell activation (-17.53% vs 13.31% change; p=0.032), but the significance was lost in the pooled analyses (p=0.058). Dipyridamole also reduced CD4+ T cell activation (-11.11% change; p=0.006) in the pooled analyses. In post-hoc analysis, detectable plasma DP levels were associated with higher levels of inosine, an adenosine surrogate, and of cyclic adenosine monophosphate. CONCLUSION: Dipyridamole increased extracellular adenosine levels and decreased T cell activation significantly among persons with HIV-1 infection on virally-suppressive therapy.


BACKGROUND: Inflammatory processes have been suggested to underlie early neurologic abnormalities among persons living with HIV (HIV-positive), such as deficits in complex motor function, that are purported to remit with effective antiretroviral therapy (ART). We hypothesized that HIV will have negative direct and indirect effects through inflammation on complex motor performance. METHODS: The sample consisted of 90 ART-treated virally suppressed HIV-positive and 94 HIV-negative adults, aged 36-65 years, with balanced recruiting in each age decade (36-45, 46-55, and 56-65). Biomarkers of inflammation (d-dimer, IL-6, MCP-1/CCL2, sCD14, and TNF-alpha) were measured, and a composite inflammation burden score was calculated. Complex motor performance was evaluated using the Grooved Pegboard Test. RESULTS: The HIV-positive group had worse complex motor performance (P = 0.001; Hedges g = -0.49) and a higher average inflammation burden composite score (P < 0.001; Hedges g = 0.78) than the HIV-negative group. Path analyses indicated that the indirect effect of HIV disease on complex motor performance through inflammation burden was statistically significant, accounting for 15.1% of the effect of HIV on complex motor performance. CONCLUSIONS: Although neurologic findings (eg, deficits in motor speed/dexterity) commonly associated with HIV infection typically remit with ART, our analysis indicates that inflammation plays an important role in worse complex motor skills among HIV-positive adults. Future studies of strategies for managing chronic inflammation in HIV should consider using an inflammation burden composite and examining its effect on complex motor performance.


Evidence suggests that systemic inflammation increases due to HIV infection. C-reactive protein (CRP), interleukin (IL)-6 and tumour necrosis factor (TNF)-alpha values were compared between HIV-positive and HIV-negative young MSM and transgender women. CRP values were more than 3 mg/l among 49.8% of participants. HIV status was not significantly associated with CRP nor IL-6. TNF-alpha was significantly higher among HIV-positive participants. These results suggest the need for further study of the causes and health consequences of elevated systemic inflammation among this population.


INTRODUCTION: Globally, sexually transmitted infections (STI) affect >300 million people annually, and are a major cause of sexual and reproductive health complications in women. In this commentary, we describe how STIs interact with the immune and non-immune cells, both within and below the cervicovaginal mucosal barrier, to cause inflammation, which in turn has been associated with increased HIV acquisition risk. DISCUSSION: STIs have a major impact on the female genital mucosa, which is an important biological and physical barrier that forms the first line of defence against invading microorganisms such as HIV. Pattern recognition of STI pathogens, by receptors expressed either on the cell surface or inside the cell, typically triggers inflammation at the mucosal barrier. The types of mucosal responses vary by STI, and can be asymptomatic or culminate in the formation of discharge, ulcers and/or warts. While the aim of this response is to clear the invading microbes, in many cases these responses are either evaded or cause pathology that impairs barrier integrity and increases HIV access to target cells in the sub-mucosa. In addition, innate responses to STIs can result in an increased
number of immune cells, including those that are the primary targets of HIV, and may contribute to the association between STIs and increased susceptibility to HIV acquisition. Many of these cells are mediators of adaptive immunity, including tissue-resident cells that may also display innate-like functions. Bacterial vaginosis (BV) is another common cause of inflammation, and evidence for multiple interactions between BV, STIs and HIV suggest that susceptibility to these conditions should be considered in concert. CONCLUSIONS: STIs and other microbes can induce inflammation in the genital tract, perturbing the normal robust function of the mucosal barrier against HIV. While the impact of STIs on the mucosal immune system and HIV acquisition is often under-appreciated, understanding their interactions of the infections with the immune responses play an important role in improving treatment and reducing the risk of HIV acquisition. The frequent sub-clinical inflammation associated with STIs underscores the need for better STI diagnostics to reverse the immunological consequences of infection.

Nelson, B. (2019). "As the HIV-positive population ages, new dangers loom: Researchers are exploring human immunodeficiency virus-mediated inflammation and immune dysregulation to better understand the higher risks of cancer, cardiovascular disease, and other conditions among individuals who carry the virus." Cancer Cytopathol 127(1): 5-6.


Persons with HIV infection (PWH) have increased risk for cardiovascular disease (CVD), but the underlying mechanisms remain unclear. Coronary thrombosis is known to provoke myocardial infarctions, but whether PWH have elevated thrombotic propensity is unknown. We compared thrombogenicity of PWH on antiretroviral therapy versus matched controls using the Badimon chamber. Measures of inflammation, platelet reactivity, and innate immune activation were simultaneously performed. Enrolled PWH were then randomized to placebo, aspirin (81 mg), or clopidogrel (75 mg) for 24 weeks to assess treatment effects on study parameters. Thrombogenicity was significantly higher in PWH and correlated strongly with plasma levels of D-dimer, soluble TNF receptors 1 and 2, and circulating classical and nonclassical monocytes in PWH. Clopidogrel significantly reduced thrombogenicity and sCD14. Our data suggest that higher thrombogenicity, interacting with inflammatory and immune activation markers, contributes to the increased CVD risk observed in PWH. Clopidogrel exhibits an anti-inflammatory activity in addition to its antithrombotic effect in PWH.


Objective Cryptococcal meningoencephalitis (CM) causes significant morbidity and mortality in human immunodeficiency virus (HIV)-negative and HIV-positive populations. White matter lesions (WMLs) have been reported in both populations of CM patients; however, the mechanisms underlying WML formation remain unknown. We herein report the relationship between the intrathecal immune response and the development of WMLs in HIV-negative patients with CM. Methods Eleven consecutive HIV-negative patients with CM who presented at one of three emergency hospitals in Japan from April 2001 to March 2018 were enrolled. For all patients, we retrospectively assessed the relationships between clinical and laboratory information and the presence of WMLs. Results At presentation, 6 patients had WMLs on magnetic resonance imaging (MRI). The cerebrospinal fluid immunoglobulin G (CSF IgG) index was significantly higher in the patients with WMLs than in those without WMLs (mean, 1.34 vs. 0.70, p=0.017). The time from the symptom onset to initial neuroimaging was also significantly longer in the patients with WMLs than with WMLs (median, 31.5 vs. 7.0 days; p=0.008). The clinical outcome was comparable among the patients with and without WMLs. Conclusion In HIV-negative patients with CM, a persistent, aberrant immune response to Cryptococcus, such as intrathecal IgG synthesis, may induce WML formation.


We sought to describe changes in blood pressure and estimate the effect of HIV on blood pressure (BP) over 4 years of observation in a cohort of 155 HIV-infected adults (>/>=40 years) on antiretroviral therapy (ART) and 154 sex- and age-quartile-matched, population-based, HIV-uninfected controls for four years in rural Uganda, we compared changes in blood pressure (BP) by HIV serostatus and tested whether body mass index and inflammation (high-sensitivity C-reactive protein and interleukin-6) and immune activation (sCD14 and sCD163) mediated the effects of HIV on BP using hierarchical multivariate and two-stage parametric regression models. Overall HIV-uninfected participants had higher mean BP than HIV-infected counterparts (differences in trend P < 0.0001 for diastolic BP and P = 0.164 for systolic BP). After initial declines in BP in both groups between years 1 and 2, BP moderately increased in both groups through year 4, with greater change.
INTRODUCTION: In Sub-Saharan Africa, the rising rates of cerebrovascular and cardiovascular diseases (CBD/CVD) are intersecting with an ageing HIV-infected population. The widespread use of antiretroviral therapy (ART) may confer an additive risk and may not completely suppress the risk associated with HIV infection. High-quality prospective studies are needed to determine if HIV-infected patients in Africa are at increased risk of CBD/CVD and to identify factors associated with this risk. This study will test the hypothesis that immune activation and dysfunction, driven by HIV and reactivation of latent herpesvirus infections, lead to increased CBD/CVD risk in Malawian adults aged >/=35 years. METHODS AND ANALYSIS: We will conduct a single-centre, 36-month, prospective cohort study in 800 HIV-infected patients initiating ART and 190 HIV-uninfected controls in Blantyre, Malawi. Patients and controls will be recruited from government ART clinics and the community, respectively, and will be frequency-matched by 5-year age band and sex. At baseline and follow-up visits, we will measure carotid intima-media thickness and pulse wave velocity as surrogate markers of vasculopathy, and will be used to estimate CBD/CVD risk. Our primary exposures of interest are cytomegalovirus and varicella zoster reactivation, changes in HIV plasma viral load, and markers of systemic inflammation and endothelial function. Multivariable regression models will be developed to assess the study’s primary hypothesis. The occurrence of clinical CBD/CVD will be assessed as secondary study endpoints. ETHICS AND DISSEMINATION: The University of Malawi College of Medicine and Liverpool School of Tropical Medicine research ethics committees approved this work. Our goal is to understand the pathogenesis of CBD/CVD among HIV cohorts on ART, in Sub-Saharan Africa, and provide data to inform future interventional clinical trials. This study runs between May 2017 and August 2020. Results of the main trial will be submitted for publication in a peer-reviewed journal. TRIAL REGISTRATION NUMBER: ISRCTN42862937.

Notch pathway activation plays a central role in the pathogenesis of many glomerular diseases. We have previously shown that Notch4 expression was upregulated in various renal cells in human immunodeficiency virus (HIV)-associated nephropathy (HIVAN) patients and rodent models of HIVAN. In this study, we examined whether the Notch pathway can be distinctively activated by HIV-1 gene products and whether Notch4, in particular, can influence disease progression. Using luciferase reporter assays, we did not observe activation of the NOTCH4 promoter with the HIV protein Nef in podocytes. Further, we observed upregulated expression of a gamma secretase complex protein, presenilin 1, but not Notch4, in podocytes infected with an HIV-1 expression construct. To assess the effects of Notch4 on HIVAN disease progression, we engineered Tg26 mice with global deletion of the Notch4 intracellular domain (Notch4(dl) ), which is required for signaling function. These mice (Notch4(d1)/Tg26(+)) showed a significant improvement in renal function and a significant decrease in mortality compared to Tg26 mice. Histological examination of kidneys showed that Notch4(d1)/Tg26(+ ) mice had overall glomerular, tubulointerstitial injury and a marked decrease in interstitial inflammation. A significant decrease in the proliferating cells was observed in the tubulointerstitial compartments of Notch4(d1)/Tg26(+) mice. Consistent with the diminished inflammation, kidneys from Notch4(d1)/Tg26(+) mice also showed a significant decrease in expression of the inflammatory cytokine transcripts Il-6 and Ccl2, as well as the master inflammatory transcription factor NF-kappaB (NfkB1 transcripts and p65 protein). These data identify Notch4 as an important mediator of tubulointerstitial injury and inflammation in HIVAN and a potential therapeutic target.


The use of combination anti-retroviral therapy (cART) correlates with longer and healthier life and with nearly normal life expectancy in people living with HIV. However, cART does not completely restore health. Chronic immune activation and inflammation persist in treated patients and have been described as predictors for clinical events and mortality in HIV-infected patients. Limited information is available on the impact of the various cART regimens on inflammation/immunomodulation. The aim of this work was to explore the impact of elvitegravir, dolutegravir, raltegravir (integrase strand transfer inhibitors, INSTIs) and atazanavir (protease inhibitor, PI) on several soluble markers of immune activation and inflammation during the first year of effective combination anti-retroviral therapy (cART). We conducted an observational retrospective cohort study in HIV-infected cART-naive patients who initiated an INSTI or atazanavir regimen between March 2015 and February 2016 and a serum sample was available at baseline, 6 and 12 months after initiation. We compared the trend of D-Dimer, TNF- alpha, IL-2, IL-6, IL-10, CCL4/MIP1-beta, CCL5/RANTES, s-CD14, s-CD163, hs-CRP levels among the 4 arms of treatment. Percentage of variation from baseline was also measured for all markers. A total of 36 patients were included. We observed heterogeneous modifications in inflammation markers among arms. In particular, we noted that EVG have significant negative effect on s-CD14, hs-CRP, IL-6 and D-Dimer in respect to other INSTIs and this different effect occurs mainly during the first 6 months of cART. IL-7 values increased in the three arms with INSTIs (significantly only in EGV, 159.8%, p=0.0003) and decreased significantly in patients on PI (-48.96%; p=0.04) over the period. In conclusion, our results provide further data on changes of inflammatory marker levels, especially for the new INSTIs. Our data show that among INSTIs, EVG seems to have a worse impact on inflammation.


OBJECTIVES: Rectal infections with Chlamydia trachomatis and/or Neisseria gonorrhoeae (CT/NG) are common in men who have sex with men (MSM) and are linked to HIV transmission. However, rectal CT/NG infections are often asymptomatic and it is not known how they contribute to HIV transmission. We assessed clinical and cytological signs of inflammation as well as rectal HIV-RNA in HIV-infected MSM with and without CT/NG infection. METHODS: 112 HIV-positive MSM with or without rectal symptoms and with or without antiretroviral therapy who underwent high-resolution anoscopy (HRA) at the proctological outpatient centre of the University Hospital Essen, Germany, between November 2013 and February 2014 were included in this cross-sectional study. During the examination, rectal swabs for the assessment of CT/NG, HIV-RNA and
Purpose: HIV-infected subjects present increased levels of inflammatory cytokines and T cell activation in the peripheral blood despite suppressive combination antiretroviral therapy which renders them susceptible to premature aging. The purpose of the present work was to review existing evidence on the ways in which the anatomical and microbiological system dimensions of aging (e.g., frailty, sarcopenia, functional decline) are altered in PLWH. We will address important considerations and challenges in the assessment of chronic CMV infection and CMV-specific T-cell responses. We will then review recent data on relationships between T-cell responses to CMV and levels of inflammatory markers and immune activation, as well as clinical outcomes. We will also discuss the implications of our findings for future interventional approaches to treat rapid aging among PLWH.

Both aging and treated human immunodeficiency virus (HIV) infection are characterized by low-level chronic inflammation and immune activation which contribute to the development of age-related diseases, frailty, and early mortality. Chronic cytomegalovirus (CMV) infection is highly prevalent in older adults and HIV-infected populations. A number of studies have shown that CMV induces broad and strong T-cell responses in CMV-seropositive older adults and HIV-infected individuals. CMV infection rarely develops into clinical disease in immunocompetent individuals. However, a large body of literature has shown adverse effects of chronic CMV infection on the health and longevity of these populations. It has been hypothesized that chronic CMV infection may be a driver of chronic inflammation and immune activation, and may further contribute to the development of frailty. Thus, there is a need to better understand the extent of the impact of chronic CMV infection on T-cell immunity and health in aging and HIV infection. In this review, we will address important considerations and challenges in the assessment of chronic CMV infection and CMV-specific T-cell responses. We will then review recent data on relationships between T-cell responses to CMV and levels of inflammatory markers and immune activation, as well as the onset of frailty.


OBJECTIVES: While the use of dual antiretroviral therapies could reduce the toxicity of antiretroviral treatment in treatment-experienced HIV-1-infected patients, it is crucial to know if reducing the number of drugs could lead to an adverse increase in inflammation and activation markers. METHODS: This was a cross-sectional pilot study conducted at the HIV-1 Unit at the Tertiary University Hospital in Madrid, Spain, evaluating biomarkers of activation [interferon-gamma-induced protein 10 (IP10), high-sensitivity C-reactive protein (hs-CRP), soluble CD14 (sCD14) and sCD163], inflammation [interleukin-6 (IL-6)], blood coagulation (d-dimer), and immune response [interferon (IFN)-gamma, tumour necrosis factor (TNF)-alpha and IL-4] in three groups of suppressed HIV-1-infected patients: patients continuing on triple therapy (26 patients), and patients who switched from triple to dual therapy, at 24 or 48 weeks after switching (13 and 36 patients, respectively).

RESULTS: Demographic and immunovirological parameters were similar in the three groups of patients. IL-6 and sCD14 levels were lower in patients at 48 weeks after switching to dual therapy compared with those found in patients who continued to receive triple therapy (P = 0.012 and P = 0.001, respectively), with no differences in the levels of the remaining biomarkers. Among patients with nadir CD4 count < 200 cells/μL, sCD14 levels were lower in patients who had been on dual therapy for 48 weeks (14 patients) compared with those found in patients who received ongoing triple...
BACKGROUND: HIV infection is now largely a chronic condition as a result of the success of antiretroviral therapy. However, several comorbidities have emerged in people living with HIV (PLWH), including alcohol use disorders and musculoskeletal disorders. Alcohol use has been associated with lower bone mineral density, alterations to circulating bone turnover markers, and hypocalemia. The pathophysiological basis of bone loss in the PLWH population is unclear but has been suggested to be linked to oxidative stress and inflammation. To test the hypothesis that PLWH consuming excessive alcohol have altered markers of bone turnover and/or calcium homeostasis in association with oxidative stress, we correlated measurements of alcohol consumption with markers of oxidative stress and inflammation, serum calcium concentrations, and measurements of bone turnover, including c-terminal telopeptide cross-links (CTX-1) and osteocalcin. METHODS: Data were drawn from cross-sectional baseline data from the ongoing New Orleans Alcohol Use in HIV (NOAH) study, comprised of 365 in care PLWH. Alcohol consumption measures (Alcohol Use Disorders Test, 30-day timeline follow-back calendar, and phosphatidylethanol [PEth]) were measured in a subcohort of 40 subjects selected based on highest and lowest PEth measurements. Multivariate linear regression was performed to test the relationships between alcohol consumption and systemic oxidative stress (4-hydroxynonenal; 4-HNE) and inflammation (c-reactive protein; CRP). RESULTS: Serum calcium and CTX-1 did not differ significantly between the high and low-PEth groups. Individuals in the high-PEth group had significantly lower serum osteocalcin (median low-PEth group: 13.42 ng/ml, inter-quartile range [IQR] 9.26 to 14.99 ng/ml; median high-PEth group 7.39 ng/ml, IQR 5.02 to 11.25 ng/ml; p = 0.0005, Wilcoxon rank-sum test). Osteocalcin negatively correlated with PEth (Spearman $r = -0.45$, p = 0.05) and self-reported measures after adjusting for covariates. Alcohol consumption showed mild, but significant, positive associations with serum 4-HNE, but not with CRP. Osteocalcin did not correlate with either 4-HNE or CRP. CONCLUSIONS: In this subcohort of PLWH, we detected significant associations between at-risk alcohol use and osteocalcin, and at-risk alcohol use and serum 4-HNE, suggesting suppression of bone formation independent of increased systemic oxidative stress with increasing alcohol consumption.

OBJECTIVE: Our objective was to examine the effect of a lifestyle diet and exercise intervention on cardiorespiratory fitness (CRF) and to examine predictors of change in CRF. DESIGN: People living with HIV (PLHIV) are at increased risk for cardiovascular disease. CRF is a better predictor of cardiovascular disease-related mortality than established risk factors yet very little is known about CRF in PLHIV. METHODS: One-hundred and seven virally suppressed PLHIV were randomized to a group-based intervention to improve lifestyle behaviors or a control condition. All PLHIV maximal cardiorespiratory stress test to determine VO2 peak, VO2 at anaerobic threshold, and ventilatory efficiency/VCO2, at baseline and 6 months later. Participants wore an accelerometer to measure physical activity, completed waist-hip circumference measures, and had a fasting lipid profile, IL-6, and high sensitivity C-reactive protein analyzed. Generalized estimating equations were used to examine the effect of the intervention on CRF and predictors of change in CRF. RESULTS: Participants were approximately 53 years old, 65% male ($n = 70$), and 86% African-American ($n = 93$). There was no effect of the intervention on markers of CRF over time ($P > 0.05$). After controlling for age, sex, waist-hip-ratio, the inflammatory biomarker IL-6 was inversely associated with a decline in both VO2 peak ($P = 0.03$) and VO2 at anaerobic threshold ($P = 0.03$). In addition, participants who walked an additional 10 000 steps per day had a 2.69 ml/kg per min higher VO2 peak ($P = 0.02$). CONCLUSION: Despite HIV viral suppression, PLHIV had remarkably poor CRF and inflammation was associated with a clinically adverse CRF profile. However, increased physical activity was associated with improved CRF.

Despite effective antiretroviral therapy (ART), people living with HIV (PLWH) still present persistent chronic immune activation and inflammation. This condition is the result of several factors including thymic dysfunction, persistent antigen stimulation due to low residual viremia, microbial translocation and dysbiosis, caused by the disruption of the gut mucosa, co-infections, and cumulative ART toxicity. All of these factors can create a vicious cycle that does not allow the full control of immune activation and inflammation, leading to an increased risk of developing non-AIDS co-morbidities such as metabolic syndrome and cardiovascular diseases. This review aims to provide an overview of the most recent data about HIV-associated inflammation and chronic immune exhaustion in PLWH under effective ART. Furthermore, we discuss new therapy approaches that are currently being tested to reduce the risk of developing inflammation, ART toxicity, and non-AIDS co-morbidities.
Antiretroviral therapy (ART) has significantly improved life expectancy of infected subjects, generating a new epidemiological setting of people aging with Human Immunodeficiency Virus (HIV). People living with HIV (PLWH), having longer life expectancy, now face several age-related conditions as well as side effects of long-term exposure of ART. Chronic kidney disease (CKD) is a common comorbidity in this population. CKD is a relentlessly progressive disease that may evolve toward end-stage renal disease (ESRD) and significantly affect quality of life and risk of death. Herein, we review current understanding of renal involvement in PLWH, mechanisms and risk factors for CKD as well as strategies for early recognition of renal dysfunction and best care of CKD.


OBJECTIVE: To evaluate the effects of HIV preexposure prophylaxis (PrEP) with tenofovir disoproxil fumarate (TDF)/emtricitabine (FTC) on kidney function and kidney tubular health. DESIGN: The Iniiciativa Profilaxis Pre-Exposicion open-label extension (iPrEx-OLE) study enrolled former PrEP trial participants to receive open-label TDF/FTC. This study included 123 iPrEx-OLE participants who demonstrated PrEP adherence. METHODS: We compared estimated glomerular filtration rate (eGFR), and/or prevalent CKD; (2) assess, via a randomized, placebo-controlled trial (RCT) in a subset of these participants with microalbuminuria (n = 280) whether addition of the ACEi, lisinopril, compared to standard of care, significantly reduces the incidence or progression of albuminuria; and (3) determine whether the APOL1 HR genotype is associated with worse kidney outcomes (i.e. eGFR slope or regression of albuminuria) among participants in the RCT. CONCLUSIONS: This study will examine the increasing prevalence of kidney diseases in HIV-positive adults in a West African population, and the relationship between these diseases and the APOL1 high-risk genotype. By evaluating the addition of an ACEi to the care of individuals with HIV infection who have albuminuria, our trial will provide definitive evidence to guide strategies for management and clinical care in this population, with the goal of reducing HIV-related kidney complications. TRIAL REGISTRATION: ClinicalTrials.gov, NCT03201939 . Registered on 26 August 2016.


OBJECTIVE: To evaluate the effects of HIV preexposure prophylaxis (PrEP) with tenofovir disoproxil fumarate (TDF)/emtricitabine (FTC) on kidney function and kidney tubular health. DESIGN: The Iniiciativa Profilaxis Pre-Exposicion open-label extension (iPrEx-OLE) study enrolled former PrEP trial participants to receive open-label TDF/FTC. This study included 123 iPrEx-OLE participants who demonstrated PrEP adherence. METHODS: We compared estimated glomerular filtration rate calculated using serum creatinine (eGFRcr), serum cystatin C (eGFRcys), and in combination (eGFRcr-cys), and a panel of 14 urine biomarkers reflecting kidney tubular health before and 6 months after PrEP initiation. RESULTS: At baseline, mean eGFRcr, eGFRcys, and eGFRcr-cys were 108.3, 107.0, and 111.1 ml/min/1.73 m, respectively. Six months after PrEP initiation, eGFRcr declined by -4% (95% CI: -5.7 to -2.4%), eGFRcys declined by -3.3% (95% CI: -8.3 to 1.9%), and eGFRcr-cys declined by -4.1% (95% CI: -7.5 to -0.7%). From the urine biomarker panel, alpha1-microglobulin and beta2-microglobulin increased by 22.7% (95% CI: 11.8--34.7%) and 14.1% (95% CI: -6.1 to 38.6%), whereas chitinase-3-like 1 protein and monocyte chemoattractant protein-1 decreased by -37.7% (95% CI: -53.0 to -17.3%) and -15.6% (95% CI: -31.6 to 4.2%), respectively. Ten of the 14 urine biomarkers, including albumin, had estimated changes of less than 12% with wide confidence intervals. CONCLUSION: Six months of PrEP with TDF/FTC was associated with decreases in eGFRcr and eGFRcys.
We also observed for the first time changes in 4 of 14 urine biomarkers reflecting kidney tubular health. These findings demonstrate that PrEP has direct effects on eGFR and the proximal tubule.


PURPOSE OF REVIEW: We report the current state of HIV+ to HIV+ kidney transplantation in the United States and remaining challenges in implementing this practice nationally. RECENT FINDINGS: The HIV Organ Policy Equity (HOPE) Act, which was the first step in unlocking the potential of HIV+ organ donors, mandates clinical research on HIV+ to HIV+ transplantation. As of March 2019, there have been 57 HOPE donors, including both true and false positive HOPE donors resulting in more than 120 transplants. SUMMARY: The HOPE Act, signed in 2013, reversed the federal ban on the transplantation of organs from HIV+ donors into HIV+ recipients. Ongoing national studies are exploring the safety, feasibility, and efficacy of both kidney and liver transplantation in this population. If successfully and fully implemented,
HIV+ to HIV+ transplantation could attenuate the organ shortage for everyone waiting, resulting in a far-reaching public health impact.


BACKGROUND AND OBJECTIVES: HIV-infected patients are at risk for developing chronic kidney disease (CKD), defined by estimated glomerular filtration rate (eGFR) <60 ml/min/1.73m2. Our purpose was to understand the genesis of CKD in HIV patients from a large urban clinic in Houston, Texas, USA, and to characterize progression of CKD in the cohort. DESIGN, SETTING, PARTICIPANTS AND MEASUREMENTS: A retrospective cohort study (2012-2016) was conducted in all HIV-infected patients seen in a federally qualified community health center in Houston, Texas. CKD prevalence and its association with HIV viral load and CD4 count were determined. The association of the change in eGFR over time and comorbidities was assessed using linear mixed models. RESULTS: Of 3714 HIV-infected patients analyzed, 153 (4.1%) had CKD. The prevalence of CKD in the different racial groups was 5.4% White, 4.0% African American, 2.8% Hispanic/Latino and 3.2% Asian. There was no difference in the rate of decline in kidney function in White vs. African American HIV infected patients with CKD. Compared with non-CKD patients, CKD patients were older, had lived longer with HIV infection, had lower CD4 cell counts, higher proportions of hypertension, hyperlipidemia, and cerebrovascular disease, and had significantly higher rates of eGFR deterioration represented by a median decrease of 26.5% from first to last follow-up eGFR (versus 0% change). Linear mixed modeling identified older age, male gender, White race, longer time with HIV infection, hypertension, history of kidney stones, cerebrovascular disease, autoimmune disease, increased potassium and total cholesterol levels, and being treated with combination ART as associated with a worsening eGFR over time. CONCLUSION: This study demonstrates a prevalence of CKD in HIV-infected patients of 4.1% and points to an important role for HIV medications and other common comorbidities in the genesis and progression of kidney disease. Importantly, CKD was not more prevalent in African Americans than in Whites, perhaps due to a low prevalence of IV drug abuse as inferred from the lower prevalence of HCV infection in this cohort.

Background: Chronic kidney disease (CKD) has become one of the most frequent non-infectious comorbidities in the aging HIV-infected population on long-standing combination antiretroviral therapy (cART). METHODS: We conducted a retrospective, cross-sectional study including HIV-infected adult patients attending our HIV outpatient clinic during the years 2017 and 2018 to assess prevalence and associated risk factors of CKD. Estimated glomerular filtration rate (eGFR) was measured by Chronic Kidney Disease-Epidemiology Collaboration (CKD-EPI) equation. CKD was diagnosed and classified according to the National Kidney Foundation guidelines. Logistic regression was employed to identify factors associated with CKD. RESULTS: We enrolled 2339 HIV-infected patients (91% were Caucasian) with a mean age of 45.3 years and a mean current CD4 lymphocyte count of 531 cells/mm(3). CKD was diagnosed in 311 subjects (13.3%) with a mean age of 45.3 years and a mean current CD4 lymphocyte count of 531 cells/mm(3). CKD was diagnosed in 311 subjects (13.3%). Overall, 294 (12.6%) patients had albuminuria, 108 (4.6%) had eGFR < 60 mL/min/1.73 m(2), and 78 (3.3%) had albuminuria plus eGFR < 60 mL/min/1.73 m(2). Stages 4-5 of CKD were documented in 23 (1%) cases. Age greater than 50 years, male gender, hypertension, diabetes mellitus, high triglycerides, nadir CD4 cell count < 200 cells/mm(3), current use of tenofovir disoproxyl fumarate (TDF) and of TDF plus a ritonavir-boosted protease inhibitors were independently associated with CKD, while current use of abacavir plus one integrase inhibitor was associated with a reduced risk of CKD. CONCLUSION: There is a significant prevalence of CKD among HIV-infected persons in association with both traditional and HIV-specific risk factors, requiring a careful periodic monitoring of renal function in these patients.


Introduction: HIV-positive (HIV+) kidney transplant recipients exhibit a 2- to 3-fold increased risk of allograft rejection. Dysregulated immune activation in HIV infection persists despite successful antiretroviral therapy and is associated with non-AIDS morbidity, including renal disease. We hypothesized that the pathological levels of inflammation and immune activation associated with chronic HIV infection could have clinical utility in the prediction of rejection in HIV+ kidney recipients. Methods: Prospective cohort study of 22 HIV-negative (HIV-; donor) to HIV+ (recipient) kidney transplant recipients who underwent biomarker assessment pretransplant and were subsequently followed for development of acute
Tenofovir disoproxyl fumarate (TDF) has been associated with renal tubular abnormalities, phosphaturia and proteinuria in treated HIV-positive patients. Pharmacogenomics J. Cusato, J., et al. (2019). "Pharmacogenetic determinants of kidney-associated urinary and serum abnormalities in antiretroviral-treated HIV-positive patients." Pharmacogenomics J.


OBJECTIVES: The aim of this study was to determine the evolution of renal function in patients receiving one or two inhibitors, according to different baseline factors. Some antiretroviral drugs such as rilpivirine (RPV), dolutegravir (DTG), or cobicistat (COBI), interact with the tubular secretion of creatinine, but there are no data about their impact in renal function evaluation in patients with renal disease or when these drugs are used concomitantly. METHODS: A prospective cohort study was carried out in HIV-infected patients who switched to a dual regimen including DTG, RPV or darunavir/COBI, separately or in combination. The primary endpoint was the evolution of the serum creatinine-based estimated glomerular filtration rate (eGFR-scr). A control group not receiving any transporter inhibitor was included. RESULTS: A total of 288 patients on different dual regimens were included (DTG + RPV, 92; DTG + darunavir/COBI, 23; DTG, 26; COBI, 19; control group, 128). In patients receiving two transporter inhibitors, eGFR-scr decreased by a mean of -8.4 ml/min/1.73 m(2) , similar to that observed with the separate use of DTG or COBI (mean of both groups, -8.6 ml/min/1.73 m(2) ), while eGFR-scr improved in the control group. Similar evolution of proteinuria and tubular dysfunction was observed in all the groups, and there were no significant changes in the cystatin C-based eGFR. Mean eGFR-scr change inversely correlated with baseline eGFR-scr value (r = -0.39; P < 0.01), with a lower eGFR-scr decrease in patients with chronic kidney disease. CONCLUSIONS: Similar eGFR-scr decreases were observed in patients using different antiretroviral drugs inhibiting the tubular transport of creatinine, separately or in combination, with no alterations in proteinuria or cystatin C-based eGFR. The lack of additional changes when the drugs were used in combination, and the lower impact in cases of previous chronic kidney disease, suggest that there are compensatory mechanisms for creatinine secretion.

BACKGROUND: In HIV, the relative contribution of genetic background, clinical risk factors, and antiretrovirals to chronic kidney disease (CKD) is unknown. METHODS: We applied a case-control design and performed genome-wide genotyping in white Swiss HIV Cohort participants with normal baseline estimated glomerular filtration rate (eGFR >90 mL/min/1.73 m2). Uni- and multivariable CKD odds ratios (OR) were calculated based on the D:A:D score that summarizes clinical CKD risk factors and a polygenic risk score that summarizes genetic information from 86613 single nucleotide polymorphisms.

RESULTS: We included 743 cases (79% male; median age, 42 years; baseline eGFR 106 mL/min/1.73 m2) with confirmed eGFR drop <15% eGFR drop to <60 mL/min/1.73 m2 (n=144) or >/=25% eGFR drop to <90 mL/min/1.73 m2 (n=599), and 322 controls (eGFR drop <15%; 81% male; median age, 39 years, baseline eGFR 107 mL/min/1.73 m2). Polygenic risk score and D:A:D score contributed to CKD. In multivariable analysis, CKD ORs were 2.13 (95% confidence interval, 1.55-2.97) in participants in the 4th (most unfavorable) vs. 1st (most favorable) genetic score quartile; 1.94 (1.37-2.65) in the 4th vs. 1st D:A:D score quartile; and 2.98 (2.02-4.66), 1.70 (1.29-2.29), and 1.83 (1.45-2.40), per 5-years exposure to atazanavir/ritonavir, lopinavir/ritonavir, and tenofovir disoproxil fumarate, respectively. Participants in the 1st genetic score quartile had no increased CKD risk, even if they were in the 4th D:A:D score quartile. CONCLUSIONS: Genetic score increased CKD risk similar to clinical D:A:D score and potentially nephrotoxic antiretrovirals. Irrespective of D:A:D score, individuals with the most favorable genetic background may be protected against CKD.


Acute kidney injury (AKI) is characterized by a rapid decline of renal function associated with worse outcomes. The purpose of the authors is to perform a critical review of the incidence, risk factors, pathogenesis and outcome of AKI in HIV-infected patients. Human immunodeficiency virus (HIV)-infected patients have an increased risk of developing AKI, to which contribute both HIV-dependent and HIV-independent factors as well as the nephrotoxicity of drugs used. The increased risk of AKI in HIV-infected patients and its negative impact on prognosis highlights the need for identification of patients at risk, creation of prevention strategies and management. HIV-infected patients have an increased risk of developing AKI, to which both HIV-dependent and HIV-independent factors contribute, as well as the nephrotoxicity of drugs used. The increased risk of AKI in HIV-infected patients and its negative impact on prognosis highlight the need for identification of patients at risk, creation of prevention strategies and management.


HIV-associated nephropathy (HIVAN) is a rapidly progressive kidney disease that is caused by HIV infection of renal epithelial cells with subsequent expression of viral genes, including vpr. Antiretroviral therapy ameliorates HIVAN without eradicating HIV from the kidneys and the mechanism by which it protects kidneys is poorly understood. Since HIV protease inhibitors have "off target" cellular effects, we studied whether darunavir, the most commonly prescribed protease inhibitor, protects kidneys from HIV-induced injury via mechanisms independent of HIV protease and viral replication. Renal epithelial cells were transduced with lentiviruses encoding HIV (lacking protease and reverse transcriptase), Vpr, or vector control. Darunavir attenuated HIV and Vpr-induced activation of Stat3, Src, Erk, and cytokines, which are critical for HIVAN pathogenesis. We then studied HIV-transgenic mice, which develop HIVAN in the absence of HIV protease or reverse transcriptase. Mice were treated with darunavir, zidovudine, darunavir + zidovudine, or control. Darunavir and darunavir + zidovudine reduced albuminuria and histologic kidney injury and normalized expression of dysregulated proteins. RNA-seq analyses demonstrated that darunavir suppressed HIV-induced upregulation of immune response genes in human kidney cells. These data demonstrate that darunavir protects against HIV-induced renal injury via mechanisms that are independent of inhibition of HIV protease.


Human immunodeficiency virus (HIV) infection was traditionally considered an absolute contraindication for kidney transplantation. After the introduction of ART, several studies have demonstrated comparable patient and graft outcomes between HIV-negative and HIV-positive kidney recipients. The US Congress passed the HIV Organ Policy Equity (HOPE) Act in 2013, which permits research in the area of HIV-positive to HIV-positive transplantation. HIV-infected living donation is also permitted under the HOPE Act. However, there is a concern regarding the safety of kidney donation in an HIV-infected person, given the risk of renal disease associated with HIV infection. We report here the case of successful kidney transplantation from HIV-positive living donor to HIV-positive recipient performed in our center on July 2012. To the best of our knowledge, this is the earliest case done in this medical context to be reported in the literature, therefore, potentially carrying several important messages to the transplantation community. In the present case, the living-donor kidney transplant was performed between a married couple infected with same strain of HIV-1, both on effective ART with efficiently suppressed viral replication and satisfactory pre-transplantation immune status.


A 57-year-old man was diagnosed with IgA nephropathy. Hematuria and proteinuria were improved by tonsillectomy plus methylprednisolone pulse therapy. Lymphadenopathy, hypocomplementemia and pancytopenia were observed six years later, and urinalysis abnormalities recurred. A biopsy revealed mesangial proliferative glomerulonephritis with C3-dominant deposition. Human immunodeficiency virus (HIV) antibody demonstrated positive conversion. He was diagnosed with HIV-associated immune complex kidney disease (HIVICK). The hematuria, proteinuria and hypocomplementemia were improved by reducing the HIV viral load through antiretroviral therapy. When C3-dominant deposition is observed on a renal biopsy, HIVICK must be differentiated.


BACKGROUND: Patients treated for human immunodeficiency virus (HIV) infection are prone to developing chronic kidney disease (CKD). Current methods used in assessing kidney function suffer inaccuracy in HIV-infected patients. This study aims to identify biomarkers that could complement existing methods of kidney assessment among HIV-infected subjects.

METHODS: Plasma protein profiling was performed for HIV patients with CKD presented with negative/trace proteinuria (non-proteinuric) (n=8) and their matched non-CKD controls, using two-dimensional gel electrophoresis (2DE); selected protein candidates were identified using mass spectrometry. Subsequently, altered plasma abundance of protein candidates were verified using Western blotting in HIV-infected subjects with non-proteinuric CKD (n=8), proteinuric CKD (n=5), and their matched non-CKD controls, as well as in HIV-uninfected subjects with impaired kidney function (n=3) and their matched controls. RESULTS: Analysis of 2DE found significantly altered abundance of five protein candidates between HIV-infected patients with non-proteinuric CKD and without CKD: alpha-1-microglobulin (A1M), serum albumin (ALB), zinc-alpha-2-glycoprotein (AZGP1), haptoglobin (HP), and retinol binding protein (RBP4). Western blotting showed an increased abundance of A1M and HP in HIV-infected patients with non-proteinuric CKD compared to their non-CKD controls, whereas A1M, AZGP1, and RBP4 were significantly increased in HIV-infected patients with proteinuric CKD compared to their non-CKD controls. Such pattern was not found in HIV-uninfected subjects with impaired kidney function. CONCLUSION: The data suggests four proteins that may be used as biomarkers of CKD in HIV-infected patients. Further validation in a larger cohort of HIV-infected patients is necessary for assessing the clinical use of these proposed biomarkers for CKD.


OBJECTIVES: To describe hospitalisations for kidney disease (KD) among people living with HIV (PLHIV) in France and to identify the factors associated with such hospitalisations since data on the epidemiology of KD leading to hospitalisation are globally scarce. DESIGN: Observational nationwide study using the French Programme de Medicalisation des Systemes d'Information database. SETTING: France 2008-2013. PARTICIPANTS: Around 10 862 PLHIV out of a mean of 5 210 856 patients hospitalised each year. All hospital admissions with a main diagnosis code indicating KD (International Classification of Diseases, 10th revision codes, N00 to -N39) were collected. MAIN OUTCOME MEASURES: The prevalence and incidence
of KD leading to hospital admission in PLHIV and the associated risk factors. RESULTS: The prevalence of patients hospitalised for KD was 1.5 higher in PLHIV than in the general population, and increased significantly from 3.0% in 2008 to 3.7% in 2013 (p<0.01). The main cause of hospitalisation for KD was acute renal failure (ARF, 25.4%). Glomerular diseases remained stable (6.4%) throughout the study period, focal segmental glomerulosclerosis being the main diagnosis (37.6%). Only 41.3% of patients hospitalised for glomerular disease were biopsied. The other common motives for admission were nephrolithiasis (22.1%) and pyelonephritis (22.6%). The 5-year cumulative incidence of KD requiring hospitalisation was 5.9% in HIV patients newly diagnosed for HIV in 2009. Factors associated with a higher risk of incident KD requiring hospitalisation were cardiovascular disease (HR 3.30, 95% CI 1.46 to 7.49), and, for female patients, AIDS (HR 2.45, 95% CI 1.07 to 5.58). Two-thirds of hospitalisations for incident ARF occurred in the first 2 years of follow-up. CONCLUSIONS: Hospital admission for KD is more frequent in PLHIV than in the general population and increases over time. ARF remains the leading cause. Glomerular diseases are infrequently documented by renal biopsies. Older patients and those with cardiovascular disease are particularly concerned.


OBJECTIVES: High rates of clinical acute rejection after kidney transplantation have been reported in people living with HIV (PLHIV), probably as a consequence of drug interactions. We therefore investigated the incidence of acute rejection within 6 months of transplantation in HIV-infected recipients treated with a protease-inhibitor-free raltegravir-based regimen.

METHODS: The Agence Nationale de Recherche sur le Sida et les Hepatites Virales (ANRS) 153 TREVE (NCT01453192) study was a prospective multicentre single-arm trial in adult PLHIV awaiting kidney transplantation, with viral load < 50 HIV-1 RNA copies/mL, CD4 T-cell count > 200 cells/μL, and HIV-1 strains sensitive to raltegravir, aiming to demonstrate 6-month clinical acute rejection rates < 30%. Time to transplantation was compared with that for uninfected subjects matched for age, sex and registration date. RESULTS: In total, 61 participants were enrolled in the study, and 26 underwent kidney transplantation. Two participants experienced clinical acute rejection, corresponding to an estimated clinical acute rejection rate of 8% (95% confidence interval (CI) 2-24%) at 6 and 12 months post-transplantation. HIV infection remained under control in all but one participant, who temporarily stopped antiretroviral treatment. Median time to transplantation was longer in PLHIV than in controls (4.3 versus 2.8 years, respectively; P = 0.002) and was not influenced by blood group. CONCLUSIONS: Acute rejection rates were low after kidney transplantation in PLHIV treated with a raltegravir-based regimen. However, PLHIV have poorer access to transplantation than HIV-uninfected individuals after registration on the waiting list.


BACKGROUND: Kidney injury is a serious comorbidity among HIV-infected patients. Intravenous drug use is listed as one of the risk factors for impaired renal function; however, this group is rarely assessed for specific renal-related risks. METHODS:
Background: The burden of the people living with human immunodeficiency virus (HIV) infection and the acquired immunodeficiency syndrome (AIDS) is largely borne by communities in Sub-Saharan Africa. The rate of kidney disease is significantly elevated among HIV-positive persons; however, conventional methods to assess kidney health are insensitive and non-specific for detecting early kidney injury. Urinary biomarkers can detect early kidney injury, and may help mitigate the risk of overt CKD. METHODS: Cross-sectional study of HIV-positive persons in the Multicenter AIDS Cohort Study and the Women's Interagency HIV Study. We measured levels of 14 biomarkers, capturing multiple dimensions of kidney injury. We then evaluated associations of known CKD risk factors with urine biomarkers using separate multivariable adjusted models for each biomarker. RESULTS: Of the 198 participants, one third were on HAART and virally suppressed. The vast majority (95%) had preserved kidney function as assessed by serum creatinine, with a median eGFR of 103 ml/min/1.73 m(2) (interquartile range (IQR): 88, 116). In our multivariable analyses, the associations of each CKD risk factor with urinary biomarker levels varied in magnitude. For example, HIV viral load was predominantly associated with elevations in interleukin(IL)-18, and albuminuria, while higher CD4 levels were associated with lower monocyte chemoattractant protein-1 (MCP-1) and beta2-microglobulin. In contrast, older age was significantly associated with elevations in alpha1-microglobulin, kidney injury marker-1, clusterin, MCP-1, and chitinase-3-like protein-1 levels, as well as lower epidermal growth factor, and uromodulin levels. CONCLUSIONS: Among HIV-positive persons, CKD risk factors are associated with unique and heterogeneous patterns of changes in urine biomarkers levels. Additional work is needed to develop parsimonious algorithms that integrate multiple biomarkers and clinical data to discern the risk of overt CKD and its progression.


Background: HIV-positive persons bear an excess burden of chronic kidney disease (CKD); however, conventional methods to assess kidney health are insensitive and non-specific for detecting early kidney injury. Urinary biomarkers can detect early kidney injury, and may help mitigate the risk of overt CKD. METHODS: Cross-sectional study of HIV-positive persons in the Multicenter AIDS Cohort Study and the Women's Interagency HIV Study. We measured levels of 14 biomarkers, capturing multiple dimensions of kidney injury. We then evaluated associations of known CKD risk factors with urine biomarkers using separate multivariable adjusted models for each biomarker. RESULTS: Of the 198 participants, one third were on HAART and virally suppressed. The vast majority (95%) had preserved kidney function as assessed by serum creatinine, with a median eGFR of 103 ml/min/1.73 m(2) (interquartile range (IQR): 88, 116). In our multivariable analyses, the associations of each CKD risk factor with urinary biomarker levels varied in magnitude. For example, HIV viral load was predominantly associated with elevations in interleukin(IL)-18, and albuminuria, while higher CD4 levels were associated with lower monocyte chemoattractant protein-1 (MCP-1) and beta2-microglobulin. In contrast, older age was significantly associated with elevations in alpha1-microglobulin, kidney injury marker-1, clusterin, MCP-1, and chitinase-3-like protein-1 levels, as well as lower epidermal growth factor, and uromodulin levels. CONCLUSIONS: Among HIV-positive persons, CKD risk factors are associated with unique and heterogeneous patterns of changes in urine biomarkers levels. Additional work is needed to develop parsimonious algorithms that integrate multiple biomarkers and clinical data to discern the risk of overt CKD and its progression.


Chronic kidney disease (CKD) is a frequent complication of HIV infection. The classic involvement of the kidney by HIV infection is HIV-associated nephropathy (HIVAN), occurring typically in young adults of African ancestry with advanced HIV disease in association with APOL1 high-risk variants. HIV-immune complex disease is histologically the second most common diagnosis. With the introduction of antiretroviral therapy (ART), there has been a decline in the incidence of HIVAN, with an increasing prevalence of focal segmental glomerulosclerosis. Several studies have demonstrated overall improvement in kidney function with initiation of ART. Many antiretroviral medications are partially or completely eliminated by the kidney and require dose adjustment in CKD. HIV-positive patients requiring either hemodialysis, or peritoneal dialysis, who are stable on ART, are achieving survival rates comparable to those of dialysis patients without HIV infection. Kidney transplantation has been performed successfully in HIV-positive patients; graft and patient survival is similar to that of HIV-negative recipients. Early detection of kidney disease by implementation of screening on diagnosis of HIV infection and annual screening thereafter will have an impact on the burden of disease, together with access to ART. Programs for prevention of HIV infection are essential.


Background: The burden of the people living with human immunodeficiency virus (HIV) infection and the acquired immunodeficiency syndrome (AIDS) is largely borne by communities in Sub-Saharan Africa. The rate of kidney disease is
Chronic kidney disease (CKD) is an important cause of morbidity and mortality in HIV-infected individuals, even in the antiretroviral therapy (ART) era. Inflammatory cytokines and adipokines have been suggested to play a role in the development of CKD. The aim of the present study was to examine the circulating levels of a novel proinflammatory cytokine, angiopoietin-like protein 2 (ANGPTL2), in a cohort of 72 HIV-positive subjects on ART. HIV-positive patients were on ART for at least one year. Urine and blood samples were collected. Various factors were analyzed including body mass index (BMI), smoking, and presence/treatment for comorbidities such as diabetes. The estimated glomerular filtration rate was calculated by using the Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI) equation. Plasma samples obtained were stored and used to measure sCD14 and ANGPTL2 levels. Data were presented as mean (+/- standard deviation) or median (interquartile range) for continuous variables. Categorical variables were expressed as number (%). Variables were compared using Student’s t-test, Mann-Whitney test, or chi(2) test. The results showed an independent negative association between plasma ANGPTL2 and CKD-EPI values. Further prospective studies on larger cohorts are needed to evaluate the pathogenetic role of ANGPTL2 as well as its use as a diagnostic marker of renal dysfunction.


Introduction: The safe and effective treatment of HIV-associated renal diseases with cART can decrease the progression to ESRD and also improve the morbidity and mortality secondary to renal failure. Material and Methods: HIV positive patients with clinical kidney disease were the subjects of this study. The diagnosis of HIV was established using immunochromatographic assays. The patients were subjected to meticulous history, physical examination, laboratory investigations and kidney biopsy. Patients were treated with combined antiretroviral therapy and enalapril. They were followed at 3 months interval for one year. Short term outcome was assessed using changes in serum creatinine and proteinuria. Long term outcome assessments were done using progression to end stage renal disease and patients survival. Result: Ten (Male=7; Female=3) HIV patients with clinical renal disease were included in this study. Their age ranged between 26-55 (Mean=40.5+/-.8.8) years. The mean serum creatinine at the baseline, three, six, nine and twelve months was 2.46, 2.09, 2.43, 2.46 and 2.58 mg/dl respectively. The mean e-GFR by MDRD equation at 0, 3, 6, 9 and 12 months was 40.9, 45.5, 48.2, 51.1 and 52.5 ml/ min/1.73m2 respectively. The mean twenty four hour urinary protein excretion at 0, 3, 6, 9 and 12 months was 3.01, 2.82, 2.22, 2.02 and 1.79 grams respectively. Six patients showed improvement in creatinine and e-GFR, whereas worsening of renal function was seen in four patients. Proteinuria decreased in seven patients, whereas it remained unchanged in three patients. There was no mortality at the end of one year of follow up. Conclusion: Treatment with combined ART and ACEIs slows the progression of HIV-associated kidney disease, decreases proteinuria and improves the GFR.

Rejection rates in HIV-infected kidney transplant (KTx) recipients are higher than HIV-negative recipients. Immunosuppression and highly active antiretroviral therapy (HAART) protocols vary with potentially significant drug-drug interactions, likely influencing outcomes. This is an IRB-approved, single-center, retrospective study of adult HIV-infected KTx patients between 5/2009 and 12/2014 with 3-year follow-up, excluding antibody-depleting induction. A total of 42 patients were included; median age was 52 years, 81% male, 50% African American, 29% Hispanic, 17% Caucasian. The most common renal failure etiology was hypertensive nephrosclerosis (50%) with 5.8 median years of pre-transplant dialysis. All patients received IL-2 receptor antagonist, were maintained on tacrolimus (76%) or cyclosporine (17%), and 40% received ritonavir-boosted PI-based HAART (rtv+) regimen. Patient and graft survival at 3 years were 93% and 90%. At 1-, 2-, and 3-year time points, median serum creatinine was 1.49, 1.35, and 1.67; treated biopsy-proven rejection was 38%, 38%, and 40.5%; and 92% of episodes were acute rejection. At these time points, rejection rates were significantly higher with boosted PI HAART regimens compared to other HAART regimens, 59% vs 24% (P = 0.029), 59% vs 24% (P = 0.029), and 68% vs 24% (P = 0.01). Despite higher rejection rates, HIV-infected KTx recipients have reasonable outcomes. Given significantly higher rejection rates using rtv+ regimens, alternative HAART regimens should be considered prior to transplantation.


BACKGROUND: It is unclear whether use of contemporary protease inhibitors pose a similar risk of chronic kidney disease (CKD) as use of older protease inhibitors. METHODS: Participants in the Data Collection on Adverse Events of Anti-HIV Drugs (D:A:D) study were followed up until the earliest occurrence of CKD, the last visit plus 6 months, or 1 February 2016. Adjusted Poisson regression was used to assess associations between CKD and the use of ritonavir-boosted atazanavir (ATV/r) or ritonavir-boosted darunavir (DRV/r). RESULTS: The incidence of CKD (10.0/1000 person-years of follow-up; 95% confidence interval, 9.5-10.4/1000 person-years of follow-up) increased gradually with increasing exposure to ATV/r, but the relation was less clear for DRV/r. After adjustment, only exposure to ATV/r (adjusted incidence rate ratio, 1.4; 95% confidence interval, 1.2-1.6), but not exposure to DRV/r (1.0; .8-1.3), remained significantly associated with CKD. CONCLUSION: While DRV/r use was not significantly associated with CKD an increasing incidence with longer ATV/r use was confirmed.


OBJECTIVES: Predictors of chronic kidney disease (CKD) amongst HIV-positive persons are well established, but insights into the prognosis after CKD including the role of modifiable risk factors are limited. DESIGN: Prospective cohort study. METHODS: D:A:D participants developing CKD (confirmed, >3 months apart, eGFR </= 60 ml/min per 1.73 m or 25% eGFR decrease when eGFR </= 60 ml/min per 1.73 m) were followed to incident serious clinical events (SCE); end stage renal and liver disease (ESRL and ESLD), cardiovascular disease (CVD), AIDS-defining and non-AIDS-defining malignancies (NADM), other AIDS or death, 6 months after last visit or 1 February 2016. Poisson regression models considered associations between SCE and modifiable risk factors. RESULTS: During 2.7 (IQR 1.1-5.1) years median follow-up 595 persons with CKD (24.1%) developed a SCE [incidence rate 68.9/1000 PYFU (95% confidence interval 63.4-74.4)] with 8.3% (6.9-9.0) estimated to experience any SCE at 1 year. The most common SCE was death (12.7%), followed by NADM (5.8%), CVD (5.6%), other AIDS (5.0%) and ESRD (2.9%). Crude SCE ratios were significantly higher in those with vs. without CKD, strongest for ESRD [65.9 (43.8-100.9)] and death [4.8 (4.3-5.3)]. Smoking was consistently associated with all CKD-related SCE. Diabetes predicted CVD, NADM and death, whereas dyslipidaemia was only significantly associated with CVD. Poor HIV-status predicted other AIDS and death, eGFR less than 30 ml/min per 1.73 m predicted CVD and death and low BMI predicted other AIDS and death. CONCLUSION: In an era where many HIV-positive persons require less monitoring because of efficient antiretroviral treatment, persons with CKD carry a high burden of SCE. Several potentially modifiable risk factors play a central role for CKD-related morbidity and mortality.


Aims/patients & methods: To evaluate the risk of acute kidney injury (AKI) in patients with HIV receiving proton pump inhibitors (PPI) a cohort study was conducted utilizing the Veterans Affairs Informatics and Computing Infrastructure (VINCI)
Deoxycholate amphotericin B (d-AMB) has a higher rate of acute kidney injury (AKI) in comparison of lipid formulations. However, lipid amphotericin B has high costs in developing countries. The aim of this study is to assemble a model of cost-minimization of amphotericin B lipid complex (ABLC) in patients with cryptococcal meningitis. This is a retrospective study done in a cohort of patients with cryptococcal meningitis to study the economic impact of its use in developing countries. Cost analysis were based on direct cost of different antifungal therapies, chronic dialysis after discharge, and survival of patients based on a retrospective cohort of 102 patients infected with human immunodeficiency virus with confirmed diagnosis of cryptococcal meningitis. From 102 patients treated with d-AMB, 60.78% developed any grade of AKI demanding hemodialysis. The percentage of patients with meningeal cryptococcosis treated with d-AMB that requeired chronic HD was 2.39%. The same model was performed for patient that would be treated with ABLC, which resulted in 0.20% of patients demanding chronic HD due to its lower nephrotoxicity. When the model is applied in 100 patients, the total costs with d-AMB would be US$ 184,543 and with ABLC would be US$ 1,640,109 in 5 years.

We compared access to a kidney transplantation (KT) waiting list (WL) and to KT between people living with HIV (PLHIV) and HIV-uninfected controls. Using the REIN (the national Renal Epidemiology and Information Network registry), we included all PLHIV initiating dialysis in France throughout 2006-2010 and HIV-uninfected controls matched for age, sex, year of dialysis initiation, and the existence of a diabetic nephropathy. Patients were prospectively followed until December 2015. We used a competitive risk approach to assess the cumulative incidence of enrollment on WL and of KT, with death as a competing event (subdistribution hazard ratio adjusted on comorbidities, asdHR). There were 255 PLHIV in the REIN (median age 47 years) of whom 180 (71%) were also found in the French Hospital Database on HIV (FHDH-ANRS CO4) including 126 (70%) known to be on antiretroviral therapy with HIV viral suppression (VS). Five years after dialysis initiation, 65%, and 76%, of treated PLHIV with VS, and of HIV-uninfected controls were enrolled on a WL (asdHR 0.68; 95% CI 0.50-0.91). Access to KT was also less frequent and delayed for treated PLHIV with VS (asdHR 0.75, 95% CI, 0.52-1.10). PLHIV continue to face difficulties to access KT.

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INTRODUCTION: The use of antiretroviral therapy in HIV-infected patients can lead to disturbances in kidney function. Renal dysfunction can also be caused by the direct effects of HIV on the kidneys. The assessment of renal function is needed to monitor these patients for the development of chronic kidney disease. OBJECTIVES: The aim of this study was to identify urinary biochemical parameters for the assessment of kidney dysfunction in HIV-infected patients. PATIENTS AND METHODS: The study included 86 patients with HIV and 34 healthy controls. Spectrophotometry was used to measure the activity of the following enzymes: N-acetyl-beta-glucosaminidase (NAG), NAG isoenzyme B (NAGB), galactosidase, betaglucuronidase, alanyl aminopeptidase, and gammaglutamyltransferase. An enzymelinked immunosorbent assay was used to assess the urinary concentrations of lowmolecularweight proteins: kidney injury molecule 1 (KIM-1), neutrophil gelatinase-associated lipocalin, alphaglutathione Transferase, piglutathione Transferase, neopterin, beta2microglobulin (beta2M), and retinolbinding protein (RBP). RESULTS: The urinary levels of all parameters except alanly aminopeptidase were significantly higher in HIV-infected patients than in the control group. The statistical analysis revealed the following 4 parameters to have the best diagnostic value in: beta2M, NAG, KIM-1, and RBP. CONCLUSIONS: Our results indicate that among selected enzymes and low-molecular proteins, beta2M, NAG, KIM-1, and RBP are the best in assessing renal dysfunction in patients with HIV.

Kidney transplantation is the gold-standard therapy for select HIV-positive patients with ESRD. Since the Italian Ministry of Health defined the guidelines for organ donation from HIV-positive persons in 2018, we report the first case of renal transplantation from an HIV-positive cadaveric donor in two HIV-positive recipients in Italy. The donor was a 50-year-old male, deceased due to post-anoxic encephalopathy, with a history of HIV infection in HAART, undetectable viral load, and HCV-related chronic hepatitis that had been previously treated. The first recipient was a 59-year-old female with a prior history of drug addiction, and she suffered from ESRD secondary to HIV nephropathy. The patient followed preoperative HAART with a good viral response and undetectable HIV viral load. She also had a history of HCV-related chronic hepatitis that had been successfully treated. The right kidney was uneventfully transplanted. The patient developed an asymptomatic reinfection of endogenous BK virus. The second recipient was a 41-year-old male with ESRD secondary to polycystic kidney disease. The patient was HIV-positive in HAART, with a good viro-immunologic response and an undetectable HIV viral load. He suffered from a severe form of hemophilia A and HCV-related chronic hepatitis, which had been previously treated with undetectable HCV RNA. The left kidney was uneventfully transplanted. At the end of follow-up, both patients had a healthy condition with stable renal function, a persistently good viral response and undetectable HIV and HCV viral loads. These encouraging preliminary results seem to confirm the safety and effectiveness of kidney transplantation from select HIV-positive donors.

The HIV Organ Policy Equity (HOPE) Act, enacted on November 21, 2013, enables research on the transplantation of organs from donors infected with human immunodeficiency virus (HIV) (HIV+) into HIV+ individuals who, prior to transplantation, are infected with HIV. In 2015, the Organ Procurement and Transplantation Network revised organ allocation policies on November 21, and on November 23, the Secretary of Health and Human Services published research criteria and revised the Final Rule accordingly. The HOPE Act appears to be underutilized to date. As of December 31, 2018, there were 56 donors recovered (50 donors transplanted) resulting in 102 organs transplanted (31 liver, 71 kidney). As of December 31, 2018, 212 registrations were indicated on the waiting list as willing to accept an HIV+ kidney or liver, most of which were waiting in active status. Due to the limited number of transplants performed to date, definitive safety conclusions cannot be reached at this time, though current data suggest that 1-year patient and graft survival does not deviate in a major way from that observed in HIV+ recipients of non-HIV+ organs or non-HIV+ recipients. As safety data are reviewed and disseminated, it is anticipated that HOPE participation will increase should safety signals remain low.

BACKGROUND: Kidney transplantation is now a viable alternative to dialysis in HIV-positive patients who achieve good immunovirological control with the currently available antiretroviral therapy regimens. This systematic review and meta-analysis investigate the published evidence of outcome and risk of kidney transplantation in HIV-positive patients following the PRISMA guidelines. METHODS: Searches of PubMed, the Cochrane Library and EMBASE identified 27 cohort studies and 1670 case series evaluating the survival of HIV-positive kidney transplant patients published between July 2003 and May 2018. The regimens for induction, maintenance therapy and highly active antiretroviral therapy, acute rejection, patient and graft survival, CD4 count and infectious complications were recorded. We evaluated the patient survival and graft survival at 1 and 3 years respectively, acute rejection rate and also other infectious complications by using a random-effects analysis. RESULTS: At 1 year, patient survival was 0.97 (95% CI 0.95; 0.98), graft survival was 0.91 (95% CI 0.88; 0.94), acute rejection was 0.33 (95% CI 0.28; 0.38), and infectious complications was 0.41 (95% CI 0.34; 0.50), and at 3 years, patient survival was 0.94 (95% CI 0.90; 0.97) and graft survival was 0.81 (95% CI 0.74; 0.87). CONCLUSIONS: With careful selection and evaluation, kidney transplantation can be performed with good outcomes in HIV-positive patients.
Non-adherence remains a significant barrier to achieving successful HIV treatment outcomes. This review aimed to holistically examine the concept of adherence in the light of current research evidence and to provide a basic and adaptable conceptual framework for investigating and influencing adherence behavior among various HIV populations. We reviewed published journal articles and gray literature within the period from 2000 to 2017. A comprehensive search from major online databases and repositories such as PubMed, Scopus, Medline, Google Scholar, and Cochrane Database of Systematic Reviews was conducted using focused search terms that included "social cognition models" or "theories and models of health behavior change" or "behavior change in health psychology" or "theory-based interventions" or "behavioral frameworks" and "adherence behavior" or "medication adherence," and "HIV patients" or "HIV/AIDS." Only papers published in English were included in this study. We found varied and extensive literature evidence supporting the use of psychobehavioral models to promote conceptual understanding of adherence behavior among HIV-positive patients globally. We observed that certain approaches at investigating nonadherence worked better among certain populations and epidemics than others, largely because of contextual differences in barriers and burden of non-adherence among these populations. We synthesized the evidence and applied social cognition models in explaining and providing a basic, evidence-based and adaptable conceptual framework for investigating and influencing adherence behavior among HIV-positive populations around the world, regardless of geographical and HIV epidemiological context.


BACKGROUND: People living with HIV (PLHIV) constantly need to address social issues such as the cost of accessing care, stigma, and lack of social support which impacts on their level of adherence to clinic visits or antiretroviral treatment leading to adverse health outcomes. This study examined the social barriers in accessing care by clients who returned to care after transient loss to follow-up. METHODS: This study was a cross-sectional survey of PLHIV from 99 US CDC PEPFAR-supported HIV clinics located in 10 of Nigeria's 36 states and Federal Capital Territory, who were momentarily lost to follow-up but returned to care after tracking. Demographic and social factors at bivariate and multivariate level were analyzed to determine the predictors of difficulty in accessing HIV clinics. RESULTS: Of the 7483 clients tracked, 1386 (18.5%) were confirmed to be in care, 2846 (38.2%) were lost to follow-up (LTFU), 562 (7.5%) returned to care, 843 (11.2%) discontinued care, 827 (11.1%) transferred out to other facilities for care, 514 (6.8%) had died while 505 (6.7%) could not be reached by phone or located at their addresses. 438 out of the 562 (78%) returnee PLHIV gave consent and participated in the study. 216 out of the 438 (50%) clients who returned to care were transiently lost to follow-up because they had difficulty accessing their HIV clinic. Also, 126/438 (29%) of returnee PLHIV were previously lost to follow-up. Difficult access to a HIV clinic was significantly influenced by prior LTFU (OR 2.5 [95% CI 1.3-4.8], p = 0.008), history of being stigmatized (OR 2.1 [95% CI 1.1-3.8], p = 0.02), lack of social or financial support (OR 2.8 [95% CI 1.3-6.0], p = 0.01) and perceived in-adequate healthcare workers support (OR 3.8 [95% CI 1.2-11.2], p = 0.02). Age (p = 0.218) and gender (p = 0.771) were not significant determinants of difficult access to an HIV clinic. CONCLUSION: Stigma, lack of support and prior loss to follow-up event are essential factors affecting retention in care. Social constructs such as home-based visits, community-based care services, transportation subsidies, and robust strong social systems should be built into HIV service delivery models to improve retention in care of people on HIV treatment. The authors advocate for further studies on how differentiated care models impact on retention of patients in care.

Russia has over 1.2 million HIV infections and Europe's highest HIV incidence. Although its HIV epidemic is intertwined with high alcohol consumption rates, the interaction between alcohol use and HIV care in Russia is understudied. Five hundred eighty-six HIV-positive persons were recruited using social network methods in St. Petersburg. Fifty-nine percent of males, and 45% of females, drank regularly. Thirty percent of alcohol users reported binge drinking (males: >/= 5 drinks; females >/= 4 drinks) in the past week. Alcohol use was associated with lower HIV care engagement and having a detectable viral load. Multivariate analyses showed that any alcohol consumption, number of alcohol drinks consumed, and having a binge drinking day in the past week were associated with male gender, use of illicit drugs, drug injection, smaller social network size, lower social supports, being unmarried, and reporting condomless intercourse with non-main partners. Interventions to improve HIV care in Russia must comprehensively address the use of alcohol and substances that interfere with care engagement.


Low health literacy and poor retention in care may contribute to HIV health disparities among African Americans, but causal pathways have not been examined. We utilized an adapted health literacy model to examine the role of health literacy on racial disparities in retention in care. Retention in care for 699 participants was assessed 24-months post survey and operationalized as 100% visit adherence versus less than 100% visit adherence. Most participants were African American (60%) and virally suppressed (93%). Results from a path analysis revealed that non-African American race was related to greater health literacy (p = .023) and to 100% visit adherence (p = .024). Greater health literacy was associated with 100% visit adherence (p = .008), which was in turn related to viral suppression (p < .001). Findings indicate that health literacy partially mediates the relationship between race and retention in care and are among the first to suggest these causal pathways.


Recent campaigns try to reduce social stigma associated with persons living with HIV. For example, a German campaign raised awareness that infection is unlikely in low-risk day-to-day interactions. Research has yet to show that there are no harmful side effects. This is essential because such messages promote a less threatening picture of HIV and thus may unintentionally increase complacency. We tested the possible side effects on the willingness to have sex without condoms. An experiment was conducted in which participants were exposed to anti-stigma messages or not. Anti-stigma messages did not elicit an increase in the willingness to have sex without condoms.


BACKGROUND: About 46% of US adults obtain recommended HIV screening at least once during their lifetime. There is little knowledge of screening rates among deaf and hard-of-hearing adults who primarily use American Sign Language (ASL), or of social media as a potentially efficacious route for HIV prevention outreach, despite lower HIV/AIDS-specific health literacy and potentially higher HIV seropositivity rates than hearing peers. OBJECTIVE: We investigated both the likelihood of HIV screening uptake among deaf adults in the past year and over one year ago, and the relationship between social media use and HIV screening uptake among deaf adult ASL users. METHODS: The Health Information National Trends Survey in ASL was administered to 1340 deaf US adults between 2015-2018. Modified Poisson with robust standard errors was used to assess the relationship between social media usage as a predictor and HIV screening as an outcome (screened more than one year ago, screened within the past year, and never been screened), after adjusting for sociodemographics and sexually transmitted disease (STD) covariates. RESULTS: The estimated lifetime prevalence of HIV screening uptake among our sample was 54% (719/1340), with 32% (429/1340) in the past year. Being of younger age, male gender, black, lesbian, gay, bisexual, or queer, or having some college education or a prior STD were associated with HIV screening uptake. Adjusting for correlates, social media use was significantly associated with HIV screening in the past year, compared to either lifetime or never. CONCLUSIONS: Screening falls well short of universal screening targets, with gaps among heterosexual, female, Caucasian, or older deaf adults. HIV screening outreach may not be effective because of technological or linguistic inaccessibility, rendering ASL users an underrecognized minority group. However, social media is still a powerful tool, particularly among younger deaf adults at risk for HIV.
Black women are disproportionately affected by HIV, accounting for 61% of women diagnosed in 2016. Black women with HIV are less likely to be adherent to antiretroviral therapy (ART) and virally suppressed compared to women of other racial/ethnic groups. We analyzed 2013-2014 data from 1703 black women patients in the Centers for Disease Control and Prevention’s Medical Monitoring Project to examine whether select psychological and social determinants of health (SDH) factors were associated with ART adherence and viral suppression. We calculated weighted estimates and used multivariable logistic regression with adjusted prevalence ratios (aPR) and 95% confidence intervals (CI) to examine correlates of ART adherence and viral suppression. Women who had not been incarcerated in the past 12 months (aPR = 1.24; CI: 1.04-1.48) and had not experienced discrimination in a health care setting since their HIV diagnosis (aPR = 1.06; CI: 0.94-1.20) were more likely to be adherent to ART and virally suppressed. Findings indicate the need for an integrated care model.
The population of people with HIV is aging globally as access to anti-retroviral therapy becomes more widely available. The diversity of older population with HIV has an impact on their experiences of stigma. HIV stigma may be enacted or felt. Enacted stigma is the prejudice, discrimination, and mistreatment that individuals and societies use to sanction people with HIV. Felt stigma refers to the internalized feelings of shame, guilt, and fear that arise from enacted stigma. Nondisclosure is rooted in the fear of negative consequences of revealing one’s HIV status, such as losing a job, or being rejected by one’s social network. Stigma may also affect social integration through self-protective withdrawal to avoid anticipated stigma. In addition to facing HIV stigma, people with HIV may possess multiple discredited identities due to their race, ethnicity, gender identity, etc., which is described as intersectionality. Older age represents an additional intersectional identity that affects people with HIV through the experience of ageism. Stigma and discrimination from HIV or any discredited identity are linked to poorer physical and mental health outcomes. Given the pervasiveness of stigma, it is not surprising that many older adults with HIV are socially isolated and report greater self-perceived stigma compared to those who are more socially integrated. While there is evidence that HIV stigma has declined compared to previous eras, more research is needed on HIV stigma among older adults in low- and middle-income countries to design policies and programs to combat HIV stigma globally.

[ABSTRACT FROM AUTHOR]

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PROBLEM STATEMENT: There is a need to increase diversity among both researchers and participants in the area of HIV scholarship. The Mid-Atlantic Center for AIDS Research Consortium (MACC) Scholars Program was developed to promote diversity among HIV-related researchers and participants. APPROACH: Four Scholars were provided with mentorship from senior investigators at Johns Hopkins University, George Washington University, and the University of Pennsylvania. Each Scholar was awarded a grant to develop a pilot study on a topic related to HIV-prevention, treatment, or care. The paper will describe the benefits of the program, challenges that Scholars faced in their projects, and areas for growth of the program from the perspective of the Scholars. FINDINGS: The Scholars unanimously agreed that the program was essential for gathering pilot data and for receiving practical training in grantsmanship and writing. For challenges, each Scholar encountered unanticipated delays in regulatory approval, resulting in a lag of project start-up. As an indication of the success of the program, Scholars reported on their productivity for grantsmanship, scientific publications, and grantsmanship over the first year of the program. Finally, the Scholars offered several suggestions for continuing to improve the MACC Program for future cohorts. CONCLUSION: The Scholars perceived the inaugural year of the MACC Scholars Program as extremely helpful and productive. Ongoing efforts should be made to continue to promote the development of diverse junior scientists in HIV research.


People living with HIV may decide to disclose their HIV-positive status after considering the benefits and costs. Studies have shown associations between perceived social support, depressive symptoms and HIV disclosure among men and women; however, research assessing the mediating pathway among these variables and the associated disparities by sex are lacking. Therefore, the aims of this study were to determine the association between perceived social support from family and friends and HIV disclosure to sexual partners; assess the mediating effects of depressive symptoms; and examine the disparities by sex. Participants included 147 men and 115 women living with HIV who took part in a disclosure intervention study. Mediation analyses were conducted to determine the direct and indirect associations between perceived social support from family and friends, depressive symptoms, and disclosure behavior. Depressive symptoms mediated the association between perceived social support (from family: beta = 0.103, p = 0.019; and from friends: beta = 0.111, p = 0.009) and HIV disclosure to sexual partners, specifically among women. However, these pathways were not statistically significant among men. Women living with HIV may benefit from two types of interventions: (1) Disclosure to sexual partners interventions, which aim to accentuate perceived social support from family and friends through attenuating depressive symptoms; and (2) Social support interventions, which may increase disclosure to sexual partners via reducing depressive symptoms.


Evidence from the past 40 years of HIV technology development and implementation indicates that the public health social contract - with its expectations of patient/citizen compliance - has hampered global disease control efforts. Despite the availability of a wide array of effective technologies, including antiretroviral drugs as treatment and prevention, voluntary medical male circumcision procedures, and newly developed intravaginal ring products, new infections among adults globally have not decreased significantly. In this paper, I describe a historical trend of limiting access to effective biomedical technologies to those deemed most deserving and compliant given concerns of misuse (non-adherence), product repurposing (not using the product for purposes originally intended), and the incitement of autonomy (increasing the risk of public exposure to diseases given personal protection from a specific disease). Examining the expectations of good citizenship (compliance, adherence, appropriate product use, and continued risk reduction) as it relates to human-technology interactions, reveals a continuing narrative of initially restricting access to newer technologies perceived fragile or costly based on an assessment of patient/citizen worth. In this, the conventional public health social contract continues to be an obstacle in the advancements of technologies to effectively reduce the global burden of HIV.

This cross-sectional study examines the relationship between social cohesion with consistent condom use (CCU) and sexually transmitted infections (STIs) among the Abriendo Puertas (Opening Doors) cohort of female sex workers (FSWs) living with human immunodeficiency virus (HIV) in the Dominican Republic (n = 228). Using data from the follow-up survey of the cohort, we conducted multivariate logistic regression to explore these dynamics. Social cohesion was significantly associated with CCU between FSWs living with HIV and their clients in the last month (adjusted odds ratio [AOR] = 1.65, 95% confidence interval [CI]: 1.11-2.45) and STI prevalence among FSWs (AOR: 3.76, CI: 1.159-12.162). Social cohesion was not associated with CCU between FSWs living with HIV and their steady partners. However, both illicit drug use in the past six months (AOR = 0.11, CI: 0.023-0.57) and pregnancy intentions (AOR = 0.11; CI: 0.02-0.42) were significantly associated with CCU with steady partners. Findings highlight the differential role of social cohesion on condom use outcomes between FSWs living with HIV and their paying clients versus steady partners. Research on the pathways via which cohesion influences condom use among sex workers and their clients is merited, as is research regarding the role of drug use and pregnancy intentions on condom use with steady partners.


INTRODUCTION: Opioid misuse has evolved into an American health crisis over the past decade, becoming a public health epidemic. Measures need to be taken to prevent overdoses by opioid misuse as well as prevent the transition into injection drug use, a high risk factor for contracting HIV/HCV. This study utilized social media to survey individuals currently misusing opioids to identify groups of individuals with different risk and use patterns. METHODS: We recruited participants for our online survey from Reddit. Five risk behaviors were used to characterize overdose and HIV/HCV risk groups. Gender, age, and socioeconomic status were also included in the analyses, as well as items outlining social media use surrounding opioids. RESULTS: Two groups of participants were characterized by high likelihoods of different combinations of risky behaviors: (1) Overdose Risk Group and (2) Sexual Risk Group. Those in the Overdose Risk Group were more likely to be younger in age and female, and this group was more likely to desire or be ready for treatment relative to the lowest risk group. Those in the Sexual Risk Group were more likely to be of a minority race/ethnicity, to desire or be ready for treatment, and to post more often on Reddit about opioid use. DISCUSSION: The results of this study illustrate patterns of opioid use and risk behaviors to inform tailored outreach and treatment efforts for groups of opioid misusers and suggests the potential for utilizing social media as a tool to engage these individuals into treatment and recovery activities.


Public stigma surrounding HIV is related to heightened emotional distress, poor psychological functioning, and reduced subjective well-being in people living with HIV. For men who have sex with men (MSM) living with HIV, they may also face stigmatizing attitudes within the gay community, which create an additional burden to their health. Grounded in the psychological mediation framework, the present study examined the underlying psychological processes through which HIV stigma from the public and within the gay community influences the mental and social health of MSM living with HIV. Findings from 206 Chinese MSM living with HIV in Hong Kong indicated that negative self-concept, maladaptive coping, and peer isolation mediated the effect of HIV stigma on mental and social health. The study revealed the cognitive, regulatory, and interpersonal processes underlying HIV stigma and health. Feeling intense HIV stigma from the public and within the gay community may render MSM living with HIV more vulnerable to negative self-concept, maladaptive coping, and peer isolation, which contribute to poor mental and social health. To combat prejudice and discrimination against people living HIV, stigma reduction initiatives should be implemented not only in the public, but also in the gay community. Cognitive-behavioral interventions can also be used to restructure negative self-beliefs and build adaptive emotion regulation skills, which can improve stigma-related health outcomes among MSM living with HIV.


Social support is associated with HIV-related health outcomes. However, few studies have explored this longitudinally. We assessed psychometric properties of the Medical Outcomes Study's Social Support Survey among women in the Women's
Entering HIV care is a vulnerable time for newly diagnosed individuals often exacerbating psychosocial difficulties, which may contribute to poor health-related quality of life (HRQOL) ultimately influencing health behaviors including ART adherence, the driver of viral load suppression. Understanding HRQOL in people newly entering HIV care is critical and has the potential to guide practice and research. This exploratory cross-sectional study examined demographic, clinical, and psychosocial factors associated with limitations in four specific domains of HRQOL among persons initially entering outpatient HIV care at four sites in the United States (n = 335). In the unadjusted analysis, female gender was significantly associated with sub-optimal HRQOL with women having increased odds of reporting HRQOL challenges with pain, mood, mobility, and usual activity when compared to men. The adjusted models demonstrated attenuation of parameter estimates and loss of statistical significance for the associations with impaired HRQOL observed among women in unadjusted analyses, suggesting psychosocial factors related to HRQOL are complex and interrelated. Findings are consistent with a robust literature documenting gender-related health disparities. Programs aimed at improving HRQOL for persons initially entering HIV care are warranted generally, and specifically for women, and must address modifiable psychosocial factors via mechanisms including coping and social support.

In the field of biomedical HIV prevention, researchers have meaningfully incorporated behavioral and social sciences research (BSSR) into numerous clinical trials, though the timing and degree of integration have been highly variable. The literature offers few frameworks that systematically characterize these collaborations. To fill this gap, we developed a typology of BSSR approaches within biomedical HIV prevention research. Focusing on trials that had safety and/or efficacy endpoints, we identified five approaches for combining BSSR and clinical research: formative, embedded, parallel, explanatory, and implications. We describe each approach and provide illustrative examples. By offering a shared vocabulary for distinguishing the timing and design of collaborative BSSR and clinical research, this typology can facilitate greater transparency in collaborators' expectations and responsibilities, and help collaborators address challenges likely to be associated with such interdisciplinary research.

BACKGROUND: Trauma is increasingly recognized as a near-universal experience among women living with HIV (WLHIV) and a key contributor to HIV acquisition, morbidity, and mortality. METHODS: We present data from the baseline analysis of a planned intervention trial of the impact of trauma-informed health care on physical, behavioral, and social health outcomes of WLHIV in one clinic, with a particular focus on quality of life and viral suppression. Data were collected through interviewer-administered surveys and electronic health record data abstraction. RESULTS: Among 104 WLHIV, 97.1% of participants reported having experienced lifetime trauma, and participants had experienced an average 4.2 out of 10 Adverse Childhood Experiences. WLHIV with more lifetime trauma were significantly more likely to report post-traumatic stress disorder, depression, and anxiety symptoms; significantly more likely to report potentially harmful alcohol and drug use; and had a significantly poorer quality of life. In addition, women who had experienced more lifetime trauma were significantly less likely to report being on and adhering to HIV medications, although trauma was not significantly associated with having an undetectable HIV viral load. CONCLUSIONS: These data suggest that trauma is associated with much of the
morbidity and mortality experienced by WLHIV. The results of this study support the implementation and study of trauma-informed approaches to health care for WLHIV.


BACKGROUND: The prevalence of depression spans age-groups, but it can be particularly destructive for older people with chronic illness. Among older Black women living with HIV (OBWLH), multiple social determinants have been associated with the prevalence and severity of depression. A greater understanding of the impact of the social determinants at the individual, interpersonal, and community levels is needed. AIMS: To explore social determinants of depression among OBWLH at the intrapersonal, interpersonal, and community levels. METHOD: Cross-sectional descriptive design. RESULTS: A total of 118 OBWLH were analyzed in the study. Depression was prevalent among the participants. Approximately 89.8% of the participants had moderate to severe depressive symptoms. Health status, exercise, and social support were significant predictors of depression in the sample. CONCLUSION: Social determinants at multiple levels play a significant role in the occurrence and management of depression among OBWLH. Implications for practice, education, and research can be drawn from these findings.


Food insufficiency is associated with suboptimal HIV treatment outcomes. Less is known about psychosocial correlates of food insufficiency among PLWH. This sample includes 1176 adults initiating antiretroviral therapy at HIV clinics in Ethiopia. Logistic regression modeled the association of psychological distress, social support, and HIV-related stigma with food insufficiency. Among respondents, 21.4% reported frequent food insufficiency. Psychological distress [adjusted odds ratio (aOR) 2.61 (95% CI 1.79, 3.82)], low social support [aOR 2.20 (95% CI 1.57, 3.09)] and enacted stigma [aOR 1.69 (95% CI 1.26, 2.25)] were independently associated with food insufficiency. Food insufficiency interventions should address its accompanying psychosocial context.


INTRODUCTION: The search for an HIV cure involves important behavioural and social processes that complement the domains of biomedicine. However, the field has yet to tap into the full potential of behavioural and social sciences research (BSSR). In this article, we apply Gaist and Stirratt’s BSSR Functional Framework to the field of HIV cure research. DISCUSSION: The BSSR Functional Framework describes four key research domains: (1) basic BSSR (understanding basic behavioural and social factors), (2) elemental BSSR (advancing behavioural and social interventions), (3) supportive BSSR (strengthening biomedically focused clinical trials), and (4) integrative BSSR (building multi-disciplinary combination approaches for real-world implementation). In revisiting and applying the BSSR Functional Framework, we clarify the importance of BSSR in HIV cure research by drawing attention to such things as: how language and communication affect the meaning of "cure" to people living with HIV (PLHIV) and broader communities; how cure affects the identity and social position of PLHIV; counselling and support interventions to address the psychosocial needs and concerns of study participants related to analytical treatment interruptions (ATIs); risk reduction in the course of ATI study participation; motivation, acceptability, and decision-making processes of potential study participants related to different cure strategies; HIV care providers' perceptions and attitudes about their patients' participation in cure research; potential social harms or adverse social events associated with cure research participation; and the scalability of a proven cure strategy in the context of further advances in HIV prevention and treatment. We also discuss the BSSR Functional Framework in the context of ATIs, which involve processes at the confluence of the BSSR domains. CONCLUSIONS: To move HIV cure regimens through the translational research pathway, attention will need to be paid to both biomedical and socio-behavioural elements. BSSR can contribute an improved understanding of the human and social dimensions related to HIV cure research and the eventual application of HIV cure regimens. The BSSR Functional Framework provides a way to identify...
This study presents a conceptual and quantitative approach to assess service linkages among people living with HIV (PLWH). We use network analytic techniques to document linkages among service providers based on client reports of service utilization. Data are provided by a cohort study of 1012 PLWH in New York City interviewed up to 8 times from 2002 to 2015. Participants in each interview reported service needs, services received, and location of services for primary care, behavior health, case management, and housing, food, or other social services. Each reported clinic or agency was linked to entries in a database of medical and social service providers, which included details on organizational characteristics. Based on connections indicated by clients’ reported referrals, service co-location within a single agency, or service site part of a larger parent organization, we constructed networks of linkages operationally defining which service areas were linked with others. Case management and primary care were services most commonly linked with other services. The most common pairing was case management and housing services. Individuals with more linkages in their care networks, as measured by average number of connections per provider, were associated with greater odds of adherence to antiretroviral medication and suppressed viral load. Further, higher levels of service linkage were associated with reduced emergency department visits and hospital admission rates. This study offers an innovative approach to analyzing linkages and outcomes from the real-world applicability of any strategy that shows promise.

background: The HIV/AIDS epidemic continues to threaten the health and wellbeing of millions in the United States and worldwide. Syndemic theory suggests that HIV/AIDS can cooccur with other afflictions. As close to 20% of US adults live with a mental health condition, it is critical to understand the correlation between HIV risk behaviors and mental health needs, as well as protective factors such as social support in intervening the association between mental distress and HIV risk behaviors. Furthermore, as past research has shown mixed results concerning the function of social support on HIV risks by gender, it is important to conduct a gender-specific analysis. METHODS: To assess the relationship between mental health needs, social support, and HIV risk behaviors, and to assess if social support can be a buffer, weakening the effect of mental health needs on HIV risk, in 2018, we analyzed representative, cross-sectional data from 2016 BRFSS collected from 33,705 individuals from four states in the United States, stratified by gender. Weighted logistic regression analyses, adjusted for age, race, marital status, education, and annual income, assessed the correlation between mental health needs, social support, and HIV risk behaviors. Furthermore, interaction analyses were performed to see if social support modifies the slope of mental health needs as a function of HIV risk behaviors. RESULTS: For both genders, the odds of participating in HIV risk behaviors increase with mental health needs and decrease with the level of social support. Furthermore, social support mitigates the association between mental health needs and HIV risk behavior involvement for males, as males receiving high level of social support have least odds of HIV risk behaviors relative to males receiving low
level of social support. Notably, for females, social support does not serve as a buffer against HIV risk behaviors when their mental health needs increase. CONCLUSION: The study contributes to the knowledge base of HIV prevention and highlights the important role of mental health and social support against HIV risk behaviors when developing gender-specific prevention strategies.


HIV continues to be an important public health problem. The web, social media and new mobile technologies are gaining considerable potential in overcoming the stigma in order to promote continuity of care, the possibility to stay in contact with one’s doctor and with the peer community, offering an alternative to traditional social structures. The purpose of this survey it was to investigate the opinions and behavior of people with HIV regarding the use of these technologies.

METHODS: The survey was designed with the involvement of the main associations of patients and/or communities affected by HIV infection on the national territory, which have oriented the definition of objectives and research tools to a qualitative level. An exploratory survey was carried out aimed at all people with HIV in Italy who use Internet. The questionnaire could be completed online only and was distributed and administered by the associations through their websites, newsletters and general social media (Facebook, Twitter) for three months. RESULTS: 265 people responded on a national level. According to the patients the information obtained from the internet was not useful in the relationship with the infectiologist (70%) and social media is considered to be of little use as a communication tool with the doctor (33%). Only 7% communicate with the infectiologist through social media and only 3% use peer communities such as blogs and forums. The new mobile technologies are instead considered promising tools to support the treatment of the disease (70%). DISCUSSION: It is essential to strengthen peer communication and, as emerges from the perception of people with HIV, overcome the possible resistance of health professionals so that the opportunities offered by these tools can improve the care and support of people with HIV.


Low perceived social support (SS) negatively impacts health outcomes. We developed a measure of perceived SS for use in HIV care. We sought and categorized legacy items, selecting strongest items within categories. We elicited SS concepts from patients in English/Spanish, coded transcripts to match item pool content, and developed new items for salient unrepresented content. In focus groups, patients prioritized highly-matched items. We conducted cognitive interviews on high-priority items, and validity testing on final items against two legacy measures. From interviews (n = 32), we matched the following concepts: sense of belonging/inclusion; communication; emotional support; feeling accepted by others as a person; companionship; and practical support. We identified a new concept: support from friends/family in remaining healthy. Focus groups (n = 23) prioritized emotional support, communication, and support to remain healthy. Cognitive interviews (n = 30) found items were well-understood. The final 8-item measure performed well with patients (n = 708), with good construct validity. We used an Item Response Theory program to create a 3-item Short Form version of the measure, which captures 96% of patients indicating low social support. We developed the Multifactoral Assessment of Perceived Social Support (MAPSS) and Short Form (MAPSS-SF); brief, clinically relevant, sufficiently unidimensional measures of SS for use in HIV care.


Large-scale structural interventions and "Big Events" like revolutions, wars and major disasters can affect HIV transmission by changing the sizes of at-risk populations, making high-risk behaviors more or less likely, or changing contexts in which risk occurs. This paper describes new measures to investigate hypothesized pathways that could connect macro-social changes to subsequent HIV transmission. We developed a "menu" of novel scales and indexes on topics including norms about sex and drug injecting under different conditions, experiencing denial of dignity, agreement with cultural themes about what actions are needed for survival or resistance, solidarity and other issues. We interviewed 298 at-risk
heterosexuals and 256 men who have sex with men in New York City about these measures and possible validators for them. Most measures showed evidence of criterion validity (absolute magnitude of Pearson’s r >/= 0.20) and reliability (Cronbach’s alpha >/= 0.70). These measures can be (cautiously) used to understand how macro-changes affect HIV and other risk. Many can also be used to understand risk contexts and dynamics in more normal situations. Additional efforts to improve and to replicate the validation of these measures should be conducted.


Purpose: In 2017, among all women in the United States, Hispanic women and Latinas (Hispanics/Latinas) accounted for 16% of women with HIV. Populations with high HIV disparities, including Hispanics/Latinas, experience treatment and care outcomes that are well below the national goals. The objective of this qualitative review was to identify social and structural barriers to HIV care from the perspective of Hispanics/Latinas. Methods: Our qualitative review was conducted in six stages: (1) searched and reviewed studies with a focus on Hispanics/Latinas with diagnosed HIV in the United States, published between January 2008 and August 2018; (2) removed unpublished reports and dissertations; (3) limited the search to keywords linked to social and structural HIV outcomes; (4) limited our search to studies that included samples of >/=30% Hispanics/Latinos and >/=30% female; (5) extracted and summarized the data; and (6) conducted a contextual review to identify common themes. Results: We identified 1796 articles; 84 titles and abstracts were screened for full-text review; 16 were selected for full review; and 6 articles met our inclusion criteria for final analysis. Barrier themes to HIV care for Hispanics/Latinas included HIV-related stigma from health professionals, legal consequences of seeking HIV services (including fear of deportation), and language barriers while utilizing HIV services and medications. Conclusion: Although the evidence addressing facilitators and barriers to care among HIV-positive women is sparse, interventions, resources, and enhanced training for health professionals to decrease social and structural barriers to HIV services for Hispanics/Latinas are warranted.


The aim of this meta-analysis is to summarize the available evidence on the social and demographic determinants of health-related quality of life (QoL) for HIV-infected populations in order to provide a direction to policy makers, planners, and program developers on how best to use their resources to improve the QoL of HIV-infected people. PubMed, Science Direct, Web of Science, and Cochrane electronic databases were searched (up to February 2017) to identify the relevant studies. A meta-analysis was conducted with procreate polled odds ratios (ORs and beta) and the confidence intervals of 95% on determining factors of QoL in social and demographic terms. Random effect model was applied to calculate pooled estimation, due to varied sampling methods of researches. In total, 5607 papers were identified from 4 databases and additional search in reference lists. Of these, 2107 articles were selected for full-text review. We included 19 studies that met the eligibility criteria. The pooled effect size shows a relative positive impact of social support for QoL among HIV/AIDS patients and its lower boundary is about 0.61 and the higher about 1.49. The pooled effect size has a considerable negative impact stigma on people who live with HIV/AIDS (PWLHs’) QoL ranges from -0.34 to -0.32. Low socioeconomic status (poverty situation) was found to have a degenerative impact with PWLHs’ QoL. Our finding indicates an association between younger 35 and QoL is negative with a relatively wide range, the minimum level of education has a weak association with PWLHs’ QoL (ES: 0.14-0.2). There are several sociodemographic determinants of QoL among PWLHs and in this study, we found that stigma, low level of socioeconomic status, and being younger than 35 years old have a negative association with QoL, while the social support showed a positive association and a minimum level of education did not show a rigorous negative or positive association.


OPPORTUNITY STATEMENT: Key topics discussed in this article were previously presented at the Center for AIDS Research Social and Behavioral Sciences Network’s 12th National Scientific Meeting in August 2018. This article highlights the importance of behavioral and social sciences research (BSSR) in addressing the HIV/AIDS pandemic. APPROACH: NIH has made significant investments in HIV/AIDS-related BSSR. These investments support the development of effective, evidence-
Women living with HIV (WLWH) are over-represented in corrections in Canada, yet little is known about women’s experiences post-release. We used CHIWOS cross-sectional data from WLWH to estimate associations between social determinants of health and HIV-related care outcomes among WLWH with recent (within past year) or ever (before past year) incarceration experience. Lifetime incarceration prevalence was 36.9% (6.5% recent; 30.4% ever), with significant differences by province of residence (British Columbia: 10% recent; 52% ever; Ontario: 5%; 24%; Quebec: 6%; 22%; p < 0.001). In adjusted multinomial logistic regression analyses, compared with never incarcerated, recent incarceration was associated with Indigenous ancestry, lower annual income (< $20,000 CAD), unstable housing, current sex work, injection drug use (IDU), and sub-optimal antiretroviral therapy (ART) adherence, while ever incarceration was associated with current sex work, IDU, and experiencing adulthood violence. Our findings have implications regarding supports needed by WLWH in the post-release period, including ART adherence and achieving health and social goals.


The study examined the trajectories of health-related quality of life (HRQoL) and perceived social support (PSS) among people living with HIV (PLWH), with a special focus on gender differences. The participants included 252 PLWH (18% female) undergoing antiretroviral therapy. HRQoL (WHO Quality of Life-BREF; WHOQOL Group, 1998) and PSS (Berlin Social Support Scales; Schulz and Schwarzer, 2003) were measured three times at six-month intervals. Using a univariate approach, three trajectories of HRQoL and four trajectories of PSS were identified. Gender and relationship status were significant covariates for PSS only, with overrepresentation of single women in the increasing trajectory. The dual trajectory approach revealed a match in the decrease of HRQoL and PSS, but only for 31% of the sample. In fact, decreasing PSS co-occurred with increasing as well as stable HRQoL. There was no significant gender effect in this regard. Although a clear correspondence for decreasing trajectories exists, the findings also highlight a discrepancy between HRQoL and PSS changes that are unrelated to gender.


As growing numbers of people living with HIV also develop cancer, a holistic understanding of their experiences is essential to the provision of patient centred care. Both conditions are linked to powerful beliefs in our society that may affect experiences. This study explored how HIV and cancer were represented in UK newspapers to gain insight into the social context of living with a dual diagnosis. We performed an initial content analysis of HIV articles and of cancer articles published in the free London newspapers, The Metro and The Evening Standard between 2012 and 2017, followed by qualitative thematic analysis and in-depth analysis of selected articles of exemplar cases. Both conditions were presented very differently. The underlying subtext was that cancer could happen to any of us. HIV was framed as a potentially dangerous, stigmatising phenomenon affecting "others". Popular discourse about HIV within news media remains largely negative and stigmatising. People living with a dual diagnosis of HIV and cancer may choose to prioritise the sharing of the more socially acceptable condition, cancer, in order to access support. The negotiation of cancer healthcare services is likely to be adversely influenced by the social burden of HIV related stigma.


OBJECTIVE: The stigma and discrimination experienced by gay men with HIV/AIDS may lead to various psychosocial problems, one of which is low self-esteem. This condition might affect their attempts to adapt to the social environment. The objective of this study was to investigate self-esteem among gay men with HIV/AIDS in social adaptation. METHODS: This study had a descriptive qualitative design and employed snowball sampling to recruit nine participants. The data were analyzed using thematic analysis. RESULTS: We identified three themes in this study: (1) self-esteem of gay men with HIV/AIDS, (2) the influence of self-esteem on social adaptation, and (3) coping mechanisms for social adaptation. CONCLUSION: In the social domain, stigma and negative perceptions within the society affect the participants' self-esteem. This paper provides suggestions for non-governmental organizations and health services to assist gay men with HIV/AIDS in overcoming low self-esteem.


BACKGROUND: Despite the development of several efficacious HIV prevention and treatment methods in the past 2 decades, HIV continues to spread globally. Uptake of interventions is nonrandomly distributed across populations. Such inequality is socially patterned and reinforced by homophily arising from both social selection (becoming friends with similar people) and influence (becoming similar to friends). METHODS: We conducted a narrative review to describe how social network analysis methods—including egocentric, sociocentric, and respondent-driven sampling designs—provide tools to measure key populations, to understand how epidemics spread, and to evaluate intervention take-up. RESULTS: Social network analysis-informed designs can improve intervention effectiveness by reaching otherwise inaccessible populations. They can also improve intervention efficiency by maximizing spillovers, through social ties, to at-risk but susceptible individuals. Social network analysis-informed designs thus have the potential to be both more effective and less unequal in their effects, compared with social network analysis-naive approaches. Although social network analysis-informed designs are often resource-intensive, we believe they provide unique insights that can help reach those most in need of HIV prevention and treatment interventions. CONCLUSION: Increased collection of social network data during both research and implementation work would provide important information to improve the roll-out of existing studies in the present and to inform the design of more data-efficient, social network analysis-informed interventions in the future. Doing so will improve the reach of interventions, especially to key populations, and to maximize intervention impact once delivered.


We assessed how egocentric (i.e., self-generated descriptions of a person's social contacts) network structure and composition corresponded with reported instances of condomless receptive and insertive anal intercourse with men who were reportedly HIV-infected or of unknown HIV serostatus in a sample of black men who have sex with men (MSM) in six U.S. cities. Ratings showing a higher percentage of network members who provided social participation and medical support were positively associated with reporting condomless sex. There were also significant positive associations between stimulant use and condomless insertive and receptive anal sex. Future research should examine the social processes that underlie these associations and explore ways that social support can affect HIV prevention efforts for black MSM.


Men who have sex with men (MSM) are disproportionately burdened by the human immunodeficiency virus (HIV), accounting for 78% of all Japanese male HIV cases in 2016. Over 30% of newly identified HIV infections in Japan are diagnosed as AIDS annually, suggesting a large proportion of people living with HIV were unaware of their own infection status. An estimated two-thirds of Japanese men who have sex with men (MSM) are not attached to the gay community, and previous studies have largely sampled gay venues, thus, previous studies have likely failed to reach many men in this population. This study therefore examined HIV testing prevalence and correlates among MSM in Greater Tokyo who use gay mobile geo-social networking applications (gay mobile apps), which have been found to increase access to MSM not traditionally accessible through venue-based surveys. Among a sample of 1657 MSM recruited through advertisements on gay mobile apps, the prevalence of lifetime and six-monthly HIV testing was 72.8% and 29.7% respectively. In multiple
regression analysis, higher lifetime HIV testing was associated with older age, education, HIV knowledge, anal intercourse with regular and casual male partners, and gay venue attendance. Testing was negatively associated with regular male partner condom use, marriage, residing outside central Tokyo and having both male and female partners. These results indicated that MSM who use gay mobile apps in Greater Tokyo do not meet the CDC yearly testing recommendations for high risk populations. Considering limited HIV prevention funding in Japan for MSM, moderate lifetime and recent testing, and the large number of gay mobile app users, utilization of popular gay mobile apps to promote nearby HIV testing facilities may be an effective prevention policy to target non-community attached MSM, particularly at-risk youth and individuals at risk of sudden-onset AIDS.


With the improvement of internet technology in health applications, the utilization of internet and social media as new survey methodologies and recruitment source for research participants have been encouraged, yet evidence of the feasibility in people living with HIV (PLHIV) study is still lacking. We conducted a cross-sectional survey to determine whether there are differences among PLHIV recruited from social media networks and health-care systems using an HIV stigma and discrimination questionnaire. The result revealed that PLHIV recruited from social media networks were younger, more sexually active, and had higher educational status and awareness of the country's HIV rights protection laws than those recruited from hospitals. By contrast, participants recruited from hospitals were more diverse regarding key population compositions, had lived with HIV for a longer duration, had a higher prevalence of concomitant physical disabilities than those recruited from social media networks, and fit Taiwan PLHIV characteristics described by 2016 census from Taiwan Centres for Disease Control. We conclude that sampling bias exists when utilizing social media networks for PLHIV studies.


The role of stigma on psychological wellness and treatment outcomes in people living with HIV (PLWH) has been well documented. However, within the context of the southern United States, the intersection between HIV-related stigma and social-ecological factors has been understudied. Thus, a results-based convergent, mixed synthesis design was used to examine the manifestations of HIV-related stigma in PLWH in the U.S. South. A literature search was conducted using PsycINFO, PubMed (includes MEDLINE), and CINAHL. The first level of screening by title and abstract was administered on 1,829 articles. A full-text screening of 169 studies was completed, and a total of 30 relevant articles were extracted. The mixed synthesis highlighted intervention strategies that can reduce HIV-related stigma while promoting positive health-behavior change. The findings of this review underscored the uniqueness of PLWH in the south and demonstrated the crucial role of intersectionality in investigating HIV-related stigma in treating and preventing HIV.


This paper describes findings from an institutional ethnography that arose out of the concerns of women living with HIV in Ontario, Canada, regarding the disclosure of their HIV status while accessing perinatal care. The enquiry traces the connections between women’s experiences of perinatal care, the activities of healthcare providers delivering such care and the ruling relations that organise women’s experiences and healthcare providers’ activities. Focusing on HIV disclosure as a concern expressed by women, the findings make visible the day-to-day, routinised practices of healthcare providers working in perinatal care for women living with HIV, as well as the ideological discourses of ‘fear of contagion’ and ‘AIDS hysteria’ that contributed to producing the kinds of care experiences that were articulated by women. Opportunities to strengthen perinatal care policies and practices for women living with HIV are discussed.


Pre-Exposure Prophylaxis (PrEP) is an approach for preventing the human immunodeficiency virus (HIV), which entails the administration of antiretroviral medication to high-risk seronegative persons. If taken correctly, PrEP can reduce HIV infection risk by more than 90%. The aim of this study was to identify and examine PrEP-related perceptions and trends discussed on Twitter. Using open-source technologies, text-mining and interactive visualisation techniques, a comprehensive data gathering and analytics Web-based platform was developed to facilitate the study objectives. Our results demonstrate that monitoring of PrEP-related discussions on Twitter can be detected over time and valuable insights can be obtained concerning issues of PrEP awareness, expressed opinions, perceived barriers and key discussion points on its adoption. The proposed platform could support public-health professionals and policy makers in PrEP monitoring, facilitating informed decision making and strategy planning for efficient HIV combination prevention.


BACKGROUND: Miami-Dade County, where many Latina seasonal workers reside and work, has the highest incidence of the human immunodeficiency virus (HIV) in the US: a rate four times the national average. Despite this disproportionate risk for HIV, there are no HIV prevention interventions that aim to decrease HIV among Latina seasonal workers. METHODS: The PROGRESO EN SALUD study compared the outcomes of two interventions adapted to include a social network component (VOICES and HEALTHY). Recruitment used a social network respondent-driven sampling design in which each seed was asked to recruit three friends, and those friends were asked to recruit three friends, for a total of twenty groups of 13 friends. We collected data at baseline, and 6 months and 12 months post intervention completion. We used generalized estimating equation models, properly adjusted for non-independent contributions of both social network interventions, to estimate the effects. Gaussian family multivariate models were calculated, addressing exchangeable working correlations, including both individual-level and cluster-level covariates in these models. RESULTS: A total of 261 Latina seasonal workers participated in either the HEALTHY or the VOICES intervention. There were significant changes over time in cognitive factors (HIV knowledge, condom use self-efficacy, and adequate knowledge of condom use), behavioral factors (condom use, female condom use, and HIV testing), and communication factors (talking with friends about HIV prevention and intention to negotiate safe sex with male partners). DISCUSSION: This study supports the literature suggesting that interventions incorporating social networks can have positive effects on HIV prevention and treatment outcomes, including sustained benefits beyond study periods.


Purpose: The study aimed to identify HIV prevention, testing, and care services prioritizing young Latino men who have sex with men (MSM) in an HIV service delivery network in Miami-Dade County, Florida, by visually describing structural features and processes of collaboration within and between health and social venues. Methods: The study used cross-sectional data from 40 social and healthcare venues providing goods and services to young Latino MSM. Each venue provided information surrounding HIV-related services provided and collaborations with other venues. Network visualization analyses were performed using UCINET6 and NetDraw2.160. Results: The most commonly used services offered by health and social venues were free condoms and HIV education materials. Collaborations both within and between health and social venues components of the network existed. Not all health and social venues provided services to young Latino MSM. Conclusion: Health venues can reach and incorporate hard to reach populations, such as non-English speaking and undocumented young Latino MSM, to provide HIV-related services using service delivery venue social networks.
Suicide is an important problem in people living with HIV/AIDS (PLWHA). The importance of mental disorders and social vulnerability on suicidal behaviors is described in the literature; however, the impact of childhood traumatic events in this scenario is not clear. The aim of this study was to verify the mediation effect of mental disorder comorbidities and social vulnerability in association with childhood trauma intensity and suicide risk level. This cross-sectional study of HIV-positive outpatients was conducted in a specialized care service in the city of Pelotas in Southern Brazil.

Sociodemographic data and HIV-related information were collected and the Childhood Trauma Questionnaire was applied. A total of 364 patients underwent psychiatric evaluation using MINI Plus including module C of suicide risk severity. Suicide risk was present in 39.3% of the sample. The relation between childhood traumatic events and the level of suicide risk is mediated by mental disorder comorbidities and socioeconomic vulnerability. Specific psychosocial interventions in PLWHA should consider the potential role of abusive traumatic experiences in the current mental health conditions and suicidal behaviors.


The HIV Mothering Study (n = 72) was a prospective, observational, cohort study exploring psychosocial experiences and needs of WLWHIV in pregnancy and postpartum. We performed quantitative analysis of determinants of loneliness (UCLA Loneliness Scale) and lower perceived social support (SS) (Medical Outcomes Study-Social Support Survey). The hypothesized determinants included: age, years with HIV, racism (Everyday Discrimination Scale), depression (Edinburgh Postnatal Depression Scale [EPDS]), nadir CD4 (<200 cells/µL), tertiary vs. community HIV care, and marital status. The median age was 33 (IQR = 30-37); 65.3% were African/Caribbean/Black. Multivariable analyses revealed associations between marital status and perceived social support (beta = -16.48, p < 0.0001), and this association was also seen with change over time (p = 0.02). Variables associated with SS that did not change over time were: income, EDS racism, EPDS score. Significant associations with loneliness were seen with the same variables associated with SS. Variables associated with loneliness that also changed over time were: EDS Racism (beta = 0.22, p = 0.0005, and over time p = 0.003), and EPDS score (beta = 0.74, p < 0.0001), and over time (p = 0.0211). Variables associated with loneliness but that did not change over time were: marital status and income. This analysis provides clinicians with prenatal risk factors which may be associated with increase loneliness and lower SS during pregnancy and postpartum: marital status, income, racism and depression.


BACKGROUND: HIV spread in injecting drug users (IDU) occurs efficiently between individuals within their social networks. While methadone maintenance treatment has long known to be effective in combating HIV transmission in IDU, the impacts of one’s social connections and HIV status have not been well characterised. A study was conducted with the objective of differentiating the pattern of treatment participation between HIV-positive and negative methadone users and to understand its association with social connections with peers.

METHODS: Attendance data in one calendar year were extracted from a territory-wide electronic clinical record database of over 8000 methadone users attending 19 clinics in Hong Kong, a city with a relatively low HIV prevalence in injecting drug users. A case-control design was used by matching HIV positive methadone users with HIV negative controls. A temporal-social co-occurrence approach was adopted to construct a social network. Multiple logistic regression and network-based analyses were conducted. RESULTS: In 2016, a total of 8332 methadone users had attended a clinic at least once, giving 1694016 attendance records that were included in the study. Some 432 methadone, 54 of whom HIV positive, were included in the case-control analyses. Multivariable logistic regression model showed that HIV-positive status was associated with drug injection history (adjusted odds ratio [aOR] 2.28, 95% confidence interval [95% CI] 1.19-4.38), not working fulltime (aOR 3.34, 95% CI 1.15-9.72), ethnic minority (aOR 2.59, 95% CI 1.33-5.02) and minimum daily dose of at least 20mg (aOR 3.64, 95% CI 1.08-12.26). Those having connections with other peers were older (aOR 1.02, 95% CI 1.00-1.04), had a higher mode dose (aOR 1.03, 95% CI 1.02-1.04) and had been admitted to methadone programme for longer time (aOR 1.07, 95% CI 1.02-1.13). Among those with connections, HIV-negative users did not have more connections (median degree centrality 21.00 vs 34.50, p = 0.26) but the network
structure was stronger (clustering coefficient 0.65 vs 0.53, p = 0.03). CONCLUSION: The weak and sparse linkages may explain the generally low HIV prevalence and incidence in opioid-dependent persons in Hong Kong. Social support could play a constructive role in harm reduction and ethnic minority community-based organisations could help and reinforce treatment adherence.


The globally recognized test and treat approach underpins Indonesian national strategies to reduce and prevent HIV among key populations, including men who have sex with men. More comprehensive understanding of how engagement with HIV prevention is shaped by social and community practices will support these efforts. Between 2015 and 2016, focus groups and semi-structured interviews were conducted with 54 men who have sex with men in three urban settings in Indonesia to elicit their views on, and experiences of, HIV prevention and care. Focused on data relating to testing, findings documented the important influence of informal peer networks, community-based organizations and outreach workers. Some social dimensions of service access complicated this, particularly fear of stigma or lack of confidentiality in large service settings. The many differences between men challenges assumptions that a single set of HIV prevention strategies will work to engage all men who have sex with men living in Indonesia.


Social media can potentially serve as a platform to coordinate medical care among fragmented health sectors. This paper describes procedures of using social media to enhance antiretroviral therapy (ART) and methadone maintenance treatment (MMT) providers’ virtual network for integrated service for HIV-positive people who inject drugs (PWID) in Vietnam. A total of 88 ART and MMT treatment providers participated in person group sessions followed by online virtual support to improve service integration. In-person reunions were held to reinforce Facebook participation and network activities. Content analysis was used to identify keywords and topic categories of the online information exchange. Both MMT and ART providers were actively engaged in online communications. Referral and treatment adherence were the two most frequently discussed topic areas by both the MMT and ART providers. Frequent cross-agency connections were observed. Online provider networks and communities could be built and useful to support treatment providers to improve service integration.


INTRODUCTION: African-American women living with HIV report substantial HIV-related stigma and depression. Resilience resources are strength-based resources that may moderate the effects of HIV-related stigma on poor psychosocial outcomes such as depression. OBJECTIVE: To evaluate whether religiosity, social support, and ethnic identity moderate the effects of HIV-related stigma on depression among African-American women living with HIV. METHODS: We used baseline data (May 2013-October 2015) from a randomized controlled trial testing the efficacy of an HIV-related stigma-reduction intervention among African-American women living with HIV in Chicago, IL, and Birmingham, AL, who were older than 18 years and currently receiving HIV services. To assess whether religiosity (7-item Religious Beliefs and Behaviors survey), social support (select subscales from the Medical Outcomes Study Social Support Survey), and ethnic identity (Commitment subscale from the Multigroup Ethnic Identity Measure) modified the relationship between HIV-related stigma (Stigma Scale for Chronic Illness) and depression (8-item Patient Health Questionnaire), we conducted 3 separate moderation analyses using linear regression with interactions between HIV-related stigma and each moderator of interest, adjusted for study site, age, time since diagnosis, and education. RESULTS: Among 226 African-American women living with HIV, greater levels of HIV-related stigma were associated with greater depression in all 3 models (P < 0.05). Only religiosity modified this association (P = 0.04), with a weaker association among women reporting higher levels of religiosity. CONCLUSIONS: The protective effects of religiosity may be leveraged in interventions for African-American women living with HIV struggling with HIV-related stigma.
HIV has been examined in urban and rural contexts, but the suburban gradient has not been sufficiently described, despite the fact that many Canadians live in suburbia. Using qualitative description, we investigated how people living with HIV in a suburban community in Ontario, Canada, accessed health care and social services. Posters at the regional AIDS Service Organization and snowball sampling were used to recruit and interview 13 adult participants with various experiences and perspectives. A content analysis identified three meta-themes in the interviews: (a) transportation cost and time: barriers to access, (b) isolation, and (c) defective primary care: unmet and deflected needs. The findings have implications for the (a) development of community-based groups, (b) the role of transportation in health care and social services utilization, (c) community-based, interprofessional health and social care services, and (d) aging with HIV.


Lesbian, gay, and bisexual persons have served in the military throughout history despite military policies that necessitated concealment of their sexual orientation. This secondary data analysis of research from a community-based study of sexual and gender minority (SGM) older adults sought to explore the unique needs of this growing "out" population and identify the future program, policy, and research goals. The sampling population for this study was drawn from a community-based study conducted initially by researchers from the ACRIA center. The SGM veterans in this pilot study were recruited from the Center on Halstead, the largest SGM community-based center in the Midwest. Twenty-six veterans’ self-identified as gay men. Considering the minority stress model, data from this study identified a group of men with less social support - either formal or informal, less housing and economic security, and low service utilization. Interestingly, this group also self-reported as having a more positive mental and physical health outlook than previous research with this population. This study also identified a clear need for education, more extensive population-based mixed methods studies to help understand fully the needs of this previously "invisible" population of older military veterans.


OBJECTIVES: Evaluate the relationships between social characteristics of Floridian persons living with HIV (PLWH) and both use of digital technologies and willingness to use eHealth for HIV-related information. METHODS: Ryan White case managers (N = 155) from 55 agencies in 47 Florida counties administered a survey to PLWH (N = 1268) from June 2016-April 2017. Multilevel logistic regression models were used to identify correlates of technology use and willingness. RESULTS: Use of mobile phones with text messaging was high (89%). Older (vs. younger) adults and non-Hispanic blacks (vs. whites) were less likely to use most technologies. These groups, along with Hispanics (vs. whites) were less likely to express willingness to use technologies for HIV-related information in models adjusting for use. CONCLUSIONS: Among PLWH in Florida, eHealth-related inequities exist. Willingness to engage in HIV-related eHealth is affected by social determinants, even when considering technology access. Although eHealth may reduce some healthcare inequities, it may exacerbate others.


HIV testing is central to biomedical HIV prevention, but testing among men who have sex with men remains suboptimal. We evaluated effectiveness of mass media and communication interventions to increase HIV testing and explored patterns between study type, internal validity and intervention effectiveness for the first time. Five databases were searched for articles published between 2009 and 2016 using standard MeSH terms. Eligible studies were quality appraised using standard checklists for risk of bias. Data were extracted and synthesised narratively. Nineteen studies met inclusion criteria; 11 were cross-sectional/non-comparative studies, four were pre/post or interrupted time series, three were randomised controlled trials (RCTs) and one was a case study. Risk of bias was high. Five cross-sectional (two graded as high internal validity, one medium and two low) and one RCT (medium validity) reported increased HIV testing. Further work is required to develop and evaluate interventions to increase frequency and maintenance of HIV testing.
Although antiretroviral therapy (ART) is vital to people living with HIV (PLWH) by suppressing the virus and in turn preventing onward HIV transmission and reducing AIDS-related morbidity and mortality, the rates of optimal ART adherence continuously remain low. Disclosure of HIV status is considered to be a critical predictor of ART adherence. However, few studies have explored the mechanisms underlying the association between disclosure and medication adherence. The current study aims to examine the mediating role of social support and self-efficacy underlying the relationship between HIV disclosure to family members and ART adherence. PLWH in China provided data on HIV disclosure, ART adherence, perceived social support on medication adherence, adherence self-efficacy, and sociodemographic information. The path analyses revealed that disclosure to family members had significant indirect effects on adherence via social support and self-efficacy. Our findings suggested that HIV disclosure might positively affect ART adherence through two psychosocial pathways: social support and self-efficacy. Future intervention to improve medication adherence among PLWH should consider targeting these two factors.
Social marketing campaigns have been increasingly used in HIV prevention efforts to address barriers to HIV testing. The purpose of this review is to evaluate the social marketing campaigns in the past ten years (2008-2017) that have targeted HIV testing or intent to test as an outcome, and synthesize the results to determine which campaigns work or do not work. The search was conducted using PubMed, Scopus, PsycINFO, EMBASE, and ABI/Inform. The quality assessment tool for quantitative studies developed by the Effective Public Health Practice Project was used to assess study quality. The search was conducted using PubMed, Scopus, PsycINFO, EMBASE, and ABI/Inform. The quality assessment tool for quantitative studies developed by the Effective Public Health Practice Project was used to assess study quality. The search generated 373 articles, of which 13 articles met the inclusion criteria. These articles were from 13 distinct campaigns.

BACKGROUND: Internalized HIV stigma is a public health concern as it can compromise HIV prevention, care and treatment. This paper has two aims. First, it highlights the urgent need for research evidence on internalized HIV stigma based on critical knowledge gaps. Here, critical knowledge gaps were identified based on most up-to-date systematic review-level evidence on internalized stigma related to HIV and mental health difficulties. Secondly, the paper calls for a shift in focus of internalized HIV stigma research, one that moves beyond psychological frameworks to integrate social, structural and intersectional conceptualizations of stigma. This part of the paper reviews the evolution of stigma theory since Goffman's 1963 seminal work - which defined stigma - to present. MAIN TEXT: Despite studies consistently suggesting that internalized HIV stigma is more prevalent than enacted stigma, there is little evidence of well-established programs to address it. In addition to this, considerable gaps in basic knowledge about the drivers of internalized HIV stigma hamper the development of an evidence-based response to the problem. The limited intervention and epidemiological research on the topic treats internalized HIV stigma as a purely psychological phenomenon. The second part of the paper provides arguments for studying internalized HIV stigma as a function of social and structural forces: (1) Individual-level interventions for internalized HIV stigma are rooted in out-dated theoretical assumptions; (2) From an ethics point of view, it could be argued that individual-level interventions rely on a victim-centric approach to a public health problem; (3) Social and structural approaches to internalized HIV stigma must be explored due to the high opportunity cost associated with small-scale individual-level interventions. CONCLUSIONS: Critical gaps in intervention and epidemiological research in internalized HIV stigma remain. There has been an absence of a shared, sound theoretical understanding of internalized HIV stigma as a manifestation of social and structural factors. This commentary sought to stimulate a dialogue to remedy this absence. Future research should take into account ethical considerations, the evolution of stigma theory over the past five decades, intersectionality and opportunity cost when framing hypotheses, developing theories of change and designing interventions.

Body image disturbance is increasingly relevant as women living with HIV (WLWH) live longer. We explored body image disturbance and changes in fat distribution (lipodystrophy) in 63 WLWH (mean age = 51 years) and evaluated associations among lipodystrophy, body image, and psychosocial variables. Eighty-one percent of participants reported one or more body parts (of six assessed) demonstrating lipodystrophy, and more than one third reported three or more affected body parts. To determine whether increasing levels of social support mitigate the negative influence of perceived injustice on pain interference. Methods: A total of 60 PLWH with chronic pain completed measures of perceived injustice, social support, pain severity, and interference, as well as depressive symptoms. Results: In a regression-based model adjusted for age, sex, depressive symptoms, and pain severity, results indicated that social support significantly moderated the association between perceived injustice and pain interference (P = 0.028). Specifically, it was found that perceived injustice was significantly associated with greater pain interference among PLWH with low levels of social support (P = 0.047), but not those with intermediate (P = 0.422) or high levels of social support (P = 0.381). Conclusion: Pain-related injustice perception reflects harmful beliefs regarding severity of loss consequent to chronic pain development, a sense of unfairness, and irreparability of loss. Access to a social support network may provide an adaptive means of mitigating the negative effects of perceived injustice.
Evidence suggests that psychosocial stress negatively impacts immunological health in HIV-positive individuals. However, few studies have explored this association in substance-using older adults living with HIV (OALWH). We evaluated the effect of depression, loneliness, substance use problems, and HIV stigma on primary markers of immune function in a sample of 120 OALWH with substance-related issues. HIV stigma correlated with the greatest number of factors, including depression, loneliness, and substance use problems. Older age and antiretroviral adherence were associated with viral suppression, which was in turn associated with higher percentage of CD4 count. Multivariate path analyses demonstrated that lower HIV stigma and viral suppression were the only factors independently associated with higher percentage of CD4 count, with a significant indirect effect of adherence on CD4 through viral suppression. HIV stigma emerged as the most salient factor.
associated with both psychosocial well-being and immune health in the current study, suggesting that it is a critical factor to consider in future interventions for the rapidly growing population of OALWH.


Childhood trauma (CT) - emotional, physical or sexual abuse, or emotional or physical neglect - has been associated with HIV infection and can lead to poor health outcomes and depression in adulthood. Though the impact of CT on depression may be decreased by social support, this may not be true of individuals living with HIV, due to the additive traumatic effects of both CT and acquisition of HIV. This study examined social support, depression, and CT among HIV-infected (n = 134) and HIV-uninfected (n = 306) men and women. Participants (N = 440) were assessed regarding sociodemographic characteristics, CT, depression, and social support. Participants were racially and ethnically diverse, 36 +/- 9 years of age on average, and 44% had an income of less than USD$500 a month. Among HIV-uninfected individuals, social support explained the association between depression in persons with CT (b = 0.082, bCI [0.044, 0.130]). Among HIV-infected individuals, after accounting for sociodemographic characteristics, social support did not explain the association between depression and CT due to lower levels of social support among HIV-infected individuals [95% CI: -0.006, 0.265]. The quality of social support may differ among HIV-infected persons due to decreased social support and smaller social networks among those living with HIV. Depressive symptoms among those living with HIV appear to be less influenced by social support, likely due to the additive effects of HIV infection combined with CT.


Alternative HIV testing strategies are needed to engage individuals not reached by traditional clinical or non-clinical testing programs. A social networks recruitment strategy, in which people at risk for or living with HIV are enlisted and trained by community-based agencies to recruit individuals from their social, sexual, or drug-using networks for HIV testing, demonstrates higher positivity rates compared to other non-clinical recruitment strategies in some jurisdictions. During 2013-2015, a social networks testing protocol was implemented in Wisconsin to standardize an existing social networks testing program. Six community-based, non-clinical agencies with multiple sites throughout the state implemented the protocol over the 2-year period. Both quantitative and qualitative data were collected. The new positivity rate (0.49%) through social networks testing did not differ from that of traditional counseling, testing, and referral recruitment methods (0.48%). Although social networks testing did not yield a higher new positivity rate compared to other testing strategies, it proved to be successful at reaching high risk individuals who may not otherwise engage in HIV testing.


This study examined the effect of social network descriptive sexual norms and behaviors on the sexual behaviors of people who inject drugs (PWID). Data from HPTN037 of 232 PWID (egos) and 464 network members (alters) were used in multilevel multivariate logistic regression models. Egos whose alters reported multiple sex partners had greater odds of multiple sex partners (aOR 2.20, 1.13-4.29). Egos' norms of condomless sex with primary (aOR 2.67, 1.15-6.17) and casual (aOR 2.38, 1.01-5.59) partners and egos' norms of giving (aOR 5.52, 1.87-16.25) and receiving (aOR 7.38, 1.34-40.66) money/drugs for sex were associated with the egos' respective behaviors. History of sex between an ego and alter was not associated with increased influence of alters' norms and behaviors on egos' sexual behavior. Findings provide support for developing interventions that target descriptive norms and selective network behavioral characteristics to decrease sexual HIV risk behavior among PWID.

BACKGROUND: Women living with HIV (WLWH) continue to experience poorer outcomes across the HIV care cascade and overall health, an appreciable proportion of which may not be disease-related but due to socio-structural barriers that impact health. We compared socio-structural determinants of health and self-rated health between WLWH and expected general population values. METHODS: Prevalences of socio-structural determinants and self-rated health were estimated from 1,422 WLWH aged 16+ in the 2013-2015 Canadian HIV Women’s Sexual and Reproductive Health Cohort Study (CHIWOS). Prevalences were also estimated from 46,831 general population women (assumed HIV-negative) in the 2013-2014 Canadian Community Health Survey (CCHS), standardized to the age/ethnoracial group distribution of WLWH. Standardized prevalence differences (SPDs) and 95% confidence intervals (CI) were reported. RESULTS: Compared to general population women, a higher proportion of WLWH reported annual personal income <$20,000 (SPD 42.2%; 95% CI: 39.1, 45.2), indicating that 42.2% of WLWH experienced this low income, in excess of what would be expected of Canadian women of similar ages/ethnoracial backgrounds. A higher proportion of WLWH reported severe food insecurity (SPD 43.9%; 40.2, 47.5), poor perceived social support (SPD 27.4%; 22.2, 33.0), frequent racial (SPD 36.8%; 31.9, 41.8) and gender (SPD 46.0%; 42.6, 51.6) discrimination, and poor/fair self-rated health (SPD 12.2%; 9.4, 15.0). CONCLUSIONS: Significant socio-structural inequalities and lower self-rated health were found among WLWH compared to general population women. Such inequities support the integration of a social-determinants approach, social service delivery, and programming into HIV care, with additional resource allocation tailored to the particular needs of WLWH.


We used longitudinal data from the 2013-2017 Canadian HIV Women’s Sexual and Reproductive Health Cohort Study (N = 1422) to assess the clustered impact of social determinants of health (SDoH) on hazardous drinking. Two measures of alcohol use were defined: (i) weekly alcohol use, with > 7 drinks/week as heavy drinking, and (ii) monthly binge drinking (>= 6 drinks at one sitting), with > = 1/month as frequent binging. Twelve SDoH indicators were classified using latent class analysis: no/least adversities, discrimination/stigma, economic hardship, and most SDoH adversities. Inverse-probability weighted multinomial logistic regression was used to report relative-risk ratio (RRR). Women living with HIV (WLWH) in no/least adversity class had a substantially lower likelihood of both heavy weekly alcohol use and frequent binging than those in discrimination/stigma, economic hardship, and most SDoH adversities classes, with RRR estimates ranging from 0.02 to 0.18. Findings indicate the need to address SDoH to reduce hazardous drinking among WLWH.


BACKGROUND AND AIMS: Identifying typologies of social determinants of health (SDoH) vulnerability influencing drug use practices among women living with HIV (WLWH) can help to address associated harms. This research aimed to explore the association of SDoH clusters with drug use among WLWH. DESIGN: Latent class analysis (LCA) was used to identify the distinct clusters of SDoH. Inverse probability weighting (IPW) was employed to account for confounding and potential selection bias. Associations were analyzed using generalized linear model with log link and Poisson distribution, and then weighted risk ratio (RR) and 95% confidence intervals (CI) were reported. SETTING AND PARTICIPANTS: Data from 1422 WLWH recruited at time-point 1 of the Canadian HIV Women’s Sexual and Reproductive Health Cohort Study (CHIWOS, 2013-15), with 1252 participants at 18 months follow-up (time-point 2). MEASUREMENTS: Drug use was defined as use of illicit/non-prescribed opioids/stimulants in the past 6 months. SDoH indicators included: race discrimination, gender discrimination, HIV stigma, social support, access to care, food security, income level, employment status, education, housing status and histories of recent sex work and incarceration. FINDINGS: LCA identified four SDoH classes: no/least SDoH adversities (6.6%), discrimination/stigma (17.7%), economic hardship (30.8%) and most SDoH adversities (45.0%). Drug use was reported by 17.5% and 17.2% at time-points 1 and 2, respectively. WLWH with no/least SDoH adversities were less likely to report drug use than those in economic hardship class (weighted RR = 0.13; 95% CIs = 0.03, 0.63), discrimination/stigma class (weighted RR = 0.15; 95% CIs = 0.03, 0.78), and most SDoH adversities class (weighted RR = 0.13; 95% CIs = 0.03, 0.58). CONCLUSIONS: Social determinants of health vulnerabilities are associated with greater likelihood of drug use, underscoring the significance of addressing interlinked social determinants and drug use through the course of HIV care and treatment.
HIV sero-status disclosure among people living with HIV (PLWH) is an important component of preventing HIV transmission to sexual partners. Due to various social, structural, and behavioral challenges, however, many HIV-infected opioid-dependent patients do not disclose their HIV status to all sexual partners. In this analysis, we therefore examined non-disclosure practices and correlates of non-disclosure among high-risk HIV-infected opioid-dependent individuals. HIV-infected opioid-dependent individuals who reported HIV-risk behaviors were enrolled (N = 133) and assessed for HIV disclosure, risk behaviors, health status, antiretroviral therapy (ART) adherence, HIV stigma, social support and other characteristics. Multivariable logistic regression was used to identify significant correlates of non-disclosure. Overall, 23% reported not disclosing their HIV status to sexual partners, who also had high levels of HIV risk: sharing of injection equipment (70.5%) and inconsistent condom use (93.5%). Independent correlates of HIV non-disclosure included: being virally suppressed (aOR 0.19, p = 0.04), high HIV-related stigma (aOR 2.37, p = 0.03), and having multiple sex partners (aOR 5.87, p = 0.04). Furthermore, a significant interaction between HIV-related stigma and living with family/friends suggests that those living with family/friends were more likely to report not disclosing their HIV status when higher levels of perceived stigma was present. Our findings support the need for future interventions to better address the impact of perceived stigma and HIV disclosure as it relates to risk behaviors among opioid-dependents patients in substance abuse treatment settings.


Perceived social support, coping strategy, and internalized stigma have been linked with the quality of life (QOL) among people living with HIV (PLHIV). However, little is known about how these psychosocial factors interact with each other and affect QOL. This study incorporated a moderated mediation model to investigate whether coping strategy mediates the relationship between perceived social support and QOL, and to examine whether this mediating effect varies with the level of internalized stigma among PLHIV. A cross-sectional study was conducted among 599 PLHIV in Nepal. The multidimensional scale of perceived social support, World Health Organization Quality of Life-BREF, Brief COPE, and AIDS-related stigma scales were used to measure perceived social support, QOL, coping strategy, and internalized stigma, respectively. Data were analyzed using structural equation modeling, and moderated mediation analysis was conducted with multi-group approach. The relationship between perceived social support and QOL was significantly and partially mediated by problem-focused coping strategy. Internalized stigma significantly moderated the mediating effect of coping strategies on the association between perceived social support and QOL. For high internalized stigma group (total stigma score > 2), the effects of perceived social support on QOL were indirect (beta = 1.48; 61.0% of total effects) through the mediating effect of coping strategy, especially problem-focused coping one. For low internalized stigma group (total stigma score <= 2), problem-focused coping strategy did not significantly affect the QOL, and most of the effects of perceived social support were direct (beta = 1.24; 99.2% of total effects). Internalized stigma was found to moderate the mediating effect of problem-focused coping on the relationship between perceived social support and QOL. Enhancing the problem-focused coping and social support may be helpful to improve QOL among PLHIV reporting high stigma.


OBJECTIVE: To apprehend the social representations elaborated by older people about HIV/AIDS and to understand how they relate to the prevention of HIV infection. METHOD: Descriptive and qualitative research based on the Theory of Social Representations with 42 older people assisted at primary care. Data were produced through in-depth interviews with a semi-structured instrument, processed in the IRaMuTeQ software, and analyzed by means of the descending hierarchical classification. RESULTS: Five classes emerged: "HIV/AIDS: a problem of young people"; "Quality of life improvement for people living with HIV/AIDS"; "Vulnerability to HIV/AIDS among heterosexual women in a stable union"; "HIV/AIDS Information Network: process of creation and transformation of social representations" and "Prevention versus stigma". FINAL CONSIDERATIONS: The social representations that older people have about HIV/AIDS influence the adoption of preventive measures negatively because stigma is present and HIV/AIDS is attributed to young men, and to men who have sex with other men.
The disproportionate burden of HIV-related inequities borne by African Americans in the US South amplifies the role of social determinants of health (SDH) in shaping social patterning of illness. Despite some attention, SDH remain overlooked in a biomedically oriented, federal HIV policy. Mississippi is the poorest state with the worst HIV outcomes, nationally. Using qualitative methods, we investigated how primarily African American, HIV-positive Mississippians experienced SDH and health inequities in their daily lives. Employing grounded theory and in-depth interviews (n = 25) in an urban and rural site in 2015 yielded these findings: (1) absence of an enabling structural environment; (a) HIV-stigma constructed via social discourse; (b) lack of psycho-social support and HIV education; (c) insufficient economic and social support resources; and (2) presence of family support for coping. Due to stigma, being HIV-positive seemed to lead to further status loss; diminished social position; reduced life chances; and contractions in particular freedoms. Stigma further compounded existing inequalities - contributing to the moral, social experience of those living with HIV. Trump's plan to end HIV by 2030 creates the opportunity to rethink the biomedical-paradigm and fully engage SDH - using social science theory and methods that address multi-level social determinants in ways that are also policy-responsive.


This study examines how social support and perceived discrimination influence depressive symptoms of sexual minorities (including, lesbian, gay, bisexual-identifying individuals, and others with same-sex sexual partners) relative to heterosexual peers, while considering the role of HIV-positive status. We surveyed low-income, predominantly Hispanic/Latino/as residents receiving STI-testing and/or HIV/AIDS care in the lower Rio Grande Valley of southernmost Texas. Respondents aged 18+ took a self-administered survey in English or Spanish in a clinic waiting room (N = 273). Based on OLS regression, HIV-positive status (OLS coefficient = 2.54, p< .01) and social support (OLS coefficient = -.17, p< .001) were significant predictors of depressive symptoms among sexual minorities, but not those who identified as heterosexual. Perceived discrimination was uniquely associated with increased depressive symptoms among sexual minorities (interaction coefficient = 0.21, p< .05). Clinicians treating sexual minority patients for depression should consider developing and applying resources tailored to individuals’ level of social support and ongoing experiences of social discrimination.


U.S.-Mexico border communities are uniquely vulnerable to sexually transmitted infection (STI) transmission given the economic and social challenges these communities face. This study examines how marginalized statuses of U.S. border residents are associated with STI awareness and sexual behaviors. We surveyed low-income residents receiving STI testing and/or HIV/AIDS care in the lower Rio Grande Valley of southernmost Texas. Respondents aged 18+ took a self-administered survey available in English or Spanish in a clinic waiting room (N = 282). Approximately 52% of respondents reported being HIV+, and 32% of respondents reported having a prior STI other than HIV. Although most respondents had heard of HPV (72%), awareness of the HPV vaccine was low across all subgroups (28%), including women (< 35%), reflecting previous findings that border residents are less knowledgeable about the HPV vaccine. Almost half of respondents reported always using a condom (45%), which is higher than elsewhere in the U.S. Male and non-Hispanic respondents had higher estimated prevalence ratios (PR) of lifetime partners [PR 1.39 (95% confidence interval 1.43-3.68), PR 1.88 (1.04-3.41), respectively] and sexual partners met online [PR 3.73 (1.00-14.06), PR 19.98 (5.70-70.10), respectively]. Sexual minority, non-Hispanic, and male respondents had higher adjusted odds ratios (AOR) of utilizing the internet to find sexual partners than their peers [AOR 2.45 (1.60-3.87), AOR 1.52 (1.11-2.07), AOR 1.97 (1.20-3.24), respectively], placing them at greater STI-transmission risk. We found diversity in dimensions of STI awareness and sexual behaviors in our sample. Results can help tailor public health interventions to the unique STI risks of marginalized groups in border communities.
BACKGROUND: Ecological momentary assessments (EMAs) administered via text messaging facilitate real-time data collection. With widespread cell phone access, EMAs are becoming more available to even the most disenfranchised communities, such as those living with HIV. However, structural barriers disproportionately burden young men who have sex with men (MSM) and trans women (TW) living with HIV and threaten participation in HIV research. OBJECTIVE: We aim to identify structural barriers to completing EMA text surveys nested within a digital HIV care intervention for young MSM and TW living with HIV in San Francisco. METHODS: A total of 10,800 EMA text messages were delivered daily over 90 days to 120 participants enrolled in the Health eNav intervention (2017-2018) at the San Francisco Department of Public Health. EMA surveys inquired about participants' daily affect, sexual behaviors, substance use, and treatment adherence. Survey completion was calculated after 30, 60, and 90 days of follow-up. We described characteristics of nonstarters (those who provided less than four complete responses to the first seven EMA surveys) and analyzed structural correlates of days to first completion by socioeconomic factors such as incarceration, education level, housing, and competing needs for young MSM and TW living with HIV in San Francisco. Moreover, those recently diagnosed with HIV were more likely to experience an immediate drop-off in completing EMA surveys. EMAs are feasible for individuals not experiencing social inequity and structural barriers. HIV prevention technologies addressing these barriers and leveraging similar methodology may prove effective for young MSM and TW living with HIV.


Middle-aged and older Hispanic men who have sex with men (HMSM) are at risk of health disparities related to HIV infection risk. This study explored the effects of social support, loneliness, depressive symptoms, and sexual risk behaviors on middle-aged and older HMSM, which may result in HIV infection. A sample of 150 South Floridian HMSM, ages 40-65 years, completed instruments that measured social support, loneliness, depressive symptoms, and sexual behaviors. Participants who engaged in sex with a person living with HIV or unknown HIV status or those who had unprotected receptive anal sex reported decreased social support and higher levels of loneliness and depressive symptoms. Results of this study highlight the importance of addressing the intersection of mental health and sexual risk behaviors of middle-aged and older HMSM when developing behavioral interventions aimed at reducing sexual risk behaviors.


The concept of successful aging was recognized only recently by HIV researchers because people living with HIV (PLWH) in the early epidemic were not expected to survive. With the introduction of antiretrovirals that block viral replication, PLWH are now aging with HIV. Given the complex nature of HIV within the social, economic, and political climates in which it occurs, a holistic model of successful aging is needed to guide researchers and clinicians. Several overarching models exist, but must be updated for rapidly advancing HIV and aging research agendas. We provide an updated, adapted, and integrated biopsychosocial model of successful aging with HIV based on the principles of Baltes and Baltes (1998) on 8 essential components of successful aging: (a) length of life, (b) biological health, (c) mental health, (d) cognitive efficiency, (e) social competence, (f) productivity, (g) personal control, and (h) life satisfaction. Clinical practice and research implications are highlighted.
Social support enhances self-management and prevention of behaviors and is typically assessed using self-report scales; however, little is known about the validity of these scales in HIV-infected or affected populations. This systematic review aims to identify available validated social support scales used in HIV-infected and HIV-affected populations. A systematic literature search using key search terms was conducted in electronic databases. After rounds abstract screenings, full-text reviews, and data abstraction 17 studies remained, two of which assessed multiple social support scales, which increased number of scales to 19. Most scales assessed positive social support behaviors (n = 18). Most scales assessed perceived social support (n = 14) compared to received social support. Reliability ranged from 0.67 to 0.97. The most common forms of validation reported were content validity and construct validity and the least was criterion-related validity. Future research should seek to build evidence for validation for existing scales used in HIV-infected or HIV-affected populations.


BACKGROUND: In 2016, black women with HIV infection attributed to heterosexual contact accounted for 47% of all women living with diagnosed HIV, and 41% of deaths that occurred among women with diagnosed HIV in the USA that year. Social determinants of health have been found to be associated with mortality risk among people with HIV. We analyzed the role social determinants of health may have on risk of mortality among black women with HIV attributed to heterosexual contact. METHODS: Data from the Center for Disease Control and Prevention's National HIV Surveillance System were merged at the county level with three social determinants of health (SDH) variables from the U.S. Census Bureau's American Community Survey for black women aged >/= 18 years with HIV infection attributed to heterosexual contact that had been diagnosed by 2011. SDH variables were categorized into four empirically derived quartiles, with the highest quartile in each category serving as the reference variable. For black women whose deaths occurred during 2012-2016, mortality rate ratios (MRR) were calculated using age-stratified multivariate logistic regressions to evaluate associations between SDH variables and all-cause mortality risk. RESULTS: Risk of mortality was lower for black women aged 18-34 years and 35-54 years who lived in counties with the lowest quartile of poverty (adjusted mortality rate ratio aMRR = 0.56, 95% confidence interval CI [0.39-0.83], and aMRR = 0.67, 95% CI [0.58-0.78], respectively) compared to those who lived in counties with the highest quartile of poverty (reference group). Compared to black women who lived in counties with the highest quartile of health insurance coverage (reference group), the mortality risk was lower for black women aged 18-34 years and black women aged 35-54 who lived in counties with the lowest 2 quartiles of health insurance coverage. Unemployment status was not associated with mortality risk. CONCLUSIONS: This ecological analysis found poverty and lack of health insurance to be predictors of mortality, suggesting a need for increased prevention, care, and policy efforts targeting black women with HIV who live in environments characterized by increased poverty and lack of health insurance.


HIV-positive men who have sex with men (MSM) were recruited on www.Facebook.com and www.Poz.com to give HIV-self-tests to their contacts. Study participants completed a baseline survey, were given two self-tests, and completed a survey 2 months later. Of 133 eligible men, 40 (30%) completed both surveys. Most participants were 30-54 years old and non-Hispanic white. Some had a detectable viral load (n = 4), had condomless anal sex with male partners of negative or unknown status (n = 17), and had met anal sex partners at gay dating websites (n = 23). Of 80 self-tests given to participants, 59 (74%) were distributed, primarily to non-Hispanic white MSM, 30-54 years old who were friends. Participants reported results from 31 distributed tests; 2 sex partners of participants had positive results. Participants indicated these two persons were unaware of their infections. Expanding recruitment websites might reach non-white MSM. Unrecognized infections were identified through online recruitment and self-test distribution via HIV-positive persons.

PURPOSE OF REVIEW: This paper presents recent literature on substance using networks and HIV, highlighting renewed and emerging themes in the field. The goal is to draw attention to research that holds considerable promise for advancing our understanding of the role of networks in shaping behaviors, while also providing critical information for the development of interventions, programs, and policies to reduce HIV and other drug-related harms. RECENT FINDINGS: Recent research advances our understanding of networks and HIV, including among understudied populations, and provides new insight into how risk environments shape the networks and health of substance-using populations. In particular, the integration of network approaches with molecular epidemiology, research on space and place, and intervention methods provides exciting new avenues of investigation. Continued advances in network research are critical to supporting the health and rights of substance-using populations and ensuring the development of high-impact HIV programs and policies.


BACKGROUND: In the United States, women represent less than 5% of all pre-exposure prophylaxis (PrEP) users. Social networks may promote and/or inhibit women's PrEP awareness, which could influence PrEP intentions. Furthermore, women experiencing intimate partner violence (IPV) may have smaller, less supportive networks, which could deter or have no impact on PrEP care engagement. This study examined associations between network characteristics and women's PrEP awareness, interest, uptake, and perceived candidacy and analyzed IPV as an effect modifier. SETTING/METHODS: From 2017 to 2018, data were collected from a prospective cohort study of 218 PrEP-eligible women with (n = 94) and without (n = 124) IPV experiences in Connecticut. Women completed surveys on demographics, IPV, social networks, and PrEP care continuum outcomes. RESULTS: Adjusted analyses showed that PrEP awareness related to having more PrEP-aware alters. PrEP intentions related to having more alters with favorable opinions of women's potential PrEP use and a smaller network size. Viewing oneself as an appropriate PrEP candidate related to having more PrEP-aware alters and more alters with favorable opinions of women's potential PrEP use. IPV modified associations between network characteristics and PrEP care. Having members who were aware of and/or used PrEP was positively associated with PrEP care engagement for women without IPV experiences but had either no effect or the opposite effect for women experiencing IPV. CONCLUSION: Improving PrEP attitudes might improve its utilization among women. Social network interventions might be one way to increase PrEP uptake among many US women but may not be as effective for women experiencing IPV.


Background Ending the HIV pandemic must involve new tools to rapidly identify and control local outbreaks and prevent the emergence of recombinant strains with epidemiological advantages. Aim This observational study aimed to investigate in France a cluster of HIV-1 cases related to a new circulating recombinant form (CRF). The confirmation this CRF's novelty as well as measures to control its spread are presented. Methods Phylogenetic analyses of HIV sequences routinely generated for drug resistance genotyping before 2018 in French laboratories were employed to detect the transmission chain. The CRF involved was characterised by almost full-length viral sequencing for six cases. Cases' clinical data were reviewed. Where possible, epidemiological information was collected with a questionnaire. Results The transmission cluster comprised 49 cases, mostly diagnosed in 2016-2017 (n = 37). All were infected with a new CRF, CRF94_cpx. The molecular proximity of this CRF to X4 strains and the high median viraemia, exceeding 5.0 log10 copies/mL, at diagnosis, even in chronic infection, raise concerns of enhanced virulence. Overall, 41 cases were diagnosed in the Ile-de-France region and 45 were men who have sex with men. Among 24 cases with available information, 20 reported finding partners through a geosocial networking app. Prevention activities in the area and population affected were undertaken. Conclusion We advocate the systematic use of routinely generated HIV molecular data by a dedicated reactive network, to improve and accelerate targeted prevention interventions. Geosocial networking apps can play a role in the spread of outbreaks, but could also deliver local targeted preventive alerts.

Key populations increasingly lead the design, implementation, and evaluation of HIV services, which provides an opportunity to make them more people-centred. Despite many challenges, a strong argument that these populations must have a greater role in HIV service planning, development, and delivery worldwide exists. This Viewpoint focuses on Asia, where key populations have advocated for legal reform, engaged vulnerable groups to decrease stigma, co-created innovative HIV services, and developed new key population-led health services. Further research on key populations and their roles in HIV implementation and sustainable scale-up is needed in Asia and beyond.

MECHANISMS/ETIOLOGY GENERAL


Objectives: Identify and describe ocular changes in elderly with HIV or aids through ophthalmological examination. Evaluate the association between ocular alterations and the level of TCD4 lymphocytes, time of antiretroviral therapy, demographic characteristics and age range. Methods: Case series of 40 elderly patients with HIV infection. The study was carried out at the ophthalmology and immunology outpatient clinics of the Gaffrée and Guinle University Hospital (HUGG) from January 2017 to June 2018. The patients were attended at the ophthalmology clinic and underwent an ophthalmological exam including: anamnesis, visual acuity, ocular motility, pupillary reflex, biomicroscopy, aplanation tonometry and fundoscopy. Statistical analyses were performed using SPSS 20.0. Results: The average of the 40 patients was 64.7 years (sd: 5.1), aged between 60 and 78 years, and the average time of HIV infection was 16.6 years (sd: 7 years). Most of the patients examined had normal vision (55%) and normal intraocular pressure (between 11 and 21 mmHg). The main complaints of patients during anamnesis were visual blurring (50%), visual acuity reduction (47.5%), ocular itchiness (27.5%), tearing (25%) and burning (25%). The most frequent changes in biomicroscopy were: cataract (92.5%), and dry eye (32.5%). Fundoscopy found 43.8% of retinal vascularization alterations, 43.8% of alterations related to the optic nerve and 31.3% related to retinal posterior pole. Conclusion: Ocular changes were common and can be explained by senility, inflammatory changes caused by chronic HIV infection, adverse effects of antiretroviral therapy and early biological ageing associated to HIV infection.

(English) [ABSTRACT FROM AUTHOR]

Objetivos: Identificar e descrever as alterações oculares em idosos com HIV ou aids através de exame oftalmológico. Avaliar a associação entre as alterações oculares encontradas e o nível de linfócitos T CD4, tempo de terapia antirretroviral, características demográficas e faixa etária. Métodos: Série de 40 casos de pacientes idosos com HIV examinados nos serviços de oftalmologia e imunologia do Hospital Universitário Gaffrée e Guinle (HUGG) de janeiro de 2017 a junho de 2018. Foi realizado o seguinte exame oftalmológico: anamnese, acuidade visual, motilidade ocular, reflexo pupilar, biomicroscopia, tonometria de aplanamento e fundoscopia. As análises estatísticas foram realizadas pelo SPSS 20.0. Resultados: A média de idade dos 40 pacientes foi 64,7 anos (dp: 5,1) e o diagnóstico de infecção pelo HIV foi em média há 16,6 anos (dp: 7). A maioria dos pacientes examinados possui visão normal (n=22; 55%) e pressão intraocular normal (entre 11 e 21 mmHg). As principais queixas dos pacientes durante a anamnese foram: embaçamento visual (50%), redução da acuidade visual (47,5%), prurido ocular (27,5%), lacrimejamento (25%) e ardência (25%). As alterações biomicroscópicas mais frequentes foram catarata (92,5%), seguida de olho seco (32,5%). Na fundoscopia encontrou-se 43,8 % de alterações da vascularização retiniana, 43,8 % de alterações relacionadas ao nervo óptico e 31,3 % relacionadas ao pôlo posterior da retina. Conclusão: Alterações oculares foram comuns e podem ser justificadas pela: senilidade, estado inflamatório gerado pela infecção crônica do HIV, efeitos adversos da Terapia antirretroviral prolongada e senescência biológica precoce associada à infecção do HIV. (Portuguese) [ABSTRACT FROM AUTHOR]

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Human immunodeficiency virus-associated pulmonary arterial hypertension (HIV-PAH) is important to recognize given its association with significant morbidity and mortality. With the introduction of antiretroviral therapy, the focus of disease management has largely shifted from treating immunodeficiency-related opportunistic infections to managing chronic cardiopulmonary complications. Symptoms are nonspecific, and a high index of clinical suspicion is needed to avoid significant delay in the diagnosis of HIV-PAH. Although several viral proteins have been implicated in the pathogenesis of HIV-PAH, the exact mechanism remains uncertain. Further studies are needed to elucidate precise pathogenic mechanisms, early diagnostic tools, and novel therapeutic targets to improve prognosis of this severe complication.


Older adults with HIV are at increased risk of late diagnosis. We aimed to explore the association between age and HIV testing rates in sexual health clinics in England using Public Health England data for 2009-2014. We investigated associations between attendee age and likelihood of HIV test offer, acceptance, and coverage. For each year, increasing age was associated with reduced likelihood of test offer (Rs -0.797 to -0.958, p < 0.01). Offer rates were highest for men who have sex with men (MSM), and lowest for heterosexual females (HSFs). HSFs had the greatest decline in offer rates with age (from 86.2% for age 25-29 to 52.1% for age 70+ in 2014). Odds ratios for test offer in 2014 for attendees aged 15-49 compared with attendees aged 50+ were 1.94 (95%CI: 1.88, 2.00) for heterosexual males (HSMs), 1.86 (95%CI: 1.81, 1.91) for HSFs, and 1.54 (95%CI: 1.45, 1.64) for MSM. Overall, there was no significant association between age and test acceptance in any year (Rs -0.070 to -0.547; p > 0.05). The strongest determinant of acceptance was sexual orientation; for attendees aged 50+, compared with HSMs, acceptance was higher for MSM (OR: 1.10; 95%CI: 1.06, 1.13) and lower for HSFs (OR: 0.30; 95%CI: 0.30, 0.31).


Despite advances in HIV medicine people living with HIV continue to face many challenges. These include an increased risk of a number of cancers. In order to effectively identify those at risk and meet their healthcare needs nurses need knowledge and vigilance. This will result in appropriate patient education and referral for screening thereby maximising the chances of early detection and enhancing clinical outcomes. Cancers seen more commonly in people living with HIV will be discussed, including those classified as 'AIDS defining' i.e. Kaposi's sarcoma, non-Hodgkin lymphoma and invasive cervical cancer; in addition to other cancers seen disproportionately in this cohort, namely those of the liver, anus and lung.


BACKGROUND: Little data is available on HIV-infected patients aged over 75years. METHODS: A descriptive study of HIV-infected patients aged over 75years was conducted in six hospitals of the Pays de la Loire region, France. Socio-demographic, immuno-virological, and therapeutic characteristics were collected via an electronic medical record software (Nadis(R)). To assess frailty, a simplified geriatric assessment was conducted during an HIV routine visit. RESULTS: Among the 3965 patients followed in the six centers, 65 (1.6%) were aged over 75years. From January to May 2016, 51 patients were included in the study: median age 78.7years, male patients 74.5%, homosexual transmission 41.2%, living at home 98% and single in 54.5% of cases, median duration of HIV infection 18.8years, median CD4 nadir 181 cells/mm(3); CDC stage C 36.4%. All patients were on antiretroviral therapy and 98% of them had an HIV RNA<50c/mL; 82% of patients had at least one comorbidity and 58% at least two comorbidities. Eleven of 51 patients (21.6%) were diagnosed as at risk of frailty and 2/51 (3.9%) were considered frail. Cognitive disorders were diagnosed in 60.8%, depression in 35.3%, malnutrition in 25.5%, and vitamin D deficiency in 45.9%. CONCLUSIONS: HIV-infected patients aged above 75years are well-managed, but the prevalence of geriatric comorbidities is high.

With the widespread adoption of highly active antiretroviral therapy (HAART), HIV infection starts to be considered one of the many chronic illnesses of advanced age. A growing proportion of the affected patients is presently older than 50. It has been suggested that HIV infection may today represent a model of accelerated and accentuated ageing. The need for a closer collaboration between geriatricians and HIV physicians is being growingly recognised to better address the priorities and needs of HIV patients. The final aim behind the generation of such synergies resides in the design of personalised plans of interventions. These plans should stem from the results of a comprehensive assessment of the individual spanning clinical, environmental, and psychosocial domains. Through the early identification of stressors and risk factors potentially disrupting the homeostatic balance of frail patients (including those living with HIV), it might be possible to protect the "biologically old" (but not necessarily "chronologically old") HIV-infected people from developing detrimental geriatric syndromes. In this article, specific features making the ageing HIV population of special interest for geriatric medicine, and the importance of a multidisciplinary model of care are described. The final objective is to stress how the only way for adequately tackling the multifaceted frailty condition of people with HIV is to implement novel models of care based on the comprehensive geriatric assessment. [ABSTRACT FROM AUTHOR]

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ABSTRACT
Objective: The authors assessed the association of physical function, social variables, functional status, and psychiatric co-morbidity with cognitive function among older HIV-infected adults. DESIGN: From 2012-2014, a cross-sectional study was conducted among HIV-infected patients ages 50 or older who underwent comprehensive clinical geriatric assessment. SETTING: Two San Francisco HIV clinics. PARTICIPANTS: 359 HIV-infected patients age 50 years or older.

Measurements: Unadjusted and adjusted Poisson regression measured prevalence ratios and 95% confidence intervals for demographic, functional, and psychiatric variables and their association with cognitive impairment using a Montreal Cognitive Assessment (MoCA) score &lt; 26 as reflective of cognitive impairment. RESULTS: Thirty-four percent of participants had a MoCA score of &lt; 26. In unadjusted analyses, the following variables were significantly associated with an abnormal MoCA score: born female, not identifying as homosexual, non-white race, high school or less educational attainment, annual income &lt; $10,000, tobacco use, slower gait speed, reported problems with balance, and poor social support. In subsequent adjusted analysis, the following variables were significantly associated with an abnormal MoCA score: not identifying as homosexual, non-white race, longer 4-meter walk time, and poor social support. Psychiatric symptoms of depressive, anxiety, and post-traumatic stress disorders did not correlate with abnormal MoCA scores.

CONCLUSIONS: Cognitive impairment remains common in older HIV-infected patients. Counter to expectations, co-morbid psychiatric symptoms were not associated with cognitive impairment, suggesting that cognitive impairment in this sample may be due to neurocognitive disorders, not due to other psychiatric illness. The other conditions associated with cognitive impairment in this sample may warrant separate clinical and social interventions to optimize patient outcomes.


CD4-based multi-state back-calculation methods are key for monitoring the HIV epidemic, providing estimates of HIV incidence and diagnosis rates by disentangling their inter-related contribution to the observed surveillance data. This paper extends existing approaches to age-specific settings, permitting the joint estimation of age- and time-specific incidence and diagnosis rates and the derivation of other epidemiological quantities of interest. This allows the identification of specific age-groups at higher risk of infection, which is crucial in directing public health interventions. We investigate, through simulation studies, the suitability of various bivariate splines for the non-parametric modelling of the latent age- and time-specific incidence and illustrate our method on routinely collected data from the HIV epidemic among gay and bisexual men in England and Wales.


BACKGROUND: Mild cognitive impairment is common in chronic HIV infection and there is concern that it may worsen with age. Distinguishing static impairment from on-going decline is clinically important, but the field lacks well-validated cognitive measures sensitive to decline and feasible for routine clinical use. Measures capable of detecting improvement are also needed to assess interventions. The objective of this study is to estimate the extent of change on repeat administration of three different forms of a brief computerized cognitive assessment battery (B-CAM) developed for assessing cognitive ability in the mildly-impaired to normal range in people living with HIV. We hypothesized no change over a six-month period in people on effective antiretroviral therapy. METHODS: 102 HIV+ individuals completed a set of computerized cognitive tasks on three occasions over a six-month period. Rasch analysis was used to determine if change over time (i.e. improvement due to practice) was uniform across tasks and to refine scoring in order to produce three forms of the B-CAM of equivalent level of difficulty. Group-based trajectory analysis (GBTA) was then applied to determine if performance at baseline influenced the magnitude of practice-related improvement on the battery as a whole over the course of follow-up. RESULTS: Two cognitive tasks (fluency and word recall) had different levels of difficulty across test sessions, related to the different forms of the tasks. These two items were split by testing session. For all other items, the level of difficulty remained constant across all three time points. GBTA showed that the sample was composed of three distinct groups of people with unique trajectories, defined mainly by level of cognitive ability at baseline. Only the highest group showed an apparent improvement over time, but this change fell within measurement error. CONCLUSIONS: Rasch analysis provides mathematical confirmation that these three forms of the B-CAM are of equivalent difficulty. GBTA demonstrates that no adjustment of the total score is required to correct for practice effects. Application of these modern statistical methods paves the way towards rapid and robust quantification of change in cognition.

Palm Springs, CA, is a retirement community with the highest prevalence of gay men living with HIV older than 50 years in the United States. Through a community-academic partnership, we explored the major health issues, resiliencies, and priority research topics related to HIV and aging. We conducted five community facilitated focus groups with different stakeholders, including two focus groups with older adults living with HIV, one with their caregivers, one with HIV-focused community-based organizations, and a joint focus group with researchers and HIV care providers. Using the rigorous and accelerated data reduction technique, five major themes emerged, which included long-term side effects of medication, social determinants of health, mental health, resiliencies, and involving community in research. These data are important for developing effective interventions, conducting useful and impactful research, and providing health care providers with the tools and knowledge to provide optimal care.


In 2016, 17% of new HIV infections in the US were among adults aged 50 and older. Differences by age, sex, and race/ethnicity exist among older people living with HIV. Co-morbid mental health and substance use disorders (SUD) are also major challenges for this population. This study examined the association between generalized anxiety disorder (GAD), posttraumatic stress disorder (PTSD), SUD, depression, and HIV diagnosis among adults aged 50 and older, and the disparities by age, sex, and race/ethnicity. Data were obtained from Cerner Corporation’s Health Facts(R) database. Multivariable logistic regression models were used to determine the associations between GAD, PTSD, SUD, and depression, and HIV diagnosis. Results were also stratified by age group, sex, and race/ethnicity. Overall, there were positive associations between SUD, depression, GAD, PTSD and HIV; and differences by age, sex and race/ethnicity existed in these associations. For example, after adjusting for age, race/ethnicity and marital status, men who were diagnosed with GAD were 10 times more likely (adjusted OR: 10.3; 95% CI: 8.75 - 12.1) to have an HIV diagnosis compared to men who were not diagnosed with GAD. Women who were diagnosed with GAD were five times more likely (adjusted OR: 5.01; 95% CI: 3.81 - 6.58) to have an HIV diagnosis compared to women who were not diagnosed with GAD. HIV prevention and intervention programs for older adults should address GAD, PTSD, SUD and depression and consider the age, sex and racial/ethnic disparities in the association between psychopathology and HIV.


Introduction: There is a high prevalence of at-risk drinking in the U.S. military. Among HIV-infected individuals, alcohol abuse confers additional risk for adverse health outcomes. In the military, however, the characteristics of HIV-infected individuals who engage in high-risk drinking are not well defined. The purpose of this study was to assess risk factors associated with at-risk drinking in an HIV-positive longitudinal cohort of DoD beneficiaries. Materials and Methods: Annual prevalence of at-risk drinking was calculated for members of the U.S. Military HIV Natural History Study who initiated highly active antiretroviral therapy (HAART) during or after January 2006 through May 2014; each participant completed at least one self-reported alcohol survey within a year of HAART initiation. Univariate and multivariable logistic regression was used to analyze factors associated with at-risk drinking. Results: Sixty-six percent of subjects (495/752) reported at-risk drinking on at least one survey after HAART initiation. At-risk drinkers were more likely to be Active Duty compared to Retired (OR 0.65 95% CI [0.46, 0.92]). In multivariate models, Caucasian race (OR 3.30 95% CI [2.31, 4.71]); Hispanic/other race (OR 2.17 95% CI [1.51, 3.14]) and younger age (OR 0.61 per 10 years older, [95%CI 0.49, 0.75]) were significantly associated with at-risk drinking. Single relationship status (OR 1.51 95% CI [1.08, 2.13]) was also associated with at-risk drinking. Conclusions: Consistent with general alcohol consumption patterns in the military, we found a high prevalence of at-risk drinking among individuals with HIV infection, which was associated most closely with young, non-African Americans. Targeting interventions toward this group will be important to reduce at-risk drinking and its potential for HIV-related complications.

OBJECTIVE(S): To examine the change in physical functional status among persons living with HIV (PLWH) in nursing homes (NHs) and how change varies with age and dementia. DESIGN: Retrospective cohort study. SETTING: NHs in 14 states in the United States. PARTICIPANTS: PLWH who were admitted to NHs between 2001 and 2010 and had stays of >/=90 days (N = 3550). MEASUREMENTS: We linked Medicaid Analytic eXtract (MAX) and Minimum Data Set (MDS) data for NH residents in the sampled states and years and used them to determine HIV infection. The main outcome was improvement in physical functional status, defined as a decrease of at least 4 points in the activities of daily living (ADL) score within 90 days of NH admission. Independent variables of interest were age and dementia (Alzheimer’s disease or other dementia). Multivariate logistic regression was used, adjusting for individual-level covariates. RESULTS: The average age on NH admission of PLWH was 58. Dementia prevalence ranged from 14.5% in the youngest age group (age <40 years) to 38.9% in the oldest group (age >/=70 years). Overall, 44% of the PLWH experienced ADL improvement in NHs. Controlling for covariates, dementia was related to a significantly lower likelihood of ADL improvement among PLWH in the oldest age group only: the adjusted probability of improvement was 40.6% among those without dementia and 29.3% among those with dementia (P < .01). CONCLUSIONS/RELEVANCE: PLWH, especially younger persons, may be able to improve their ADL function after being admitted into NHs. However, with older age, PLWH with dementia are more physically dependent and vulnerable to deterioration of physical functioning in NHs. More and/or specialized care may be needed to maintain physical functioning among this population. Findings from this study provide NHs with information on care needs of PLWH and inform future research on developing interventions to improve care for PLWH in NHs.

Canada, N. (2019). Dr. Peter Centre’s Innovative Program for Men Over 50 Living With HIV Sees Enrolment Double. DrPeterCentre-HIVmen, Y.


BACKGROUND: Pain is more common among people living with HIV (PLWH) than their counterparts; however, it is unclear whether analgesic use differs by HIV status. METHODS: We analyzed Medicaid pharmacy claims from adults in 14 US states from 2001 to 2009 to identify opioid and non-opioid analgesic prescriptions and compared prescribing trends by HIV status. We accounted for clinical and demographic differences by using inverse probability weights and by restricting the sample to a subgroup with a common comorbidity, diabetes, chosen for its high prevalence and association with lifestyle and chronic pain. We estimated the incidence of chronic opioid therapy (COT) (>90 consecutive days with an opioid prescription) among opioid-naïve individuals. RESULTS: Rates of opioid and non-opioid use increased approximately two-fold from 2001 to 2009. PLWH received approximately twice as many prescriptions as those without HIV. In an unadjusted Cox regression, PLWH were three times more likely to receive COT compared to those without HIV (hazard ratio (HR) = 3.06, 95% CI 2.76-3.39). When restricting to patients with diabetes and adjusting for age, sex, state, comorbidity score, depression, bipolar disorder, and schizophrenia, the HR decreased to 1.26 (95% CI 0.97-1.63). CONCLUSIONS: Higher opioid use among PLWH was largely a function of patients’ demographic characteristics and health status. The high incidence of COT among PLWH underscores the importance of practice guidelines that minimize adverse events associated with opioid use.


INTRODUCTION: People living with HIV (PLHIV) on antiretroviral therapy (ART) experience high rates of non-communicable diseases (NCDs). These co-morbidities often accumulate and older adults may suffer from multimorbidity. Multimorbidity has been associated with loss of quality of life, polypharmacy, and increased risk of frailty and mortality. Little is known of the trends or predictors NCD multimorbidity in PLHIV in low- and middle-income countries. METHODS: We examined NCD multimorbidity in adult PLHIV initiating ART between 2003 and 2014 using a multi-site, observational cohort in Brazil. NCDs included cardiovascular artery disease, hyperlipidemia (HLD), diabetes, chronic kidney disease, cirrhosis, osteoporosis, osteonecrosis, venous thromboembolism and non-AIDS-defining cancers. Multimorbidity was defined as the incident accumulation of two or more unique NCDs. We used Poisson regression to examine trends and Cox proportional hazard
models to examine predictors of multimorbidity. RESULTS: Of the 6206 adults, 332 (5%) developed multimorbidity during the study period. Parallel to the ageing of the cohort, the prevalence of multimorbidity rose from 3% to 11% during the study period. Older age, female sex (adjusted hazard ratio (aHR) = 1.30 (95% confidence interval (CI) 1.03 to 1.65)) and low CD4 nadir (<100 vs. >/=200 cells/mm(3) aHR = 1.52 (95% CI: 1.15 to 2.01)) at cohort entry were significantly associated with increased risk of multimorbidity. Among patients with incident multimorbidity, the most common NCDs were HLD and diabetes; however, osteoporosis was also frequent in women (16 vs. 35% of men and women with multimorbidity respectively). CONCLUSIONS: Among adult PLHIV in Brazil, NCD multimorbidity increased from 2003 to 2014. Females and adults with low CD4 nadir were at increased risk in adjusted analyses. Further studies examining prevention, screening and management of NCDs in PLHIV in low- and middle-income countries are needed.


Here, we aimed to investigate the associations of comorbidities in HIV patients given antiepileptic drugs. HIV patients given antiepileptic drugs for at least 6 months were considered. Comorbidities of the epileptic, HIV-positive patients were stratified according to patients' age and causes of epilepsy. Seventy-four of the 97 HIV patients identified had at least one comorbidity. Patients more than 50-years old had more comorbidities (1.9 +/- 1.5 vs. 1.1 +/- 1.2, p < 0.01) compared with younger subjects. The distribution of the psychiatric disorders was comparable between age-related categories. A marginally significant trend for higher frequency of psychiatric disorders was observed in patients with idiopathic epilepsy versus other causes of epilepsy (43% vs. 24%), Because the presence of comorbid disorders is a major driver for premature mortality both in HIV infection and epilepsy, strategies aimed at favoring prevention, early identification, and adequate treatment in these clinical settings should be pursued at all levels of care.


Kaposi sarcoma (KS) gained public attention as an AIDS-defining malignancy; its appearance on the skin was a highly stigmatizing sign of HIV infection during the height of the AIDS epidemic. The widespread introduction of effective antiretrovirals to control HIV by restoring immunocompetence reduced the prevalence of AIDS-related KS, although KS does occur in individuals with well-controlled HIV infection. KS also presents in individuals without HIV infection in older men (classic KS), in sub-Saharan Africa (endemic KS) and in transplant recipients (iatrogenic KS). The aetiologic agent of KS is KS herpesvirus (KSHV; also known as human herpesvirus-8), and viral proteins can induce KS-associated cellular changes that enable the virus to evade the host immune system and allow the infected cell to survive and proliferate despite viral infection. Currently, most cases of KS occur in sub-Saharan Africa, where KSHV infection is prevalent owing to transmission by saliva in childhood compounded by the ongoing AIDS epidemic. Treatment for early AIDS-related KS in previously untreated patients should start with the control of HIV with antiretrovirals, which frequently results in KS regression. In advanced-stage KS, chemotherapy with pegylated liposomal doxorubicin or paclitaxel is the most common treatment, although it is seldom curative. In sub-Saharan Africa, KS continues to have a poor prognosis. Newer treatments for KS based on the mechanisms of its pathogenesis are being explored.


PURPOSE: The aim was to provide an overview of chronic low-grade inflammatory phenotype (CLIP) and evidence for its role in the pathogenesis of frailty and other chronic conditions as well as potential causative factors and interventions. METHODS: We reviewed evidence from published clinical and laboratory studies and summarized the opinions of experts from published reviews. FINDINGS: CLIP is a low-grade, systemic, unresolved, and smoldering chronic inflammatory state clearly indicated by a 2- to 4-fold increase in serum levels of inflammatory mediators, such as interleukin-6 and C-reactive protein. It involves many other cellular and molecular inflammatory mediators. CLIP typically occurs during aging, also known as "inflammaging," and is an integral part of the spectrum of immunosenescence. Causative factors likely include persistent viral infections, particularly chronic cytomegalovirus infection, cellular senescence, failure to eliminate degraded materials and waste products, dysregulated microbiota and gut permeability, obesity, and others. Substantial evidence supports CLIP as a powerful contributing factor to frailty and many other chronic conditions and adverse health outcomes. Many of the inflammatory mediators and their regulatory mechanisms in CLIP may serve as potential targets for therapeutic intervention. However, development of new interventional strategies for CLIP and its associated chronic conditions should take the complexity of the inflammatory network into consideration. Nonpharmacologic interventions,
such as caloric restriction and exercise, may have significant impact on CLIP and its causative factors, leading to substantial health benefits. Metformin and resveratrol have anti-inflammatory property and may serve as a promising therapeutic agent for treatment of CLIP and frailty. IMPLICATIONS: CLIP is a chronic inflammatory pathophysiologic process that plays an important role in the pathogenesis of frailty and many other chronic conditions. Improving our understanding of this phenotype may provide opportunities to identify potential targets of effective prevention and therapeutic strategies for frailty and other CLIP-associated conditions.


Sub-Saharan Africa is the region in the world with the most people infected with the human immunodeficiency virus (HIV). The incidence of breast cancer is also rising in the region. This transcript focusses on the burden of these two diseases when they converge in the same populace. This comprehensive literature review of the topic suggests a trend towards an increasing incidence of breast cancer in the HIV-infected population, and the rationale for such a tendency is hypothesized, especially in the context of the availability of highly active antiretroviral therapy. Besides the age at diagnosis, all other clinical characteristics appear to be similar in HIV-positive and HIV-negative breast cancer populations. Outcomes of the different treatment modalities for breast cancer in HIV-positive patients are also appraised and finally innovative areas of future research are suggested along with plausible recommendations.


Advancements in antiretroviral therapy have extended the longevity of people living with HIV (PLWH). However, they often experience symptoms that negatively impact their quality of life, including fatigue, weight change, depression, pain, and memory loss. Although there is a dearth of data on the effect of physical activity (PA) for HIV-associated symptom management, increased PA has generally been associated with improvements in strength and overall quality of life. In this study, we enrolled 40 participants (mean age = 51.5; 40% female; 17.4 mean years living with HIV) and used Omron pedometers to measure daily step counts over 12 weeks. The 20-item HIV Symptom Index was administered at baseline and week 12. Increased PA was not associated with improvement in overall HIV symptom burden. However, bothersome symptoms were reduced, and total symptom burden was highly correlated with PA level at week 12 ($r = -.48$, $p = .01$), such that participants with higher step counts reported lower symptom burden. Significant gender differences in symptom burden were noted: males on average reported lower symptom burden. Further research is needed to examine associations between PA and HIV symptom burden and to further explore gender differences in HIV symptom burden to improve overall quality of life for all older PLWH.


Some older adults with human immunodeficiency virus (HIV) experience poor sleep which can worsen cognition. Transcranial direct current stimulation (tDCS) and cognitive training have improved sleep and cognition in studies of older adults; yet, their combined influence is unknown in adults with HIV. Older adults with HIV ($n = 33$) and without HIV ($n = 33$) were randomized to receive 10 one-hour sessions of speed of processing (SOP) training with tDCS or sham tDCS over approximately 5 weeks. tDCS with SOP training did not improve sleep. Omitting correction of multiple comparisons for this exploratory pilot study, main effects for HIV ($F[1, 59] = 5.26$, $p = .03$, etap(2) = .082) and tDCS ($F[1, 59] = 5.16$, $p = .03$, etap(2) = .080) on the Digit Copy Test were detected. A HIV x tDCS interaction was detected on the Letter Comparison Test ($F[1, 59] = 5.50$, $p = .02$, etap(2) = .085). Useul Field of View scores improved across all four groups ($F[1, 59] = 64.76$, $p < .001$, etap(2) = .523). No significant effects for HIV ($F[1, 59] = 1.82$, $p = .18$) and tDCS ($F[1, 59] = .01$, $p = .94$) were detected on the Useful Field of View test. While the current study did not show effects of combined tDCS and SOP training on sleep quality, future studies are needed to examine the effects of such interventions on sleep-related cognitive functions among cognitively impaired adults with HIV.


OBJECTIVE: To address the gap in knowledge about HIV risk reduction materials that target older adults. This review offered a comprehensive and rigorous examination of HIV risk reduction education materials that targeted older adults in the United States, assessing the gap in their coverage and content. METHOD: A cross-sectional review of both print and Internet sources from state departments of public health, state and area agencies on aging, and web resources that targeted older populations was performed. RESULTS: Of 29 health departments and 13 state and area agencies on aging that responded to the request, there were 9 HIV education materials identified that targeted older people. Of those materials, only 2 addressed the majority of aging-specific recommendations made from a previous study that described important HIV risk reduction information. DISCUSSION: Recommendations are made about dissemination ideas to increase awareness and utilization of HIV educational materials.

An editorial is presented on the impacts of health related issues to the older adults. Topics discussed include information on the effects of the Medical incidents on older people such as osteoporosis among postmenopausal women, sleep disturbance and women living with HIV and Alzheimer’s disease; discussions on the medical conditions associated with aging such as osteoporosis; and the information on the medical and sociocultural factors impacting the health of older adult women.

OBJECTIVE: To analyze the association between sociodemographic and behavioral factors with the metabolic syndrome in people living with HIV. METHODS: A cross-sectional study was carried out in specialized outpatient clinics in Ribeirao Preto - SP city, between October 2014 and October 2016. The criteria of the National Cholesterol Education Program Adult Treatment Panel III and the International Diabetes Federation were used for the evaluation of metabolic syndrome. Individual interviews were conducted and the Chi-square and Fisher's exact test was used. RESULTS: 340 patients were evaluated, 28.5% (n=97) with metabolic syndrome by the National Cholesterol Education Program Adult Treatment Panel III criterion, and 39.4% (n=134) by the International Diabetes Federation. There was an association between MS and the variables gender (ATP: p<0.001, IDF: p=0.002), age (ATP: p<0.001, IDF: p<0.001), schooling (ATP: p=0.003, IDF: p=0.003), marital status (ATP: p=0.003, IDF: p=0.022), work status (ATP: p=0.003; IDF: p=0.024), smoking (ATP: p=0.037, IDF: p=0.033) and leisure activities (ATP: p=0.010, IDF: p=0.006). CONCLUSIONS: There are significant associations between the metabolic syndrome, sociodemographic and behavioral factors in people living with HIV.

Astrocytes regulate local cerebral blood flow, maintain ion and neurotransmitter homeostasis, provide metabolic support, regulate synaptic activity, and respond to brain injury, insults, and infection. Because of their abundance, extensive connectivity, and multiple roles in the brain, astrocytes are intimately involved in normal functioning of the CNS and their dysregulation can lead to neuronal dysfunction. In normal aging, decreased biological functioning and reduced cognitive abilities are commonly experienced in individuals free of overt neurological disease. Moreover, in several age-related CNS diseases, chronic inflammation and altered metabolism have been reported. Since people with HIV (PWH) are reported to experience rapid aging with chronic inflammation, altered brain metabolism is likely to be exacerbated. In fact, many studies report altered metabolism in astrocytes in diseases such as Alzheimer's, Parkinson's, and HIV. This review will
address the roles of astrocyte activation and altered metabolism in normal aging, in age-related CNS disease, and in HIV-associated neurocognitive disorders.


Summary Sarcopenia is a progressive and generalised skeletal muscle disorder involving the accelerated loss of muscle mass and function that is associated with increased adverse outcomes including falls, functional decline, frailty, and mortality. It occurs commonly as an age-related process in older people, influenced not only by contemporaneous risk factors, but also by genetic and lifestyle factors operating across the life course. It can also occur in mid-life in association with a range of conditions. Sarcopenia has become the focus of intense research aiming to translate current knowledge about its pathophysiology into improved diagnosis and treatment, with particular interest in the development of biomarkers, nutritional interventions, and drugs to augment the beneficial effects of resistance exercise. Designing effective preventive strategies that people can apply during their lifetime is of primary concern. Diagnosis, treatment, and prevention of sarcopenia is likely to become part of routine clinical practice.


OBJECTIVES: The management of HIV disease is complicated by the incidence of a new spectrum of comorbid noncommunicable diseases (NCDs). It is important to document changes in the prevalence of NCDs over time. The aim of the study was to describe the impact of ageing on HIV markers and on the prevalence of NCDs in people living with HIV (PLWHIV) in the Italian Cohort of Individuals, Naive for Antiretrovirals (ICONA) seen for care in 2004-2014. METHODS: Analyses were conducted separately for a closed cohort (same people seen at both times) and an open cohort (all people under follow-up). We used the chi(2) test for categorical factors and the Wilcoxon test for quantitative factors to compare profiles over time. RESULTS: The closed cohort included 1517 participants and the open cohort 3668 under follow-up in 2004 and 6679 in 2014. The median age of the open cohort was 41 [interquartile range (IQR) 37-46] years in 2004 and 44 (IQR 36-52) years in 2014. Analysis of the closed cohort showed an increase in the prevalence of some NCDs (the prevalence of dyslipidaemia increased from 75% in 2004 to 91% in 2014, that of hypertension from 67 to 84%, and that of cardiovascular disease (CVD) from 18 to 32%) and a decrease in renal function (5% with eGFR < 60 mL/min per 1.73 m(2) in 2004 versus 30% in 2014); the percentage of people in the high-risk group for the Framingham CHD score more than tripled (from 13 to 45%). Results in the open cohort were similar. CONCLUSIONS: The burden of NCDs in our PLWHIV population markedly worsened over a 10-year time-span, which is likely to be a result of the effects of both ageing and HIV infection as well as their interaction. Special attention must be given to the management and prevention of NCDs.


OBJECTIVE: This study seeks to examine the health disparities of sexual minority older adults. METHOD: We used a probability sample of adults older than 50 years in select U.S. regions from the 2014, 2015, and 2016 Behavioral Risk Factor Surveillance System with administration of the sexual orientation question ( n = 350,778). Binary and multinomial logistic regression models were performed to examine health disparities in general health conditions, lifetime chronic health conditions, limitations in activities, substance use, access to care and preventive health behaviors by sexual minority status (straight, gay/lesbian, bisexual, other, and nonresponse), stratified by sex (male vs. female) and age group (50-64 vs. 65+ years). RESULTS: Compared with their straight peers, sexual minority older adults had disparities in some health outcomes, including a higher prevalence of depressive disorder and substance use. However, the disparities were not uniform across gender and age groups. Both men and women sexual minorities had some advantages as well, related to preventive health behaviors (e.g., HIV testing), as compared with their straight peers. Nonrespondents in sexual orientation generally had better health outcomes than their straight peers. CONCLUSIONS: This study identifies health disparities among subgroups of lesbians, gay men, and bisexuals older adults and highlights the need to assess variability related to gender, sexual identity, and age of this high-risk population.

OBJECTIVES: Despite a recent fall in the incidence of HIV within the UK, men who have sex with men (MSM) continue to be disproportionately affected. As biomedical prevention technologies including pre-exposure prophylaxis are increasingly taken up to reduce transmission, the role of HIV testing has become central to the management of risk. Against a background of lower testing rates among older MSM, this study aimed to identify age-related factors influencing recent (<12 months) HIV testing. METHODS: Cross-sectional subpopulation data from an online survey of sexually active MSM in the Celtic nations—Scotland, Wales, Northern Ireland and Ireland (n=2436)—were analysed to compare demographic, behavioural and sociocultural factors influencing HIV testing between MSM aged 16-25 (n=447), 26-45 (n=1092) and >/=46 (n=897). RESULTS: Multivariate logistic regression demonstrated that for men aged >/=46, not identifying as gay (OR 0.62, CI 0.41 to 0.95), location (Wales) (OR 0.49, CI 0.32 to 0.76) and scoring higher on the personalised Stigma Scale (OR 0.97, CI 0.94 to 1.00) significantly reduced the odds for HIV testing in the preceding year. Men aged 26-45 who did not identify as gay (OR 0.61, CI 0.41 to 0.92) were also significantly less likely to have recently tested for HIV. For men aged 16-25, not having a degree (OR 0.48, CI 0.29 to 0.79), location (Republic of Ireland) (OR 0.55, CI 0.30 to 1.00) and scoring higher on emotional competence (OR 0.57, CI 0.42 to 0.77) were also significantly associated with not having recently tested for HIV. CONCLUSION: Key differences in age-related factors influencing HIV testing suggest health improvement interventions should accommodate the wide diversities among MSM populations across the life course. Future research should seek to identify barriers and enablers to HIV testing among the oldest and youngest MSM, with specific focus on education and stigma.


Immune checkpoint molecules (ICMs) regulate T cell responses. In chronic viral infections and cancer, where antigens can persistently stimulate the immune system, ICMs can serve as a barrier to effective immune responses. The role of ICMs in the setting of systemic low-grade inflammation as in aging and antiretroviral therapy (ART)-suppressed HIV infection is not known. In this study, we made use of stored samples from the FLORAH cohort of HIV-infected ART-suppressed adults (age range 19-77 years.) and age-matched HIV-uninfected controls. We measured the expression levels of ICMs: PD-1, LAG-3, TIGIT, TIM-3, and 2B4 on resting CD4 and CD8 T cells and maturation subsets. To determine how expression of these molecules can affect T cell function, we stimulated peripheral blood mononuclear cell with HIV Gag or p09/H1N1 antigen and performed intracellular cytokine staining by multiparameter flow cytometry. ICMs were expressed at higher levels in CD8 compared with CD4. PD-1 was the only molecule that remained significantly higher in HIV-infected individuals compared with controls. LAG-3 expression increased with age in CD4 and CD8 T cells. 2B4 expression on CD8 T cells was negatively associated with IL-2 production but showed no effect on CD4 T cell function. TIM-3 expression was negatively associated with IL-21 production in CD4 and CD8 T cells and also negatively correlated with flu vaccine responses in HIV-negative individuals. Taken altogether, this study demonstrates the marked variation in ICM expression in T cells among adults and sheds light on the biology of these molecules and their effects on antigen-specific T cell functions. Overall, our results point to TIM-3 as a potential biomarker for immune function in HIV(+) individuals on ART.


Despite improvements in its treatment, HIV infection continues to affect Blacks disproportionally. Using National HIV Surveillance System data from 50 U.S. states and the District of Columbia, we examined demographic and epidemiologic differences between U.S.-born and non-U.S.-born Black adults. Of 110,452 Black adults reported with diagnosed HIV during 2008-2014 with complete country of birth information, 11.1% were non-U.S.-born. Non-U.S.-born were more likely to be older, female, have HIV infection attributed to heterosexual contact, have been diagnosed late, and live in the northeastern U.S. region. During 2014, the HIV diagnosis rate among African-born Black females was 1.4 times the rate of U.S.-born Black males, 2 times the rate of African-born Black males, and 5.3 times the rate of U.S.-born Black females. We elucidate the differences between U.S.-born and non-U.S.-born Blacks on which to base culturally appropriate HIV-prevention programs and policies.

Background: We aimed to describe the frequency, risk factors, and costs attributable to drug-drug interactions (DDIs) among an aging French HIV population. Methods: We conducted a retrospective cohort study using French nationwide health care e-records: the SNIIRAM database. People living with HIV (PLWH) aged ≥65 years and receiving combined antiretroviral treatment (cART) during 2016 were included. A DDI was defined as "These drugs should not be co-administered," represented by a red symbol on the University of Liverpool website. Attributable DDIs' cost was defined as the difference between individuals with and without DDIs regarding all reimbursed health care acts. Results: Overall, 9076 PLWH met the study criteria. Their baseline characteristics were: mean age, 71.3 ± 4.9 years; 25% female; median HIV duration (interquartile range [IQR]), 16.2 (9.5-20.3) years; median comorbidities (IQR), 2 (1-3). During 2016, they received a median (IQR) of 14 (9-21) comedications (non-cART), and 1529 individuals had at least 1 DDI (16.8%; 95% confidence interval [CI], 16.1-17.6). In multivariate analysis, raltegravir or dolutegravir plus 2 nucleoside reverse-transcriptase inhibitors (NRTIs) significantly and independently reduced the risk of DDIs (adjusted odds ratio [aOR], 0.02; 95% CI, 0.005-0.050; P < .0001) compared with non-nucleoside reverse-transcriptase inhibitor plus 2 NRTIs, whereas cART with boosted agents (protease inhibitors or elvitegravir) significantly increased the risk (aOR, 4.12; 95% CI, 3.34-5.10; P < .0001). Compared with propensity score-matched PLWH without DDIs, the presence of DDIs was associated with a $2693 additional cost per year (P < .0001). Conclusions: The presence of DDIs is frequent and significantly increases health care costs in the aging population of PLWH.


OBJECTIVES: The use of combination antiretroviral therapy (cART) increases clinical uncertainty about changes in renal function. Specifically, little is known regarding the interaction of the effects of aging, baseline renal impairment, and stages of HIV infection on post-treatment changes in renal function. METHODS: This analysis included 5533 HIV-infected patients on cART in 2004-2016. Progression to chronic kidney disease (CKD) was defined as either two consecutive estimated glomerular filtration rate (eGFR) measurements < 60 mL/min/1.73 m(2) for baseline eGFR >/= 60 mL/min/1.73 m(2) (mild renal impairment or normal renal function) or a 25% decline for baseline eGFR < 60 mL/min/1.73 m(2) (mild renal impairment). RESULTS: During follow-up (median 4.8 years), 130 (2.3%) of the patients progressed to CKD. A total of 20.1% of patients with baseline normal renal function progressed to mild renal impairment, while 74.0% of patients with baseline mild or moderate renal impairment improved to normal renal function. In multivariable analysis, a significant positive baseline-eGFR-by-World Health Organization (WHO)-stage interaction effect on progression to CKD in all patients was identified, indicating a cross-over effect from a reduced risk to an increased risk. A significant negative baseline-age-by-WHO-stage interaction effect on progression to mild renal impairment in patients with baseline normal renal function was identified, with adjusted hazard ratios progressively lower at older ages. In addition, there were significant associations with older age, lower baseline eGFR, Dai ethnic minority, and anaemia for both outcomes, hyperglycaemia for CKD only, and higher CD4 count, tenofovir and ritonavir-boosted lopinavir use for mild renal impairment only. CONCLUSIONS: Our data suggest a complex pattern of renal function dynamics in patients on cART, which requires precise management with systematic monitoring of the interaction of the effects of sociodemographic, nephrological and HIV-specific clinical characteristics.


BACKGROUND: The use of combination antiretroviral therapy has led to dramatic improvements in the life expectancy of HIV-infected persons. As result, the HIV population is aging and increasingly facing illnesses typically seen in the elderly, such as chronic kidney disease (CKD). METHODS: A retrospective longitudinal study was conducted using data from years 2010 and 2014 in all HIV-infected persons enrolled at the Spanish VACH cohort. We analyzed the prevalence and the predictive factors for developing CKD (estimated glomerular filtration rate, eGFR<60mL/min/1.73m(2)). RESULTS: The CKD prevalence at baseline was 456/8968, 5.1% [4.6-5.6%]. Of 8512 HIV-positive individuals examined without CKD at baseline (73.7% male, median age 44 years-old), 2.15% developed CKD (eGFR<60mL/min/1.73m(2)). The odds ratios [95%CI] for the independent predictive factors identified were gender (male) 0.54 [0.39-0.75], age (per year) 1.08 [1.07-1.10], AIDS diagnosis 1.40 [1.03-1.91], protease inhibitor-based regimen 1.49 [1.10-2.02], hypertension 1.37 [0.94-1.99], diabetes 1.84 [1.40-2.37], male sex 0.54 [0.39-0.75]. Conclusions: The prevalence of CKD increased with age, male sex and advanced HIV disease at the time of inclusion.
Importance: Some opioids are known immunosuppressants; however, the association of prescribed opioids with clinically relevant immune-related outcomes is understudied, especially among people living with HIV. Objective: To assess the association of prescribed opioids with community-acquired pneumonia (CAP) by opioid properties and HIV status. Design, Setting, and Participants: This nested case-control study used data from patients in the Veterans Aging Cohort Study (VACS) from January 1, 2000, through December 31, 2012. Participants in VACS included patients living with and without HIV who received care in Veterans Health Administration (VA) medical centers across the United States. Patients with CAP requiring hospitalization (n = 4246) were matched 1:5 with control individuals without CAP (n = 21146) by age, sex, race/ethnicity, length of observation, and HIV status. Data were analyzed from March 15, 2017, through August 8, 2018. Exposures: Prescribed opioid exposure during the 12 months before the index date was characterized by a composite variable based on timing (none, past, or current); low (<20 mg), medium (20-50 mg), or high (>50 mg) median morphine equivalent daily dose; and opioid immunosuppressive properties (yes vs unknown or no). Main Outcome and Measure: CAP requiring hospitalization based on VA and Centers for Medicare & Medicaid data. Results: Among the 25 392 VACS participants (98.9% male; mean [SD] age, 55 [10] years), current medium doses of opioids with unknown or no immunosuppressive properties (adjusted odds ratio [AOR], 1.35; 95% CI, 1.13-1.62) and immunosuppressive properties (AOR, 2.07; 95% CI, 1.50-2.86) and current high doses of opioids with unknown or no immunosuppressive properties (AOR, 2.07; 95% CI, 1.50-2.86) and immunosuppressive properties (AOR, 3.18; 95% CI, 2.44-4.14) were associated with the greatest CAP risk compared with no prescribed opioids or any past prescribed opioid with no immunosuppressive (AOR, 1.24; 95% CI, 1.09-1.40) and immunosuppressive properties (AOR, 1.42; 95% CI, 1.21-1.67), especially with current receipt of immunosuppressive opioids. In stratified analyses, CAP risk was consistently greater among people living with HIV with current prescribed opioids, especially when prescribed immunosuppressive opioids (eg, AORs for current immunosuppressive opioids with medium dose, 1.76 [95% CI, 1.20-2.57] vs 2.33 [95% CI, 1.60-3.40]). Conclusions and Relevance: Prescribed opioids, especially higher-dose and immunosuppressive opioids, are associated with increased CAP risk among persons with and without HIV.
The objective of the study was to examine additive and synergistic effects of age and HIV infection on resting state (RS) intra- and inter-network functional connectivity (FC) of the brain. We also aimed to assess relationships with neurocognition and determine clinical-, treatment-, and health-related factors moderating intrinsic brain activity in aging HIV-positive (HIV+) individuals. The current report presents data on 54 HIV+ individuals (age M=41, SD=12years) stabilized on cART and 54 socio-demographically matched healthy (HIV-) comparators (age M=43, SD=12years), with cohort education mean of 16years (SD=12). Age at seroconversion ranged 20-55years old. ANOVA assessed additive and synergistic effects of age and HIV in 133 ROIs. Bivariate statistics examined relationships of FC indices vulnerable to age-HIV interactions and neurocognitive domains T-scores (attention, executive, memory, psychomotor, semantic skills). Multivariate logistic models determined covariates of FC. This study found no statistically significant age-HIV effects on RS-FC after correcting for multiple comparisons except for synergistic effects on connectivity within cingulo-opercular network (CON) at the trending level. However, for uncorrected RS connectivity analyses, we observed HIV-related strengthening between regions of fronto-parietal network (FPN) and default mode network (DMN), and particular DMN regions and sensorimotor network (SMN). Simultaneously, FC weakening was observed within FPN and between other regions of DMN-SMN, in HIV+ vs. HIV-individuals. Ten ROI pairs revealed age-HIV interactions, with FC decreasing with age in HIV+, while increasing in controls. FC correlated with particular cognitive domains positively in HIV+ vs. negatively in HIV- group. Proportion of life prior-to-after HIV-seroconversion, post-infection years, and treatment determined within-FPN and SMN-DMN FC. In sum, highly functioning HIV+/cART+ patients do not reveal significantly altered RS-FC from healthy comparators. Nonetheless, the current findings uncorrected for multiple comparisons suggest that HIV infection may lead to simultaneous increases and decreases in FC in distinct brain regions even in patients successfully stabilized on cART. Moreover, RS-fMRI ROI-based analysis can be sensitive to age-HIV interactions, which are especially pronounced for inter-network FC in relation to neurocognition. Aging and treatment-related factors partially explain RS-FC in aging HIV+ patients.


Latent HIV reservoir is the main obstacle that prevents a cure for HIV-1 (HIV). While antiretroviral therapy is effective in controlling viral replication, it cannot eliminate latent HIV reservoirs in patients. Several strategies have been proposed to combat HIV latency, including bone marrow transplantation to replace blood cells with CCR5-mutated stem cells, gene editing to disrupt the HIV genome, and "Shock and Kill" to reactivate latent HIV followed by an immune clearance. However, high risks and limitations to scale-up in clinics, off-target effects in human genomes or failure to reduce reservoir sizes in patients hampered our current efforts to achieve an HIV cure. This necessitates alternative strategies to control the latent HIV reservoirs. This review will discuss an emerging strategy aimed to deeply silence HIV reservoirs, the development of this concept, its potential and caveats for HIV remission/cure, and prospective directions for silencing the latent HIV, thereby preventing viruses from rebound.


OBJECTIVE: This study examines whether disparities exist in poor health and depressive symptomatology among older gay/bisexual men (50+) with ( n = 371) and without ( n = 973) HIV. If so, what risk/promoting factors account for those disparities? METHOD: These cross-sectional analyses used 2014 data from the Aging With Pride: National Health, Aging, and Sexuality/Gender Study. RESULTS: Those with HIV reported poorer health and more depressive symptomatology accounted for by lower income, resilience and social support, and more lifetime victimization. Poorer health among those with HIV was associated with more chronic conditions. Higher depressive symptomatology was associated with diagnosed anxiety and drug addiction. Community engagement reduced disparities in poor health and depression. IMPLICATIONS: Older gay/bisexual men living with HIV infection are at greater risk for physical and mental health issues. Assessments should be conducted with attention to these risk factors. Interventions for improving social support, resilience, and community engagement are warranted.

According to Joint United Nations Programme on HIV/AIDS (UNAIDS) data, 36.9 million people are living with HIV worldwide. Older adults, those aged 50 years and older, with HIV are increasing worldwide; however, the prevalence and incidence differ substantially across regions. The purpose of this article is to provide an overview of how HIV is impacting older adults globally, with a focus on sexual and gender minority older adults. The article is organized using the eight geographical regions from UNAIDS, with information on the prevalence and incidence among older adults. Among sexual and gender minority older adults, key risks are identified, including laws that criminalize same-sex relationships; issues of stigma and fear; and the concomitant lack of access and barriers to HIV testing, treatment, and prevention. Progress within each region toward the UNAIDS 90-90-90 targets is included, and suggestions for future directions of research and service delivery are made.


The current study examined the association between perceived social support, depressive symptoms and alcohol use among people living with HIV (PLWH) 50 and older who identified as Black. Participants included 96 men and women ages 50 and older. Participants completed an interviewer-administered assessment examining mental and behavioral health functioning. Mediation analyses examined whether perceived support mediated the association between depressive symptoms and hazardous drinking. Depressive symptoms were significantly associated with hazardous drinking (B = .068, SE = .035, t = 1.92, p = 0.05) and negatively associated with having the desired amount of contact with a primary supporter (B = -.072, SE = .018, z = -3.96, p < 0.001). In addition, having the desired amount of contact with a confidant was negatively associated with hazardous drinking (B = -.543, SE = .208, t = -2.61, p < 0.01). The effect of depressive symptoms on hazardous drinking when controlling for having adequate contact with a primary supporter was not significant (B = .033, SE = .04, t = .829, p = 0.41). Having a valued confidant mediated the association between depressive symptoms and hazardous drinking. Thus, social support interventions may be an effective method of reducing hazardous drinking among older PLWH.


BACKGROUND: Falls and fall risk factors are common among people living with HIV (PLWH). We sought to identify fall risk factors among men with and without HIV. METHODS: Men aged 50-75 years with (n = 279) and without HIV (n = 379) from the Bone Strength Substudy of the Multicenter AIDS Cohort Study were included. Multinomial logistic regression models identified risk factors associated with falling. RESULTS: One hundred fourteen (41%) PLWH and 149 (39%) of uninfected men had >/=1 fall; 54 (20%) PLWH and 66 (17%) of uninfected men experienced >/=2 falls over 2 years. Five and 3% of PLWH and uninfected men, respectively, had a fall-related fracture (P = 0.34). In multivariate models, the odds of >/=2 falls were greater among men reporting illicit drug use, taking diabetes or depression medications, and with peripheral neuropathy; obesity was associated with a lower risk (all P < 0.05). In models restricted to PLWH, detectable plasma HIV-1 RNA, current use of efavirenz or diabetes medications, illicit drug use, and peripheral neuropathy were associated with greater odds of having >/=2 falls (P < 0.05). Current efavirenz use was associated with increased odds of an injurious fall; longer duration of antiretroviral therapy was protective (both P < 0.05). Greater physical activity was associated with lower risk of falls with fracture (P < 0.05). CONCLUSIONS: Identified risk factors for recurrent falls or fall with fracture included low physical activity, detectable HIV-1 RNA, use of efavirenz, or use of medications to treat diabetes and depression. Fall risk reduction should prioritize interventions targeting modifiable risk factors including increased physical activity, antiretroviral therapy adherence, and transition off efavirenz.


Social research in lesbian, gay, bisexual, transgender, and queer (LGBTQ) aging is a rapidly growing field, but an examination of the use of theory has not yet been conducted for its impact on the field’s direction. We conducted a systematic review of empirical articles published in LGBTQ aging in the years 2009-2017 (N = 102). Using a typology of theory use in scholarly articles, we analyzed these articles for the types of theories being used, the degree to which theories were used in each article, and the analytical function they served. We found that 52% of articles consistently applied theory, 23% implied or partially applied theory, and 25% presented as atheoretical. A wide range of theories were used and served multiple...
analytical functions such as concept development and explanation of findings. We discuss the strengths and weaknesses of theory use in this body of literature, especially with respect to implications for future knowledge development in the field.


The objective of this study was to examine combination speed of processing (SOP) cognitive remediation therapy (CRT) and transcranial direct stimulation (tDCS) as neurorehabilitation in older HIV+ adults. Thirty-three HIV+ adults aged 50+ completed neurocognitive testing and were randomized to either active (n = 17) or sham (n = 16) tDCS. Both conditions received 10 1-hour sessions of SOP CRT, with either active or sham tDCS for the first 20 minutes. Participants then completed a posttest assessment. Repeated measures analysis of variance examining Time X Condition showed small-to-medium effects in the expected direction for an executive (d = 0.36), and SOP measure (d = 0.49), while medium-to-large effects were observed for an executive/attention (d = 0.60) and oral reading measure (d = 0.75). The only statistically significant interaction was the oral reading measure. Small-to-medium and medium-to-large effects (ds = 0.32, 0.58) were found for two SOP measures in the opposite direction (sham group showing greater improvements). Further trials of CRT and tDCS in this population are needed, including larger samples and a nonactive control and tDCS only condition, as is determination of which parameters of each technique (e.g., tDCS montage, timing of tDCS, domain targeted in CRT, number of sessions) are most effective in improving cognitive outcomes, durability of training gains, and translation to everyday functioning.


Engagement in care is a key component of the HIV treatment cascade and is influenced by biopsychosocial factors. Little is known about the association of health literacy with this impactful outcome in people living with HIV (PLWH). Ninety-five PLWH completed a comprehensive battery including health literacy measures covering several domains (i.e., numeracy, reading, self-efficacy, and ability to appraise and access health information). Engagement in care was operationalized as missed clinic visits (i.e., proportion of clinic visits in the prior 24 months where the participant did not attend and did not cancel or reschedule). The ability to appraise health information (measured by the Newest Vital Sign [NVS]) was the only significant health literacy predictor of missed clinic visits. Hierarchical linear regression including clinico-demographics and all health literacy variables showed that age, depression, neurocognition, and NVS were significant (p < 0.05) correlates of missed clinic visits. The ability to appraise health information was a strong and independent predictor of missed clinic visits in PLWH, even in the context of traditional correlates. Such measures may be useful in identifying PLWH with low health literacy who may be at risk for poorer engagement in care. Future research developing interventions targeting this health literacy dimension are warranted.


People living with HIV (PLWH) experience greater everyday functioning impairment. We examined frequency and correlates of successful functional aging (SFA) in PLWH. Using gold-standard questionnaires, SFA was defined in 174 HIV+ and 71 HIV- adults as absence of significant everyday cognitive symptoms and declines in instrumental activities of daily living. More HIV- (45%) than HIV+ (18%) adults met SFA criteria (p < 0.01). Depression, cognitive functioning, socioeconomic status, and HIV status were independent correlates of SFA (p values < 0.05). Motor ability, learning, and verbal fluency were associated with SFA. SFA was associated with health-related quality of life (HRQoL). PLWH are three times less likely to achieve SFA than HIV- adults, a phenotype that translates to HRQoL. While SFA is multifactorial, driven by clinico-demographic factors, HIV may pose additional risk to achieving SFA. Further work should examine other mechanisms whereby HIV hinders SFA (e.g., biomarkers, stress, mental health) and ultimately inform interventions to facilitate SFA.


The field of HIV/STI prevention has primarily focused on gay men (or "men who have sex with men" [MSM] as a broad category) with limited attention to bisexual men in particular. Although bisexual men are also at increased risk for HIV and other STI, they are less likely to utilize HIV/STI prevention services than gay men, and very few interventions have been
Developed to address their unique needs. Further, while biomedical advances are changing the field of HIV prevention, bisexual men are also less likely to use biomedical HIV prevention strategies (e.g., pre-exposure prophylaxis [PrEP]) than gay men. In an effort to advance research on bisexual men and their sexual health needs, the goals of this commentary are: (1) to review the empirical literature on the prevalence of HIV/STI among bisexual men, the few existing HIV/STI prevention interventions developed for bisexual men, and the use of biomedical HIV prevention among bisexual men; (2) to describe the ways in which the field of HIV/STI prevention has largely overlooked bisexual men as a population in need of targeted services; and (3) to discuss how researchers can better address the sexual health needs of bisexual men in the age of biomedical HIV prevention.


The increased prevalence of type 2 diabetes mellitus (T2DM) and life expectancy of diabetic patients fosters the worldwide prevalence of retinopathy and nephropathy, two major microvascular complications that have been difficult to treat with contemporary glucose-lowering medications. The gut microbiota (GM) has become a lively field research in the last years; there is a growing recognition that altered intestinal microbiota composition and function can directly impact the phenomenon of ageing and age-related disorders. In fact, human GM, envisaged as a potential source of novel therapeutics, strongly modulates host immunity and metabolism. It is now clear that gut dysbiosis and their products (e.g. p-cresyl sulfate, trimethylamineNoxide) dictate a secretory associated senescence phenotype and chronic low-grade inflammation, features shared in the physiological process of ageing ("inflamming") as well as in T2DM ("metaflamming") and in its microvascular complications. This review provides an in-depth look on the crosstalk between GM, host immunity and metabolism. Further, it characterizes human GM signatures of elderly and T2DM patients. Finally, a comprehensive scrutiny of recent molecular findings (e.g. epigenetic changes) underlying causal relationships between GM dysbiosis and diabetic retinopathy/nephropathy complications is pinpointed, with the ultimate goal to unravel potential pathophysiological mechanisms that may be explored, in a near future, as personalized disease-modifying therapeutic approaches.


Persons with HIV (PWH) are aging. The impact of aging on healthcare utilization is unknown. The objective of this study was to evaluate hospitalization rates and reasons stratified by age among PWH in longitudinal HIV care. Hospitalization data from 2014-2015 was obtained on all adults receiving HIV care at 14 diverse sites within the HIV Research Network in the United States. Modified clinical classification software from the Agency for Healthcare Research and Quality assigned primary ICD-9 codes into diagnostic categories. Analysis performed with multivariate negative binomial regression. Among 20,608 subjects during 2014-2015, all cause hospitalization rate was 201/1000PY. Non-AIDS defining infection (non-ADI) was the leading cause for admission (44.2/1000PY), followed by cardiovascular disease (CVD) (21.2/1000PY). In multivariate analysis of all-cause admissions, the incidence rate ratio (aIRR) increased with older age (age 18-29 reference): age 30-39 aIRR 1.09 (0.90,1.32), age 40-49 1.38 (1.16,1.63), age 50-59 1.58 (1.33,1.87), and age >/= 60 2.14 (1.77,2.59). Hospitalization rates increased significantly with age for CVD, endocrine, renal, pulmonary, and oncology. All cause hospitalization rates increased with older age, especially among non-communicable diseases (NCDs), while non-ADIs remained the leading cause for hospitalization. HIV providers should be comfortable screening for and treating NCDs.


BACKGROUND/OBJECTIVES: Individuals with HIV are susceptible to visceral fat accumulation, which confers an increased risk of cardiometabolic disease. Advanced software to ascertain visceral fat content from dual-energy X-ray absorptiometry (DXA) has not been validated among this population. We sought to compare DXA with computed tomography (CT) in the measurement of visceral fat cross-sectional area (VAT) in HIV and non-HIV using Bland-Altman analyses.

SUBJECTS/METHODS: Data were combined from five previously conducted studies of individuals with HIV (n = 313) and controls without HIV (n = 144) in which paired DXA and CT scans were available. In cross-sectional analyses, DXA-VAT was compared with CT-VAT among participants with and without HIV. In longitudinal analyses, changes in VAT over time were compared between DXA and CT among participants with and without HIV receiving no intervention over 12 months and among individuals with HIV receiving tesamorelin-a medication known to reduce VAT over 6 months. RESULTS: In HIV, DXA...
Impaired immunity is a common symptom of aging and advanced Human Immunodeficiency Virus type 1 (HIV-1) disease. In both diseases, a decline in lymphocytic function and cellularity leads to ineffective adaptive immune responses to opportunistic infections and vaccinations. Furthermore, despite sustained myeloid cellularity there is a background of chronic immune activation and a decrease in innate immune function in aging. In HIV-1 disease, myeloid cellularity is often more skewed than in normal aging, but similar chronic activation and innate immune dysfunction typically arise. Similarities between aging and HIV-1 infection have led to several investigations into HIV-1-mediated aging of the immune system. In this article, we review various studies that report alterations of leukocyte number and function during aging, and compare those alterations with those observed during progressive HIV-1 disease. We pay particular attention to changes within lymphoid tissue microenvironments and how histoarchitectural changes seen in these two diseases affect immunity. As we review various immune compartments including peripheral blood as well as primary and secondary lymphoid organs, common themes arise that help explain the decline of immunity in the elderly and in HIV-1-infected individuals with advanced disease. In both conditions, lymphoid tissues often show signs of histoarchitectural deterioration through fat accumulation and/or fibrosis. These structural changes can be attributed to a loss of communication between leukocytes and the surrounding stromal cells that produce the extracellular matrix components and growth factors necessary for cell migration, cell proliferation, and lymphoid tissue function. Despite the common general impairment of immunity in aging and HIV-1 progression, deterioration of immunity is caused by distinct mechanisms at the cellular and tissue levels in these two diseases.


HIV-positive patients are treated with various antiretroviral-containing drug combinations to control their underlying disease, which may also be combined with drugs aimed to manage independent or secondary comorbidities. This can expose patients to drug-drug interactions (DDIs) that may lead to suboptimal drug exposure, an increased risk of therapeutic failure or poor tolerability, and a need to adopt alternative therapeutic strategies. Although such undesired responses to pharmacological therapies can be appropriately managed in some situations, the fact that the available information is usually incomplete which makes it difficult (if not impossible) to assess DDIs and the consequent adjustments of polytherapies in clinical practice. For these reasons, we set up our ambulatory polytherapy management (Gestione Ambulatoriale Politerapie [GAP]) outpatient clinic in September 2016 to manage polypharmacy in HIV-infected patients. The main aims of the GAP clinic are to check whether patients are treated with drug combinations that are contraindicated due to known or predictable DDIs; assess the clinical and/or pharmacokinetic relevance of the DDIs; and provide written advice as to how the treatments should be modified if possible. We here describe the results of our 2-year experience in various clinical scenarios.


BACKGROUND: The study of stool microbiota has taken great relevance in the last years, given its role in the maintenance of the intestinal metabolic, physiological, and immunological homeostasis, as well as, its effect over HIV biomarkers levels such as CD4/CD8 ratio, high sensitivity C-Reactive Protein (hs-CRP), related to poor outcomes (rapid progression to AIDS). Several efforts have been made to characterize the gut microbiome. In HIV infection, most of the studies report the presence of a dysbiotic pattern; however, few of them have made an approach in elderly HIV-positive subjects despite the fact that nowadays this subgroup is rising. In this study, we compared the composition of faecal microbiota, Short Chain Fatty Acids (SCFAs), and systemic biomarkers between elderly HIV-positive and HIV-negative subjects. METHODS: A cross-sectional study with 18 HIV-negative controls and 20 HIV-positive patients. The quantification of Bacteroidetes, Firmicutes, Proteobacteria, Actinobacteria, Lactobacillus, Enterobacteriaceae, Bifidobacterium, Escherichia coli, Clostridium leptum, Clostridium cocoides was performed in faecal samples by qPCR. The analysis was performed by calculating the DeltaCq of each microorganism using 16S rDNA as a reference gene. Faecal SCFAs were measured by HPLC. The hs-CRP and sCD14 were performed by ELISA. RESULTS: An increase in the Firmicutes/Bacteroidetes ratio, coupled with a significant increase in the proteobacteria phylum was detected in HIV-positive subjects. In contrast, a decrease in the Clostridium leptum group was observed. Nevertheless, these elderly HIV-positive patients showed higher levels of total SCFAs mainly by an augmented propionic acid values, compared to HIV-negative subjects. Whereas high levels of hs-CRP were positively correlated with sCD14 in the HIV-positive group. CONCLUSIONS: Alterations in bacterial communities reveals a dysbiotic state related to an unbalance of faecal SCFAs. Therefore, these intestinal conditions might drive an increase of poor prognostic biomarkers in elderly HIV-positive subjects.


INTRODUCTION: Understanding the intersection of HIV, aging and health is crucial due to the increasing number of people aging with HIV. OBJECTIVE: The objective of the study was to assess the prevalence of, and risk factors for individual comorbidities and multi-morbidity in people living with HIV with similar duration of HIV infection, notwithstanding a 25-year difference at the time of HIV acquisition. METHODS: In a cross-sectional multicentre retrospective study, we compared three match-control age groups. The "Young" were selected from Romania and included HIV-positive patients prenatally infected and assessed at the age of 25-30 years. The "Old" and the "Geriatric" were selected from Italy. These respectively included subjects infected with HIV at the age of 25 years and assessed at the age of 50-55 years, and those infected at the age of 50 years and assessed at the age of 75-80 years. Each group was sex and age matched in a 1:5 ratio with controls selected from the CINECA ARNO database from Italy. We described non-infectious comorbidities (NICM), including cardiovascular disease, hypertension, dyslipidaemia, diabetes, chronic kidney disease, and multi-morbidity (MM >/= 3 NICM). RESULTS: MM prevalence in the "Young" group compared to controls was 6.2% vs 0%, while in the "Geriatric" was "68.2% vs 3.6%. Using "Young" as a reference, in multivariate analyses, predictors for MM were as follows: HIV serostatus (OR=47.75, IQR 14.78-154.25, p<0.01) and "Geriatric" vs "Young" (OR=30.32, IQR 5.89-155.98, p<0.01). CONCLUSION: These data suggest that age at acquisition of HIV should be considered as a risk factor for NICM and MM.

Purpose of Review: This review points out unmet medical needs and open research questions of older adults living with HIV. Starting from the definition of aging in HIV, it explores the mosaic of this condition at epidemiological, pathophysiological, and clinical level. Antiretroviral management and diverse models of care are critically discussed.

Recent Findings: Aging cohorts suggest HIV as a paradigm of chronic inflammation and immune activation with specific aging trajectory patterns in which antiretroviral therapy may play a role. In the absence of randomized clinical trials, observational cohorts show that therapy is driven by duration of HIV infection and burden of non-infectious comorbidities. This review suggests that geriatric approach should be used to recognize the complexity of aging goes beyond the viro-immunological success and management of progressive accumulation of non-communicable diseases. This requires recognition of frailty and geriatric syndromes to stratify patients' diversity by using comprehensive geriatric assessment tools.


Aim: The objective of this paper is to critically discuss potential new outcomes to be used as a measure of success for people living with HIV (PLWH) both in clinical and research settings.

Findings: This review critically discusses epidemiological, clinical, patient reported and public health outcomes in older adults living with HIV beyond the viro-immunological success. They include health adjusted life expectancy (HALE), frailty, health related quality of life (HRQoL), intrinsic capacity, all of which capture important aspects of the complexity of aging with HIV.

Message: HIV outcomes should go beyond viral undetectability, and be patient-centred. Abstract: In the short time frame of 30 years, HIV research has been able to modify AIDS from a rapidly progressive disease leading inevitably to death to a chronic condition. Even more, the health status of people living with HIV (PLWH) has significantly improved reducing the burden of symptoms and improving quality of life (QoL). After introduction of the UNAIDS agenda on the "90-90-90 targets", it remains unclear what should be the next target in HIV care and research. The objective of this paper is to critically discuss potential new outcomes to be used as a measure of success in PLWH both in clinical and research settings.

Methods: To better portray potential outcomes, we will critically discuss epidemiological and clinical outcomes, patient-reported outcomes (PRO), and public health outcomes reported in literature. These outcomes intersect with one another which may suggest contemporary use of different outcomes depending on goals we want to achieve. New outcomes should go beyond undetectability, be patient-centred, and similar to those in geriatric medicine and the general population.

Conclusions: HIV care can take advantage of experience from geriatric medicine and teach-back by describing aging trajectories in PLWH that may be accentuated in comparison to general population. However, we still need to improve tools to measure quality of life, PROs, and healthy aging. Healthy aging assessment will allow us to recognize unmet needs in PLWH and represents an integrated model between community, the person, and healthcare providers, wherein all stakeholders are linked, increasing possibilities for effective intervention. [ABSTRACT FROM AUTHOR]

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Background: Canada's population is aging, with nearly forty percent of Canadians aged 50 years or more. As the population ages, unique challenges related to health are becoming evident, including increasing rates of sexually transmitted and bloodborne infections. Understanding the epidemiology of HIV in older adults is important to guide prevention and control programs. Objective: To assess trends in newly diagnosed cases of HIV in Canada among those aged 50 years and older (> = 50 years) and those aged less than 50 (< 50 years), and to compare their basic demographic characteristics and exposure categories for the period of 2008 to 2017. Methods: National surveillance of HIV is conducted by the Public Health Agency of Canada through voluntary submission of data by provincial/territorial public health authorities. Descriptive analyses were conducted on reported cases of HIV between January 1, 2008, to December 31, 2017 to compare the demographic profiles and exposure category for the two age groups. Results: Between 2008 and 2017, the proportion of newly diagnosed HIV cases among those > = 50 years increased from 15.1% to 22.8%. The HIV diagnosis rates for both older...
males and older females increased over time, with a relatively higher increase for females. A higher proportion of newly diagnosed HIV cases were male in the older group (81.2%) compared to the younger group (74.6%). Among both older and younger males, the most common exposure category for HIV was being gay, bisexual and other men who have sex with men (gbMSM), followed by heterosexual contact and injection drug use; however, the relative proportions varied by age with the gbMSM category being higher in the <50 group. Conclusion: In Canada, over 20% of all newly diagnosed cases of HIV are now in people 50 years of age and older. HIV testing and prevention initiatives, historically aimed at younger populations, may not have the same impact for older populations. These data can be used to inform future public health actions designed to address HIV in older populations.


We assessed whether HIV status was associated with white matter hyperintensities (WMH), a neuroimaging correlate of cerebral small vessel disease (CSVD), in men aged >/=50 years. A cross-sectional substudy was nested within a larger cohort study. Virologically suppressed men living with HIV (MLWH) and demographically matched HIV-negative men aged >/=50 underwent magnetic resonance imaging (MRI) at 3 Tesla. Sequences included volumetric three-dimensional (3D) T1-weighted, fluid-attenuated inversion recovery and pseudocontinuous arterial spin labeling. Regional segmentation by automated image processing algorithms was used to extract WMH volume (WMHV) and resting cerebral blood flow (CBF). The association between HIV status and WMHV as a proportion of intracranial volume (ICV; log-transformed) was estimated using a multivariable linear regression model. Thirty-eight MLWH [median age 59 years (interquartile range, IQR 55-64)] and 37 HIV-negative [median 58 years (54-63)] men were analyzed. MLWH had median CD4(+) count 570 (470-700) cells/μL and a median time since diagnosis of 20 (14-24) years. Framingham 10-year risk of cardiovascular disease was 6.5% in MLWH and 7.4% in controls. Two (5%) MLWH reported a history of stroke or transient ischemic attack and five (13%) reported coronary heart disease compared with none of the controls. The total WMHV in MLWH was 1,696 μL (IQR 1,229-3,268 μL) or 0.10% of ICV compared with 1,627 μL (IQR 1,032-3,077 μL), also 0.10% of ICV in the HIV-negative group (p = .43). In the multivariable model, WMHV/ICV was not associated with HIV status (p = .86). There was an age-dependent decline in cortical CBF [-3.9 mL/100 mL/min per decade of life (95% confidence interval 1.1-6.7 mL)] but no association between CBF and HIV status (p > .2 in all brain regions analyzed). In conclusion, we found no quantitative MRI evidence of an increased burden of CSVD in MLWH aged 50 years and older.


BACKGROUND: Among older men, comparable cross-cultural investigations of sexual problems and associated distress that also include a multitude of relevant explanatory variables of these sexual problem and related distress are rare in the research literature. AIM: To investigate prevalence rates of sexual problems and associated distress among older men across 4 European countries (Norway, Denmark, Belgium, and Portugal) and assess for associated mental and physical health-related factors. METHODS: Multinational cross-sectional questionnaire study using self-report measures. OUTCOMES: Prevalence rates of sexual problems and associated distress levels. RESULTS: We found a high prevalence of sexual problems persisting for months or longer across countries, but noted that many affected men experienced minimal or no distress related to these problems. We also found marked cross-cultural differences in reported distress about sexual problems, with southern European men (ie Portugal) reporting significantly more distress related to the majority of sexual problems investigated compared with northern European men (ie Denmark and Norway). Finally, we identified several relational, physical, and mental health problems associated with the reported number of sexual problems and the distress related to these problems. CLINICAL IMPLICATIONS: We suggest that healthcare professionals also target distress when considering sexual problems among older men and contextualize these considerations within a multifactorial approach to general health in which (other) mental and physical health factors relevant to these patients’ sexual health and function are also jointly considered. STRENGTHS & LIMITATIONS: Strengths of this study include the large sample size, inclusion of participants from 4 European countries, assessment of distress associated with sexual problems, and similar research design and method of data collection across the 4 included countries. Limitations of the study include the cross-sectional design, which precludes causal conclusions; the low response rate in the Portuguese sample; the lack of homosexual participants; and the lack of comprehensive assessments of dyadic factors that may be of relevance to sexual problems and associated distress. CONCLUSION: This study identified a high prevalence of sexual problems persisting for 3 months or longer among older men across 4 European countries, but also found that many of the men with sexual problems...
Middle and older age are usually ignored in the studies of the processes of coming out. This paper analyses the
opportunities, and also the barriers which aging brings to the possibility of articulating one’s own sexual identity in relation
to others. It presents the life-course perspective as a suitable analytical tool for the study of the impact of historical context
and the changing social locations within the life-biography. Analysis presented in this paper is based on 19 in-depth
interviews with LGBT people aged fifty and older living in the Czech Republic. The paper focuses on the way they relate to
the idea of coming out and how they reflect on their previous biography with respect to the possibilities to articulate their
sexuality in various phases of their life. It analyses how aging creates possibilities as well as barriers to articulate sexual
In patients infected with the human immunodeficiency virus (HIV), the HIV-Tat protein may be continually produced despite adequate antiretroviral therapy. As the HIV-infected population is aging, it is becoming increasingly important to understand how HIV-Tat may interact with proteins such as amyloid beta and Tau which accumulate in the aging brain and eventually result in Alzheimer’s disease. In this review, we examine the in vivo data from HIV-infected patients and animal models and the in vitro experiments that show how protein complexes between HIV-Tat and amyloid beta occur through novel protein-protein interactions and how HIV-Tat may influence the pathways for amyloid beta production, degradation, phagocytosis, and transport. HIV-Tat may also induce Tau phosphorylation through a cascade of cellular processes that lead to the formation of neurofibrillary tangles, another hallmark of Alzheimer’s disease. We also identify gaps in knowledge and future directions for research. Available evidence suggests that HIV-Tat may accelerate Alzheimer-like pathology in patients with HIV infection which cannot be impacted by current antiretroviral therapy.


HealthDay News — Among US veterans with HIV infection, depressive symptoms are associated with a significantly increased risk for mortality, but depression is not, according to a study published online March 29 in HIV Medicine. Kaku So-Arman, PhD, from Boston University, and colleagues used data from the Veterans Aging Cohort Study (from baseline in April 2003 through September 2015) to assess the contribution of depression and depressive symptoms to mortality in adults with and without HIV...


OBJECTIVE: The objective was to evaluate the association between age-related comorbidities (ARCs) and 5-year HIV-related excess mortality in people living with HIV aged >/=60 years. DESIGN: Cohort study using relative survival analysis (Esteve's model). SETTING: The French multicentre prospective Dat’AIDS cohort that involves 12 French hospitals. PARTICIPANTS: Inclusion of 1415 HIV-1 infected patients actively followed aged >/=60 years on January 2008, with a 5-year follow-up period in the late combination antiretroviral therapy era. RESULTS: Among 1415 patients included, 154 died. By multivariable analysis, factors predictive of 5-year HIV-related excess mortality were non-AIDS-related cancer (adjusted excess HR (aEHR)=2.94; 95% CI 1.32 to 6.57), cardiovascular disease (aEHR=6.00; 95% CI 2.45 to 14.65), chronic renal disease (aEHR=4.86; 95% CI 2.24 to 10.53), cirrhosis (aEHR=3.58; 95% CI 1.25 to 10.28), hepatitis C co-infection (aEHR=3.63; 95% CI 1.44 to 9.12), body mass index<18.5 kg/m(2) (aEHR=4.10; 95% CI 1.61 to 10.48) and having a CD4 cell count </=200/mm(3) (aEHR=5.79; 95% CI 2.28 to 14.69). CONCLUSIONS: ARCs, particularly cardiovascular disease and chronic renal disease, are predictive of HIV-related excess mortality, with an increase in hazard similar to that of CD4 cell count. TRIAL REGISTRATION NUMBER: NCT02898987.


Summary Background Research is needed to better understand relations between immunosuppression and HIV viraemia and risk for non-Hodgkin lymphoma, a common cancer in people living with HIV. We aimed to identify key CD4 count and HIV RNA (viral load) predictors of risk for non-Hodgkin lymphoma, overall and by subtype.

Findings Of 102 131 people living with HIV during the study period, 712 people developed non-Hodgkin lymphoma. The key independent predictors of risk for overall non-Hodgkin lymphoma were recent CD4 count (ie, lagged by 6 months; <50 cells per μL vs ≥500 cells per μL, hazard ratio [HR] 3·2, 95% CI 2·2–4·7) and average viral load during a 3-year window lagged by 6 months (a cumulative measure; ≥100 000 copies per mL vs ≤500 copies per mL, HR 9·6, 95% CI 6·5–14·0). These measures...
OBJECTIVES: Nearly half of the population living with human immunodeficiency virus (HIV) in the United States is now older.


OBJECTIVES: Nearly half of the population living with human immunodeficiency virus (HIV) in the United States is now older than 50 years with at least 6% over age 65. Between 35% and 50% live with mild to moderate cognitive impairment. Older persons living with HIV (PLWH) also have a substantial burden of HIV-associated non-acquired immunodeficiency syndrome.
The number of people infected with human immunodeficiency virus (HIV) is rapidly increasing and the majority of those infected are living in sub-Saharan Africa. Some hallmarks of HIV are inflammation and upregulation of inflammatory markers. A pathological coagulation system may accompany these inflammatory changes and potentially result in venous thromboembolism such as a deep vein thrombosis (DVT). In this review, the authors describe the inflammatory profile in HIV, the treatment regimens currently in place in South Africa, and in particular how HIV affects the hematological system.
We assess long-term changes in lipid levels in human immunodeficiency disease- (HIV-) infected patients undergoing highly active antiretroviral treatment (HAART) and their association with diabetes mellitus (DM) and thyroid dysfunction. We observed changes in the levels of total cholesterol (TC) and total triglyceride (TG) of 63 HIV-infected patients in the 6 years from starting HAART and analyzed correlations between relevant parameters. TC levels of patients with normal baseline TC levels as well as those diagnosed with DM or impaired fasting glucose (IFG) increased significantly (P < 0.05) as did the TG levels of patients with normal baseline TG levels (P < 0.05). TC levels of patients with hypercholesterolemia in the year HAART was initiated were significantly higher than those of patients with normal baseline TC levels (P < 0.05) for all 6 years. TC levels of patients diagnosed with DM were significantly higher than those with euglycemia (P < 0.05) 2 and 4 years after HAART commencement. Levels of TC, high-density lipoprotein-cholesterol (HDL-C), and low-density lipoprotein-cholesterol (LDL-C) were correlated negatively with viral load, whereas levels of TC and very-low-density lipoprotein-cholesterol (VLDL-C) were correlated positively with CD4+ cell counts before HAART commencement. Linear mixed-effect model demonstrated disturbance of glucose metabolism and HAART containing nevirapine and CD4+ cell count were positively correlated with TC levels after HAART commencement. These findings suggest that there are changes in the lipid levels of patients undergoing HAART, with the potential risk of dyslipidemia.


Background: T cells play a key role in controlling viral infections; however, the underlying mechanisms regulating their functions during human viral infections remain incompletely understood. Here, we used CD4 T cells derived from individuals with chronic viral infections or healthy T cells treated with camptothecin (CPT) - a topoisomerase I (Top 1) inhibitor - as a model to investigate the role of DNA topology in reprogramming telomeric DNA damage responses (DDR) and remodeling T cell functions. Results: We demonstrated that Top 1 protein expression and enzyme activity were significantly inhibited, while the Top 1 cleavage complex (TOP1cc) was trapped in genomic DNA, in T cells derived from individuals with chronic viral (HCV, HBV, or HIV) infections. Top 1 inhibition by CPT treatment of healthy CD4 T cells caused topological DNA damage, telomere attrition, and T cell apoptosis or dysfunction via inducing Top1cc accumulation, PARP1 cleavage, and failure in DNA repair, thus recapitulating T cell dysregulation in the setting of chronic viral infections. Moreover, T cells from virally infected subjects with inhibited Top 1 activity were more vulnerable to CPT-induced topological DNA damage and cell apoptosis, indicating an important role for Top 1 in securing DNA integrity and cell survival. Conclusion: These findings provide novel insights into the molecular mechanisms for immunomodulation by chronic viral infections via disrupting DNA topology to induce telomeric DNA damage, T cell senescence, apoptosis and dysfunction. As such, restoring the impaired DNA topologic machinery may offer a new strategy for maintaining T cell function against human viral diseases.


with the first record of a nominal HIV-positive diagnostic test (1985-2015) or VL test (1996-2015), and remain unless administratively lost to follow-up (LTFU; no VL test for >2 years and no VL test in later years). Non-nominal diagnostic tests are excluded as they lack identifying information to permit linkage to other tests. However, individuals diagnosed non-nominally are included in the cohort with record of a VL test. The LTFU rule is applied to indirectly censor for death/migration. Findings to date As of the end of 2015, the datamart contained 40,372 HIV-positive diagnostic tests and 23,851 individuals with =1 VL test. Almost half (46.3%) of the diagnostic tests were non-nominal and excluded, although this was lower (~15%) in recent years. Overall, 29,587 individuals have entered the cohort--contributing 229,302 person-years of follow-up since 1996. Between 2000 and 2015, the number of diagnosed PLWH (cohort individuals not LTFU) increased from 8859 to 16,110, and the percent who were aged ≥45 years increased from 29.1% to 62.6%. The percent of diagnosed PLWH who were virally suppressed (<200 copies/mL) increased from 40.7% in 2000 to 79.5% in 2015. Future plans We plan to conduct further analyses of HIV care engagement and link to administrative databases with information on death, migration, physician billing claims and prescriptions. Linkage to other data sources will address cohort limitations and expand research opportunities. [ABSTRACT FROM AUTHOR]

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In this letter we advocate for greater inclusion of community members in the performance of research at the intersection of HIV and aging.


Early treatment of HIV infection with antiretroviral therapy in recently identified HIV-infected individuals reduces viral replication and decreases the risk of transmission. The screening and supplemental, confirmatory assays used to identify infection are influenced by early treatment and may obscure a clear diagnosis of HIV infection. In this issue of the Journal of Clinical Microbiology, Manak et al. demonstrate the impact of antiretroviral therapy on the evolution of biomarkers that have traditionally been used for identifying HIV infection (M. M. Manak, L. L. Jagodzinski, A. Shutt, J. A. Malia, et al., J Clin Microbiol 57:e00757-19, 2019, https://doi.org/10.1128/JCM.00757-19).

Klecker, M. (2019). After 25 years, Stillwater's Hope House is expanding its mission to serve people with HIV as they age, Star Tribune (Minneapolis, MN).


Detailed information of the effects of age and long-term HIV infection on various neurocognitive function have not been fully evaluated yet. In a prospective Japanese nationwide multicenter study of 17 facilities (J-HAND study), 728 HIV-infected individuals completed 14 neuropsychological (NP) tests; Verbal Fluency (VF; category and letter), Digit Span (DS; forward and backward), Trail Making Test (TMT) A-B, Rey-Osterrieth Complex Figure Test (ROCF; copy, immediate and delayed recall), Story Memory Test (SMT; immediate and delayed recall), Digit Symbol Subset (DSS), and the Grooved Pegboard (GP; dominant and non-dominant). Multivariate analysis identified older age (≥50 years) to be associated with lower scores in all three ROCFT and GP dominant [odds ratio (OR) [95% confidence interval (CI)] 1.801 (1.217-2.664), 2402 (1.366-3.055),
Recent evidence suggests the aging process is accelerated by HIV. Degradation of white matter (WM) has been independently associated with HIV and healthy aging. Thus, WM may be vulnerable to joint effects of HIV and aging. Diffusion-weighted imaging (DWI) was conducted with HIV-seropositive (n = 72) and HIV-seronegative (n = 34) adults. DWI independently associated with HIV and healthy aging. Thus, WM may be vulnerable to joint effects of HIV and aging. In DSS and TMT-A, longer time since diagnosis was associated with a better score [OR (95%CI): 0.808 (0.670-0.973) and 0.795 (0.665-0.949), respectively]. Older patients in later years since diagnosis are at higher risk of visuospatial and motor impairments despite ART, whereas they are less likely to develop verbal impairment, suggesting that verbal function is relatively resistant to aging and long history of HIV infection under ART. These findings suggest that custom tailored supports should be established based on the individual background.
data underwent tractography, which was parcellated into 18 WM tracts of interest (TOIs). Functional Analysis of Diffusion Tensor Tract Statistics (FADTTS) regression was conducted assessing the joint effect of advanced age and HIV on fractional anisotropy (FA), mean diffusivity (MD), axial diffusivity (AD), and radial diffusivity (RD) along TOI fibers. In addition to main effects of age and HIV on WM microstructure, the interactive effect of age and HIV was significantly related to lower FA and higher MD, AD, and RD across all TOIs. The location of findings was consistent with the clinical presentation of HIV-associated neurocognitive disorders. While older age is related to poorer WM microstructure, its detrimental effect on WM is stronger among HIV+ relative to HIV- individuals. Loss of WM integrity in the context of advancing age may place HIV+ individuals at increased risk for brain and cognitive compromise.


There is an emerging population of older adults living with HIV, and among them, Black older adults experience the greatest burden of the disease. This is a growing public health concern, as older adults are disproportionately diagnosed at a later stage of the disease, while reporting similar risk factors as younger adults. It has also been shown that the Black Church is well positioned to offer health screenings. Thus, this study aimed to assess HIV knowledge, beliefs, and risk behaviors of older church-affiliated Black adults. Data were collected from a sample of Black adults (N = 543) from four predominately Black churches in Kansas City, MO. Participants were surveyed on measures assessing demographic characteristics, HIV knowledge and attitudes, and HIV testing and risk behaviors. Results indicated that compared to younger Black adults, Black older adults were less knowledgeable about the transmission of HIV and were less willing to be tested for HIV in church settings. However, there was no significant difference on the perceived seriousness of HIV in the community. Results further showed that Black older adults were less likely to use condoms/barriers during the past 6 months and over their lifetime. We discuss the implications of results for HIV intervention programs.


Estimates indicate 70% of all individuals with HIV will be age 50 or older by 2030. Chronic conditions, including cardiovascular disease, diabetes mellitus, kidney disease, malignancies, neurocognitive disorders, and osteopenia or osteoporosis, occur more frequently in patients with HIV and have become the leading cause of morbidity in this population. NPs play an integral role in helping this population age healthfully.


People who inject drugs (PWID) face barriers to engagement in antiretro-viral treatment (ART) and medication-assisted treatment (MAT). We detail the design, rapid preparation and adaptation, and systematic implementation of a flexible, individually tailored intervention for PWID in multiple settings: Indonesia, Ukraine, and Vietnam. HPTN 074 integrated systems navigation and counseling to facilitate entry and adherence to ART and MAT. Site-level guidance on the intervention involved in-depth interviews (IDIs) among PWID and their supporters and site-specific document review. IDIs emphasized ART misinformation and importance of social support for adherence. The document review revealed differences in health care system barriers, requiring an intervention that was flexible and tailored enough to address key outcomes. Implementation included regular debriefs for iterative adaptations based on participants’ needs, including booster counseling sessions and subsidizing pre-ART testing. HPTN 074 provides a unique framework implementing a flexible and scalable intervention to improve ART and MAT outcomes among PWID across multiple settings.


BACKGROUND: The association between X4 virus and an increased risk of non-AIDS-events has been reported. Morbidity/mortality due to non-AIDS events, which are properly predicted by the CD4/CD8 ratio and VACS index, have
HIV infection is associated with an increased risk for developing B-cell lymphoproliferative disorders. The spectrum of disease differs in HIV-infected versus HIV-uninfected persons, with aggressive B-cell non-Hodgkin lymphomas constituting a higher proportion of all lymphoproliferative disorders in the HIV-positive population. Although antiretroviral therapy (ART) has significantly changed the landscape of lymphomas arising in HIV-infected persons, population growth and aging are reflected in the steady increase in non-AIDS-defining cancers. In the ART era, outcomes for HIV-infected lymphoma patients are similar to those of HIV-negative patients. This article reviews the diagnostic features and summarizes current biologic understanding of HIV-associated lymphomas.


In Greek mythology, Tithonus was granted eternal life but not eternal youth. As time passes he withers, slowly losing his health and all that he knew, lamenting a cruel immortality. (1).


To explore reasons for the disproportionate metabolic and cardiovascular disease burdens among older HIV-infected persons, we investigated whether associations of CD4 count and HIV viral load (VL) with non-high-density lipoprotein cholesterol (non-HDL-C) and high-density lipoprotein cholesterol [HDL-C] differed by age. Longitudinal clinical and laboratory data were collected between 2011 and 2016 for HIV-infected outpatients in the DC Cohort study. Using data for patients aged >/=21 years with >/=1 cholesterol result and contemporaneous CD4/VL results, we created multivariable linear regression models with generalized estimating equations. Among 3,912 patients, the median age was 50 years, 78% were male, 76% were non-Hispanic black, 93% were using antiretroviral therapy, 8% had a CD4 count <200 cells/µL, and 18% had an HIV VL >/=200 copies/mL. Overall, CD4 count <200 (vs. >500) cells/µL and VL >/=200 copies/mL were associated with lower non-HDL-C concentrations (p < .01), but associations were more positive with increasing age (CD4-age/VL-age interactions, p < .01). CD4 count <200 cells/µL was associated with lower non-HDL-C among patients aged <50 years [beta = -7.8 mg/dL (95% confidence interval, CI: -13.2 to -2.4)] but higher non-HDL-C among patients aged 60-69 years [beta = +8.1 mg/dL (95% CI: 0.02-16.2)]. VL >/=200 copies/mL was associated with lower non-HDL-C among patients aged <50 years [beta = -3.3 mg/dL (95% CI: -6.7 to 0.1)] but higher non-HDL-C among patients aged >/=70 years [beta = +16.0 mg/dL (95% CI: -1.4 to 33.3)], although precision was reduced in age-stratified analyses. Although no age differences were detected for HDL-C, VL >/=200 copies/mL was more strongly associated with lower HDL-C concentrations when CD4 count was <200 cells/µL [beta = -7.0 mg/dL (95% CI: -9.7 to -4.3)] versus 200-500 cells/µL [beta = -4.2 (95% CI: -5.9 to -2.6)] or >/=500 cells/µL [beta = -2.2 (95% CI: -3.7 to -0.8)] (CD4-VL interaction, p < .01). We detected a novel age-modified relationship between immunosuppression and viremia and atherogenic cholesterol patterns. These findings may contribute to our understanding of the high risk of dyslipidemia observed among persons aging with HIV.


Research in the last decade has explored the length of telomeres, the protective ends of eukaryotic chromosomes, as a biomarker for the cumulative effects of environmental exposures and life experiences as well as a risk factor for major diseases. With a growing interest in telomere biology across biomedical, epidemiological and public health research, it is critical to ensure that the measurement of telomere length is performed with high precision and accuracy. Of the several major methods utilized to determine telomere length, quantitative PCR (qPCR) remains the most cost-effective and suitable method for large-scale epidemiological and population studies. However, inconsistencies in recent reports utilizing the qPCR method highlight the need for a careful methodological analysis of each step of this process. In this review, we summarize each critical step in qPCR telomere length assay, including sample type selection, sample collection, storage, processing issues and assay procedures. We provide guidance and recommendations for each step based on current knowledge. It is clear that a collaborative and rigorous effort is needed to characterize and resolve existing issues related to sample storage, both before and after DNA extraction, as well as the impact of different extraction protocols, reagents and post process extraction across all tissue types (e.g. blood, saliva, buccal swabs, etc.) to provide the needed data upon which best practices for TL analyses can be agreed upon. Additionally, we suggest that the whole telomere research community be invited to collaborate on the development and implementation of standardized protocols for the assay itself as well as for reporting in scientific journals. The existing evidence provides substantial support for the continuation of telomere research across a range of different exposures and health outcomes. However, as with any technological or methodologic advance in science, reproducibility, reliability and rigor need to be established to ensure the highest quality research.


Aim: To evaluate prior prevalence of HIV indicator conditions in late-presenters with HIV infection. Design: Retrospective cohort study between 2000 and 2014 in a healthcare network in Melbourne, Australia comparing patients presenting with late diagnosis of HIV infection (CD4 < 350 cells/ml) to those patients who had a CD greater than or equal to 350 cells/ml at presentation. Method: The European AIDS Clinical Society guidelines on HIV indicator guided testing were used to assess for any indicator conditions in their prior medical history which may have represented a missed opportunity for earlier diagnosis. Main outcome measures: Descriptive statistics and prevalence of HIV indicator conditions. Results: Of 436 patients with HIV infection, 82 were late presenters. Late presenters were more commonly male (83% vs. 75%, P = 0.11), older (mean age 45 vs. 39 years), born overseas (61% vs. 58%, P = 0.68) and report heterosexual transmission as their exposure risk (51% vs. 31%, P < 0.001). Of 80 patients with late presentation of HIV infection, 54 (55%) had at least one, 29 (36%) at least 2, 12 (15%) at least 3 and 5 (6%) had 4 or more previous HIV indicator conditions which would have triggered HIV testing according to guidelines. The most common indicator conditions were: unexplained loss of weight (31%), herpes zoster (10%), thrombocytopenia or leukopenia (10%), oral or oesophageal candidiasis (10%) and community acquired pneumonia (9%). Twenty patients (25%) had HIV indicator conditions diagnosed at least 12 months before the eventual diagnosis of HIV infection. Discussion/ Conclusion: Patients diagnosed with late-presenting HIV often had an HIV indicator condition prior to presentation, presenting a missed opportunity for earlier diagnosis.


BACKGROUND: Metabolic disorders presenting in HIV-infected patients on antiretroviral therapy (ART) may increase the risk of osteoarthritis. However, structural changes of the knee in HIV infected subjects are understudied. The aim of this study is to investigate knee cartilage degeneration and knee structural changes over 8 years in subjects with and without HIV infection determined based on the use of ART. METHODS: We studied 10 participants from the Osteoarthritis Initiative who received ART at baseline and 20 controls without ART, frequency matched for age, sex, race, baseline body mass index (BMI) and Kellgren & Lawrence grade. Knee abnormalities were assessed using the whole-organ magnetic resonance imaging score (WORMS) and cartilage T2 including laminar and texture analyses were analyzed using a multislice-multiecho spin-echo sequence. Signal abnormalities of the infrapatellar fat pad (IPFP) and suprapatellar fat pad (SPFP) were assessed separately using a semi-quantitative scoring system. Linear regression models were used in the cross-sectional analysis to compare the differences between ART/HIV subjects and controls in T2 (regular and laminar T2 values, texture parameters) and morphologic parameters (subscores of WORMS, scores for signal alterations of IPFP and SPFP). Mixed effects models
were used in the longitudinal analysis to compare the rate of change in T2 and morphological parameters between groups over 8 years. RESULTS: At baseline, individuals on ART had significantly greater size of IPFP signal abnormalities (P = 0.008), higher signal intensities of SPFP (P = 0.015), higher effusion scores (P = 0.009), and lower subchondral cysts sum scores (P = 0.003) compared to the controls. No significant differences were found between the groups in T2-based cartilage parameters and WORMS scores for cartilage, meniscus, bone marrow edema patterns and ligaments (P > 0.05).

Longitudinally, the HIV cohort had significantly higher global knee T2 entropy values (P = 0.047), more severe effusion (P = 0.001) but less severe subchondral cysts (P = 0.002) on average over 8 years. CONCLUSIONS: Knees of individuals with HIV on ART had a more heterogeneous cartilage matrix, more severe synovitis and abnormalities of the IPFP and SPFP, which may increase the risk of incident knee osteoarthritis.


BACKGROUND: Few large projects have evaluated the factors that influence the HIV RNA concentrations (viral load) in cerebrospinal fluid (CSF) during antiretroviral therapy (ART) over time. We aimed to determine the correlates of HIV RNA in CSF in a large cohort. METHODS: We analysed longitudinal data from adults living with HIV in the US CHARTER cohort. Participants in the CHARTER study were recruited from six US academic medical centres-in Baltimore (MD), Galveston (TX), New York (NY), St Louis (MO), San Diego (C92A), and Seattle (WA). Participants in this study had been assessed at least three times between Sept 4, 2003, and Sept 14, 2010, and were taking ART and underwent venous and lumbar puncture with measurement of HIV RNA concentration at all assessments. The lower limit of quantification of the HIV RNA assays was 50 copies per mL. Data were analysed with longitudinal mixed effects logistic regression to identify correlates of HIV RNA concentration (as a binary [detectable or not] and as a continuous variable) in CSF over time. We tested demographic characteristics, plasma HIV RNA, nadir and current CD4 cell count in blood, current CD8 cell count in blood, estimated duration of HIV infection, AIDS diagnosis, duration of ART, adherence to ART, ART characteristics, and CSF characteristics as potential correlates. FINDINGS: At the time of analysis, 2207 assessments from 401 participants met the criteria for inclusion in this study. Mean duration of observation was 33.7 months (range 12-84). HIV RNA concentrations in 710 (32.2%) plasma specimens and in 255 (11.6%) CSF specimens were greater than the lower limit of quantification. The best multivariate model of HIV RNA concentration in CSF greater than the lower limit of quantification over time included increased plasma HIV RNA concentration (odds ratio 18.0 per 1 log10 copy per mL, 95% CI 11.3 to 28.8; p<0.0001), increased CD4 leukocyte count (2.01 per 5 cells per μL, 1.61 to 2.39; p=0.0001), decreased CD4 cell count (0.53 per 5 square-root cells per μL, 0.35 to 0.79; p=0.0025), decreased CNS penetration-effectiveness value (0.71 per unit, 0.56 to 0.92; p=0.0078), increased CD8 cell count (1.51 per 5 square-root cells, 1.11 to 2.06; p=0.0089), and protease inhibitor use (3.26, 1.04 to 10.23; p=0.039; model R(2)=0.22, p=0.0001). Analyses of continuous HIV RNA concentration in CSF that accounted for censoring below the lower limit of quantification had similar findings, although increased HIV RNA concentrations in CSF were also associated with black ethnicity (change in log10 HIV RNA concentration in CSF 0.0367 to 0.3733; p=0.017), increased total protein in CSF (0.0025, -0.0002 to 0.0052; p=0.069), and the presence of addictive-drug metabolites in urine (0.103, -0.013 to 0.219; p=0.081). INTERPRETATION: The identified correlates of HIV RNA concentration in CSF during ART could strengthen clinical prediction of risk for failure to achieve or maintain HIV RNA suppression in CSF. Because most participants in this analysis were ART-experienced and were taking a three-drug regimen that did not include an integrase inhibitor, future research should focus on participants who are taking their first ART regimen or regimens that include integrase inhibitors or two drugs. FUNDING: The work was supported by the National Institute of Mental Health and the National Institute of Neurological Disorders and Stroke.


Since the emergence of the human immunodeficiency virus at the beginning of the 1980s, the epidemic has spread extensively in all regions of the world. In France, there is still a significant number of new contaminations each year, mainly among men having sexual relations with men and heterosexuals born in Sub-Saharan Africa. The prevention efforts targeting the most exposed populations must be continued.

Studies suggest that inflammation might be involved in the pathogenesis of depression. Individuals with human immunodeficiency virus (HIV) have a higher risk of depression and elevated inflammatory profiles. Despite this, research on the link between inflammation and depression among this high-risk population is limited. We examined a sample of men who have sex with men from the Multicenter AIDS Cohort Study in prospective analyses of the association between inflammation and clinically relevant depression symptoms, defined as scores >20 on Center for Epidemiological Studies Depression Scale. We included 1,727 participants who contributed 9,287 person-visits from 1984 to 2010 (8,218 with HIV (HIV+) and 1,069 without (HIV-)). Exploratory factor analysis (EFA) was used to characterize underlying inflammatory processes from 19 immune markers. Logistic regression with generalized estimating equations was used to evaluate associations between inflammatory processes and depressive symptoms stratified by HIV serostatus. Three EFA-identified inflammatory processes (EIPs) were identified. EIP-1 scores—described by soluble tumor necrosis factor receptor 2 (sTNFR2), soluble interleukin-2 receptor alpha (sIL-2Ralpha), sCD27, B-cell activating factor, interferon gamma-induced protein 10 (IP-10), soluble interleukin-6 receptor (sIL-6R), sCD14, and sGP130—were significantly associated with 9% higher odds of depressive symptoms in HIV+ participants (odds ratio = 1.09; 95% confidence interval: 1.03, 1.16) and 33% higher odds in HIV- participants (odds ratio = 1.33; 95% confidence interval: 1.09, 1.61). Findings suggest that immune activation might be involved in depression risk among both HIV+ and HIV- men who have sex with men.


AIMS: This study examined the changes and the predictors of suicide ideation/suicide attempt and the moderating effects of psychosocial factors on the suicide ideation/suicide attempts among human immunodeficiency virus (HIV)-positive patients at 6-12 months post-diagnosis. BACKGROUND: Suicide behaviours are prevalent among newly diagnosed HIV-positive patients, but the changes in suicide behaviours after diagnosis and the role of psychosocial factors in these behaviours are not well studied. DESIGN: This study used a prospective longitudinal design. METHODS: A total of 113 participants diagnosed as HIV-positive for 6-12 months were recruited from the outpatient department. Data were collected from June 2015 - October 2016. They were asked to complete Beck's Scale for Suicide Ideation, the Beck Depression Inventory-II, the Body Image Scale, the Meaning in Life Questionnaire and the Multidimensional Scale of Perceived Social Support at baseline, the third month and the sixth month. RESULTS: The results showed the high occurrence rates for suicide ideation ranging from 27.2%, 21.6%, and 25.8% and suicide attempt ranging from 14.7%, 8.6%, and 13.3% at the baseline, the third month and the sixth month, respectively. The education level, social support from family and depressive symptoms were the predictors of suicide ideation. The history of depression disorders, depressive symptoms and social support from friends significantly predicted suicide attempt. Meaning in life-presence moderated the relationship between depressive symptoms and suicide ideation. CONCLUSIONS: After diagnosed for 6-12 months, HIV-positive patients remain the high-risk group for suicide ideation and attempt. Suicide intervention targeting the risk and protective factors are required for HIV-positive patients.


BACKGROUND: Regular physical activity (PA) has been recommended for the management of HIV and AIDS. The purpose of this study was to develop a contextually intervention for promoting PA among women living with HIV and AIDS (WLWHA) of low socioeconomic status (SES). A secondary aim of the study was to optimise the PA intervention using behavioural theory/ frameworks derived from preliminary studies and the literature. METHODS: The Behaviour Change Wheel (BCW) for designing behaviour change interventions was used. This method was further supplemented by evidence from the literature, systematic literature review (SLR), a concurrent mixed methods study and two cross-sectional studies. The SLR aided in determining the theoretical frameworks to inform the intervention, the specific PA behaviours to be targeted by the intervention, the intervention functions, the intervention policy category and the mode of delivery of the intervention. The concurrent mixed methods study was used to identify key factors that needed to change in order for participants to engage in regular PA. The first cross-sectional study was used to determine the gender to be targeted by the study. The second cross-sectional study was used to determine the domain and intensity of PA to target in the intervention. RESULTS: A face-to-face context-sensitive PA intervention employing 14 behavioural change techniques was designed. The PA intervention (a) utilised the Transtheoretical model of behaviour change and the Social Cognitive theory as the underpinning theoretical frameworks (b) included convenient PAs, such as walking, doing simple home-based exercises, engaging in activities of daily living or doing simple exercises at the community centre (c) used education, reward, training...
in PA, modelling exercise activities and enablement to increase the opportunity to engage in PA as intervention functions
(d) used service provision as policy priorities, and (e) used a direct face-to-face mode of delivery. CONCLUSIONS: The PA
intervention emphasises behavioural techniques for increasing PA participation, such as goal-setting, self-monitoring,
strategies for overcoming PA barriers, social support and rewards. The intervention employs strategies that highlight low-
cost local PA resources and opportunities to help HIV infected women of low SES to participate in PA. The BCW provides a
useful and comprehensive framework for the development of evidence and theory-based PA interventions for PLWHA of
low SES. The BCW can thus be used in the development of interventions that ‘talk’ to policy by bridging the health
inequality gap.

Maduka, D. O., et al. (2019). "Health Literacy Among In-Care Older HIV Diagnosed Persons with Multimorbidity: MMP NYS (Excluding
NYC)." AIDS Behav.

Older persons living with diagnosed HIV (PLWHD) are also at risk for age-related chronic conditions. With conflicting results
on studies assessing health literacy and durable viral suppression, this study is the first in assessing this relationship using
representative data on older in-care HIV-diagnosed persons with multimorbidity. Weighted data collected 2009-2014 from
the Medical Monitoring Project (MMP) was used. Health literacy was assessed using the three-item Brief Health Literacy
Screen (BHLS). The mean health literacy score was 11.22 (95% CI 10.86-11.59), and the mean multimorbidity was 4.75 (SE =
0.32). After adjusting, health literacy (OR 0.87, 95% CI 0.77-0.99) was found to be significantly associated with durable viral
suppression. Adequate health literacy can help with achieving durable viral suppression. For these persons, addressing
health literacy might increase their ability to access and navigate the healthcare system, thereby helping them stay engaged
and maintain adherence to HIV care.


BACKGROUND: Among people living with HIV (PLWH), the prevalence of non-HIV related co-morbidities is increasing. Aim
of the present study is to describe co-morbidity and multi-morbidity, their clustering mode and the potential disease-
disease interactions in a cohort of Italian HIV patients. METHODS: Cross-sectional analysis conducted by the Coordinamento
Italiano per lo Studio di Allergia e Infezioni da HIV (CISAI) on adult subjects attending HIV-outpatient facilities. Non-HIV co-
morbidities included: cardiovascular disease, diabetes mellitus, hypertension, oncologic diseases, osteoporosis, probable
case of chronic obstructive pulmonary disease (COPD), hepatitis C virus (HCV) infection, psychiatric illness, kidney disease.
Multi-morbidity was defined as the presence of two or more co-morbidities. RESULTS: One thousand and eighty-seven
patients were enrolled in the study (mean age 47.9 +/- 10.8). One hundred-ninety patients (17.5%) had no co-morbidity,
whereas 285 (26.2%) had one condition and 612 (56.3%) were multi-morbid. The most recurrent associations were: 1)
dyslipidemia + hypertension (237, 21.8%); 2) dyslipidemia + COPD (188, 17.3%); 3) COPD + HCV-Ab+ (141, 12.9%). Multi-
morbidity was associated with older age, higher body mass index, current and former smoking, CDC stage C and longer ART
duration. CONCLUSIONS: More than 50% of PLHW were multi-morbid and about 30% had three or more concurrent
comorbidities. The identification of common patterns of comorbidities address the combined risks of multiple drug and
disease-disease interactions.

Maggiolo, F., et al. (2019). "Bone mineral density in virologically suppressed people aged 60 years or older with HIV-1 switching from
a regimen containing tenofovir disoproxil fumarate to an elvitegravir, cobicistat, emtricitabine, and tenofovir alafenamide single-

BACKGROUND: Tenofovir alafenamide is associated with less renal and bone toxicity than tenofovir disoproxil fumarate and
might improve the long-term safety of antiretroviral therapy. We aimed to investigate the effect on bone mineral density of
switching from a regimen containing tenofovir disoproxil fumarate to one containing tenofovir alafenamide in participants
aged 60 years and older. METHODS: We did a prospective, open-label, multicentre, randomised trial in 36 European
centres. Participants were virologically suppressed (HIV-1 RNA <50 copies per mL), aged 60 years or older, on a tenofovir
disoproxil fumarate-containing regimen and were randomly assigned (2:1) via an interactive web-response system to open-
label elvitegravir (150 mg), cobicistat (150 mg), emtricitabine (200 mg), and tenofovir alafenamide (10 mg) daily or
continued therapy containing tenofovir disoproxil fumarate (300 mg). Participants were stratified by spine and hip bone
mineral density categories. Primary endpoints were change from baseline to week 48 in spine and hip bone mineral density
with a null hypothesis of zero between-group difference tested at a significance level of 0.05. This study was registered with
We assessed successful aging among older PLWH compared to older people without HIV. One hundred ten older men and women in Palm Springs, California completed a self-administered 28-question survey which collected data on physiological and psychosocial factors related to successfully aging with HIV, including demographics, HIV status, sexual activity, health and wellbeing, experiences of stigma or discrimination, feelings of isolation, receipt of disability benefits, work and volunteer participation, and presence of comorbid infectious diseases, non-infectious diseases, and geriatric syndromes. Most participants were male (96.4%), non-Hispanic white (84.5%), college educated (61.7%), and age ranged from 55-87 years (median = 64 years). PLWH were significantly older than people without HIV (p = 0.04). The overall prevalence of two or more comorbid conditions across the sample was 59.1%. PLWH were more likely to report depression (p = 0.008). PLWH were also significantly more likely to report having a current sex partner living with HIV (p < 0.001) and receiving disability benefits than people without HIV (41.9% vs 6.3%). Among PLWH, there was a significant relationship between not working or volunteering and feelings of isolation (p = 0.005). For people without HIV, we found a significant relationship between feelings of isolation and not living with someone (p < 0.001), but there was no such relationship among PLWH-possibly reflecting the strength of the support network for PLWH in Palm Springs. Our findings suggest that older PLWH experience successful aging to a similar degree compared to their peers without HIV. However, depression and social isolation remain highly salient issues that threaten successful aging and with which PLWH must contend.
Introduction: Combined antiretroviral therapy has transformed HIV infection into a chronic disease thus people living with HIV (PLWH) live longer. As a result, the management of HIV infection is becoming more challenging as elderly experience age-related comorbidities leading to complex polypharmacy and a higher risk for drug-drug or drug-disease interactions. Furthermore, age-related physiological changes affect pharmacokinetics and pharmacodynamics thereby predisposing elderly PLWH to incorrect dosing or inappropriate prescribing and consequently to adverse drug reactions and the subsequent risk of starting a prescribing cascade. Areas covered: This review discusses the demographics of the aging HIV population, physiological changes and their impact on drug response as well as comorbidities. Particular emphasis is placed on common prescribing issues in elderly PLWH including drug-drug interactions with antiretroviral drugs. A PubMed search was used to compile relevant publications until February 2019. Expert opinion: Prescribing issues are highly prevalent in elderly PLWH thus highlighting the need for education on geriatric prescribing principles. Adverse health outcomes potentially associated with polypharmacy and inappropriate prescribing should promote interventions to prevent harm including medication reconciliation, medication review, and medication prioritization according to the risks/benefits for a given patient. A multidisciplinary team approach is recommended for the care of elderly PLWH.


Epigenetic modifications such as DNA methylation are associated with both human immunodeficiency virus (HIV) infection and type 2 diabetes mellitus (T2DM). We investigated epigenetic associations with T2DM according to HIV infection status and assessed interaction effects among 681 male participants of the Veterans Aging Cohort Study. Methylation at previously reported sites, cg1963031 (TXNIP), cg18181703 (SOCS3), and cg09152259 (PROC), was significantly associated with T2DM in HIV-infected individuals. We identified 3 novel associations with suggestive statistical significance: cg1231141 (ADAMTS2), cg19534769 (HGFAC), and cg13163919 (TLE3). Suggestive interaction with HIV infection status was found at cg17862404 (TSC22D1). The implicated genes are involved in inflammation, pancreatic beta-cell function, and T2DM pathogenesis.


The focus of HIV interventions in Botswana, a country with the second highest prevalence of HIV in the world, remains targeted at those aged 15-49 years despite a growing cohort of older people living with the disease - driven largely by the successful roll-out of antiretroviral therapy (ART). Primarily utilising the Botswana AIDS Impact Survey IV, we set out to examine HIV related characteristics and behaviours of this often ignored older cohort (50-64 years) relative to younger (25-49 years) adults. Analysis revealed that more than 80% of older people living with HIV were on ART. HIV prevalence among this older cohort was 24.6% in 2013 compared to 35.1% among the younger cohort, p < 0.0001. Prevalence in older adults was higher among older males (27.8%) than females (21.9%), p = 0.02. Furthermore, 58.9% of older adults acknowledged being sexually active, with 59.0% of these admitting to inconsistent condom use during sexual intercourse. In addition to this low condom usage, older men (6.0%) were significantly more likely to be unaware of their HIV-positive status than older women (3.0%), p = 0.002. While HIV prevalence showed a dramatic increase among older men over time (17.2% in 2004, to 23.4% in 2008, to 27.8% in 2013), the trend was flatter among older women (16.3% in 2004, to 22.4% in 2008, to 21.9% in 2013). These trends are likely attributable to a large increase in ART coverage and uptake. Going forward, more targeted interventions acknowledging the ageing epidemic are important to consider.

Telomere length (TL) is a marker of cellular and biological aging. Human immunodeficiency virus (HIV) infection has been reported to be associated with short TLs, which suggests that accelerated biological aging occurs in some cellular compartments of HIV+ individuals. In this study, we measured the TLs of peripheral leukocytes of HIV+ and healthy individuals and examined the biological and environmental correlates of TL. We also investigated the influence of TL on leukoaraiosis, an indicator of cerebral small vessel disease, in HIV+ individuals. Three hundred and twenty-five HIV+ individuals who received stable combination antiretroviral therapy (cART) for >1 year and achieved viral loads of <40 RNA copies/mL were enrolled along with 147 healthy individuals. Relative TLs of leukocytes were estimated by quantitative real-time polymerase chain reaction. Leukoaraiosis was assessed in 184 HIV+ individuals by fluid-attenuated inversion recovery magnetic resonance imaging. We analyzed several covariates, including markers of HIV infection, cART, and social/environmental factors; variables associated with TL length in univariate analyses were incorporated into multivariate models. The TLs of peripheral leukocytes of HIV+ individuals were significantly shorter than those of healthy individuals, and the rate of LT length decline with increasing age was greater. Linear regression analysis showed that in HIV+ individuals, increasing age, cART without integrase-stand transfer inhibitors (INSTI), failure to achieve viral loads of <40 copies/mL within 1 year of initiating cART, and substance use were significantly associated with shorter TLs, even after adjustment for the effects of age. Logistic regression analysis indicated an increasing risk of leukoaraiosis was associated with older age, shorter TLs, hypertension, and carotid artery plaque. Multivariate regression analysis indicated that older age and shorter

Older persons living with HIV (PLWH), often defined as age 50 years and older, are a rapidly growing population, with high rates of chronic pain, substance use, and decreased physical functioning. No interventions currently exist that address all three of these health outcomes simultaneously. An 8-week behavioral intervention combining cognitive-behavioral therapy and tai chi reinforced with text messaging (CBT/TC/TXT) was developed and pilot tested in a community-based AIDS service organization with substance using PLWH aged 50 years and older who experienced chronic pain. Fifty-five participants were enrolled in a three arm randomized controlled trial that compared the CBT/TC/TXT intervention (N=18) to routine Support Group (SG) (N=19) and Assessment Only (AO) (N=18) to assess the intervention's feasibility, acceptability and preliminary efficacy to reduce pain and substance use and improve physical performance. Participants were assessed at baseline, treatment-end (week 8) and week 12. Feasibility and acceptability indicators showed moderate levels of participant enrollment (62% of those eligible), excellent 12-week assessment completion (84%) and high attendance at CBT and tai chi sessions (>60% attended at least 6 of 8 sessions). Efficacy indicators showed within-group improvements from baseline to week 12 in the CBT/TC/TXT group, including all four substance use outcomes, percent pain relief in the past 24 h, and in two physical performance measures. Observed between-group changes included greater reductions in days of heavy drinking in the past 30 days for both CBT/TC/TXT (19%) and SG (13%) compared to the AO group. Percent pain relief in the past 24 h improved in the CBT/TC/TXT group relative to SG, and the CBT/TC/TXT’s physical performance score improved relative to both the SG and AO groups. Findings demonstrate that the CBT/TC/TXT intervention is feasible to implement, acceptable and has preliminary efficacy for reducing substance use and pain and improving physical performance among a vulnerable population of older PLWH.


People aging with HIV (PAWH) infection experience greater impairments in physical and cognitive function, in addition to higher rates of peripheral comorbid conditions (e.g., renal failure, diabetes, bone fracture, hypertension, cardiovascular disease, polypharmacy, and multimorbidity). While multifactorial drivers, including HIV infection itself, antiretroviral therapy-related toxicities, disparities in care, and biobehavioral factors, likely contribute, there remains an overarching question as to what are the relevant age-related mechanisms and models that could inform interventions that promote health span and life span in PAWH? This workshop was convened to hear from experts on the biology of aging and HIV researchers studying PAWH to focus on advancing investigations at the interface of HIV and Aging. In this study, we summarize the discussions from the Harvard Center for AIDS Research and Boston Claude D. Pepper cosponsored workshop on HIV and Aging, which took place in October 2018.

polypharmacy in 9.4% of cases. Regarding the pattern of polypharmacy, 78.0% had a cardio-metabolic pattern, 12.0% depressive-psychogeriatric, 8.0% mixed and 2.0% mechanical-thyroidal. The ROC curve demonstrated that a value of medication complexity index of 11.25 point was the best cutoff for predict polypharmacy (AUC=0.931; sensitivity= 77.6%; specificity=91.8%). CONCLUSIONS: A cut-off value of 11.25 for MRCI is proposed to determine if a patient reaches the criterion of polypharmacy. In conclusion, the concept of polypharmacy should include not only the number of prescribed drugs but also the complexity of them.

In mental health and substance abuse treatment, individualized assessments provide information on the specific thoughts and cognitive processes influencing a person's behavior, emotional responses, and psychological functioning. Given the lack of automated assessment procedures or individualized clinical interventions in the growing health disparities in the South Los Angeles of USA, we developed a novel system using idiographic techniques to automatically and quickly generate individualized patient assessment data for use in clinical interventions.

HIV prevalence and morbidity in older in-patients in a high HIV prevalence setting. AIDS Res Hum Retroviruses.

Introduction Understanding of the burden of HIV infection and comorbid conditions in older adults is limited, especially in low- and middle-income countries. Antiretroviral therapy (ART) has increased longevity of HIV-positive individuals, making age related co-morbidities more likely. Objective To compare demographic and disease profiles, including chronic comorbid conditions of in-patients, at least 50 years of age, by HIV status, admitted to a regional hospital in South Africa. Methods Adults, aged 50 years and older, admitted to internal medicine wards from November 2015 to February 2016 were approached to participate. Socio-demographic data, laboratory results, anthropometric data, discharge diagnoses and HIV status were collected and compared by HIV serostatus. Results Overall, 151 participants were enrolled. Their median age was 61 years (IQR: 56-68 years); 89 (58.9%) were women. Overall 47 (31.1%) were HIV-positive, of whom 10 (6.6 %) were first diagnosed during the admission. HIV-positive in-patients were younger than HIV-negative patients. The leading discharge diagnoses of all participants was acute gastroenteritis (11.5%) and community acquired pneumonia (11.5%). Hypertension and type 2 diabetes mellitus (T2DM) were the leading co-morbidities in both HIV-negative and HIV-positive participants. Prevalence of hypertension was 75.0% in seronegative, 59.5% in those with a prior diagnosis of HIV, and 40.0% in newly diagnosed; similarly, prevalence of T2DM was 22.1% in HIV-negative and 24.3% in known HIV-positive participants. Similar proportions died during admission; 11.3% of HIV-negative and 12.7% of HIV-positive admitted in-patients died. Conclusion Almost one third of patients admitted were HIV-positive. In HIV-positive older admitted to hospital, leading cause for hospitalisation were co-infections. In the ART era, irrespective of HIV status, older patients have similar age-related chronic illnesses and similar mortality rates despite younger age at admission.


INTRODUCTION: This study evaluated knowledge about HIV/AIDS in elders using the services of Family Health Strategy. METHODS: Cross-sectional, descriptive, and analytical study involving 238 participants. Mini-Mental State Examination and QHIV3I were applied. RESULTS: About 30% of participants had active sexual lives and 5.5% used condoms consistently. The question with the highest score of right answers was about transmission through needles (95%) and the lowest (52.5%) was about whether individuals infected with the virus always displayed symptoms. CONCLUSIONS: It is necessary to train health professionals to develop actions that encourage elders to take preventive measures.

Progression of liver fibrosis following acute hepatitis C virus infection in HIV-positive MSM. AIDS 33(5): 833-844.

BACKGROUND: Whether continued, accelerated liver fibrosis progression occurs following acute hepatitis C virus infection (AHCVI) in HIV-positive MSM is unknown. DESIGN AND METHODS: HIV-positive MSM from the AIDS Therapy Evaluation in
the Netherlands and MSM Observational Study for Acute Infection with Hepatitis C-cohorts with primary AHCVI and at least
one fibrosis-4 (FIB-4) measurement less than 2 years before and 1 year after estimated AHCVI were included. Mixed-effect
linear models were used to evaluate (time-updated) determinants of FIB-4 levels over time. Determinants of transitioning
to and from FIB-4 < 1.45 and > 1.45 were examined using multistate Markov models. RESULTS: Of 313 MSM, median FIB-4
measurements per individual was 12 (interquartile range = 8-18) and median follow-up following AHCVI was 3.5 years
(interquartile range = 1.9-5.6). FIB-4 measurements averaged at 1.00 [95% confidence interval (CI) = 0.95-1.05] before
AHCVI, 1.31 (95% CI = 1.25-1.38) during the first year of AHCVI and 1.10 (95% CI = 1.05-1.15) more than 1 year after AHCVI.
Mean FIB-4 more than 1 year after AHCVI was higher for chronically infected patients compared with those successfully
treated (P = 0.007). Overall FIB-4 scores were significantly higher with older age, lower CD4 cell count, longer duration from
HIV-diagnosis or AHCVI, and nonresponse to HCV-treatment. At the end of follow-up, 60 (19.2%) and eight MSM (2.6%) had
FIB-4 between 1.45-3.25 and >/= 3.25, respectively. Older age, lower CD4 cell count and detectable HIV-RNA were
significantly associated with higher rates of progression to FIB-4 > 1.45, whereas older age, longer duration from HIV-
diagnosis and nonresponse to HCV-treatment were significantly associated with lower rates of regression to FIB-4 < 1.45.
CONCLUSION: In this population of HIV-positive MSM, FIB-4 scores were higher during the first year of AHCVI, but FIB-4 >/= 3.25 was uncommon by the end of follow-up. Well controlled HIV-infection appears to attenuate FIB-4 progression.


This review summarizes research discoveries within 4 areas of exercise immunology that have received the most attention
from investigators: (1) acute and chronic effects of exercise on the immune system, (2) clinical benefits of the exercise-
immune relationship, (3) nutritional influences on the immune response to exercise, and (4) the effect of exercise on
immunosenescence. These scientific discoveries can be organized into distinctive time periods: 1900-1979, which focused
on exercise-induced changes in basic immune cell counts and function; 1980-1989, during which seminal papers were
published with evidence that heavy exertion was associated with transient immune dysfunction, elevated inflammatory
markers, and increased risk of upper respiratory tract infections; 1990-2009, when additional focus areas were added to
the field of exercise immunology including the interactive effect of nutrition, effects on the aging immune system, and
inflammatory cytokines; and 2010 to the present, when technological advances in mass spectrometry allowed system
biology approaches (i.e., metabolomics, proteomics, lipidomics, and microbiome characterization) to be applied to exercise
immunology studies. The future of exercise immunology will take advantage of these technologies to provide new insights
on the interactions between exercise, nutrition, and immune function, with application down to the personalized level.
Additionally, these methodologies will improve mechanistic understanding of how exercise-induced immune perturbations
reduce the risk of common chronic diseases.


Self-perception of aging is an important predictor of quality of life. Therefore, we sought to examine self-perceptions of
aging (age discrepancy and aging satisfaction) between HIV-positive and HIV-negative men in the Multicenter AIDS Cohort
Study (MACS). We included 835 HIV-negative and 784 HIV-positive men aged 50 years and older who had completed a
survey about age discrepancy and aging satisfaction from the "Attitude toward own aging" subscale of the Philadelphia
Geriatric Center Morale scale. Multinomial generalized logit models were generated to assess self-perception of aging by
HIV-status. Most of the participants self-identified as white, former smokers, and had completed high school. HIV-positive
individuals reported higher prevalence of comorbidities than HIV-negative individuals. After adjusting for covariates,
positive age discrepancy (older subjective age) was positively associated with being HIV-positive and having less than a high
school education, depressive symptoms, diabetes, and medium and low aging satisfaction. Low aging satisfaction was
associated with being a current and former smoker and having depressive symptoms, diabetes, and no age and positive age
discrepancy. Being black had decreased odds of low aging satisfaction. These findings should inform health care
professionals to promote positive views of aging in the assessment and management of HIV, depression, and diabetes.


Objective: To understand the characteristics of sleep disorder in HIV positive and negative individuals, and compare the
distributions and epidemiologic characteristic of different subtypes of sleep disorder between two groups. Methods:
Significant advances in the treatment of Human Immunodeficiency Virus (HIV) have occurred in recent times, with life expectancy now approaching the normal population. Therefore, patients with HIV will increasingly be undergoing joint replacement in the future. However, concerns remain regarding the complications and outcome in this patient cohort. The aim was to assess the outcome of total hip and knee arthroplasty in HIV-infected patients. A systematic search of the literature using MOOSE reporting guidelines was performed to assess the outcome of hip and knee arthroplasty in HIV-infected patients. The primary outcome was infection. Secondary outcome was all-cause revision. The search yielded 552 results, of which 19 met the inclusion criteria, comprising 5,819,412 joint replacements. The overall quality of the studies was poor with significant heterogeneity between the studies. Infection and revision appeared to be more likely to occur in HIV positive patients compared to HIV negative patients. A subgroup analysis of four studies revealed a risk ratio of 3.31 and 2.25 for increase in infection and revision respectively in HIV positive patients. This systematic review and meta-analysis demonstrates an increased risk of infection and revision in HIV infected patients undergoing total hip and knee arthroplasty. However, these findings are based on poor quality evidence in a limited number of studies and need to be interpreted with caution. Further research should concentrate on large, well-designed, prospective studies, that control for co-morbidities and employ standardised outcome measures to allow for direct comparison.
BACKGROUND: More than 60% of people aging with HIV are observed to have multiple comorbidities, which are attributed to a variety of factors (eg, biological and environmental), with sex differences observed. However, understanding these differences and their contribution to medical resource utilization remains challenging as studies conducted exclusively and predominantly among males do not translate well to females, resulting in inconsistent findings across study cohorts and limiting our knowledge of sex-specific comorbidities. OBJECTIVE: The objective of the study was to provide further insight into aging-related comorbidities, their associated sex-based differences, and their contribution to medical resource utilization, through the analysis of HIV patient data matched by sex. METHODS: International Classification of Disease 9/10 diagnostic codes that comprise up to 4% of the adult population but may differ in experiences of genitourinary aging, given known health disparities and behavior differences. AIM: To examine and compare genitourinary and sexual complaints among older sexual minority and sexual majority adults. METHODS: We analyzed data from the 2010-2011 National Social Life, Health, and Aging Project (NSHAP), a nationally representative sample of older community-dwelling U.S. adults. Sexual minority men were defined as those who have sex with men or with both women and men. Sexual minority women were those who have sex with women or with both women and men. Descriptive statistics, weighted frequencies, and the chi-square test were used to compare outcomes by sexual orientation group and gender. MAIN OUTCOME MEASURES: Structured questionnaires examined sexual activity, practices, and genitourinary problems such as erectile dysfunction, insufficient vaginal lubrication, and urinary incontinence (UI). RESULTS: Of 2,813 participants (median age 69.6 years), 4.2% were sexual minorities (5.3% of men, 3.5% of women). Among men, sexual minorities were more likely to report UI (35.6% vs 21.8%; P = .029), but otherwise the 2 groups had similar prevalences of other urinary symptoms, importance of sexual activity, sexual practices, sexual activity within the last 3 months, and erectile difficulty (P > .10 for all). Among women, sexual minorities were more likely to report receiving oral sex (42.5% vs. 21.2%; P = .004), but otherwise the 2 groups had similar prevalences of UI, other urinary symptoms, importance of sexual activity, sexual activity within the last 3 months, and difficulty with lubrication (P > .10 for all). CLINICAL IMPLICATIONS: Sexual activity and sexual problems may be as common among older sexual minority adults as in their sexual majority counterparts, whereas UI may be more common in sexual minority men compared with sexual majority men. Therefore, clinicians should employ culturally-relevant health screening, diagnosis, and treatment to ensure reaching all adults regardless of sexual orientation. STRENGTHS & LIMITATIONS: Strengths include a national population-based sample of older adults that describes sexual and genitourinary health. Statistical power was limited by the small numbers of sexual minority individuals. CONCLUSION: Here we provide new evidence that older sexual minority men may experience UI more often than sexual majority men, and that sexual practices may differ between sexual minority and majority women, but frequency of sexual problems is similar. Given the challenges faced by sexual minority individuals in accessing equitable health care, clinicians must ensure that diagnosis and treatment are relevant to people of all sexual orientations. Obedin-Maliver J, Lisha N, Breyer BN. More Similarities Than Differences? An Exploratory Analysis Comparing the Sexual Complaints, Sexual Experiences, and Genitourinary Health of Older Sexual Minority and Sexual Majority Adults. J Sex Med 2019;16:347-350.

BACKGROUND AND OBJECTIVES: Older adults with HIV face greater health burden than HIV-uninfected counterparts. Little is known about resources that might mediate the influence of physiological health burden on psychological well-being. Informed by the stress process model, we assessed the influence of multifaceted health burden indicators on depressive symptoms and evaluated the mediating effects of social support adequacy. RESEARCH DESIGN AND METHODS: This cross-sectional study used structural equation modeling with data from 640 older men who participated in the Research on Older Adults with HIV study in the United States. Health burden assessment included number of age-related chronic conditions, multiple HIV-related chronic conditions, and self-rated health. Perceptions of instrumental and emotional support adequacy measured support as a coping resource. Depressed mood as assessed by the 10-item Center for Epidemiologic Studies Depression Scale was the indicator of psychological well-being. RESULTS: Higher incidence of age-related conditions and worse self-rated health was significantly associated with more depressed mood. Self-rated health and HIV-related conditions showed a significant indirect effect on depressed mood via emotional support adequacy. DISCUSSION AND IMPLICATIONS: Each dimension of health burden demonstrated a distinct pathway to psychological well-being for men with HIV, which should be considered when prioritizing care plans. Complementing research on medical interventions for people with HIV, these findings suggest that nonpharmacological interventions may be important for improving overall well-being.


BACKGROUND: Extra virgin olive oil (EVOO) has shown beneficial effects on the lipid profile and inflammatory parameters in general population. Our goal is to analyze these changes together with those of intestinal microbiota in human immunodeficiency virus (HIV)-infected patients over 50 years of age. METHODS: Experimental single arm open study. HIV patients over the age of 50 with undetectable viral load were selected. EVOO was distributed among the patients so that each one consumed 50 g daily for 12 weeks. Lipid profile, C-reactive protein (CRP), and intestinal microbiota composition were analyzed at the beginning and at the end of the intervention. RESULTS: Total cholesterol decreased significantly (5 mg/dL), and a nonsignificant decrease in low-density lipoprotein cholesterol (12 mg/dL), triglycerides (21 mg/dL), and CRP (1.25 mg/dL) was observed. There was a significant increase in alpha diversity after the intervention in men and a decrease in proinflammatory genera such as Dethiosulfovibrionaceae was observed. Differences were also observed in the microbiota of men and women and according to the type of antiretroviral treatment. CONCLUSION: Sustained consumption of 50 g of EVOO in elderly HIV-infected patients might be associated with an improvement in lipid profile and alpha diversity of intestinal microbiota.


OBJECTIVE: The aim of the study was to observe the acceptability and use of a mobile app on HIV infection in patients at least 60 years old and offer them the possibility of anonymously establishing contact with their peers. METHODS: A series of clinical and psychosocial parameters were studied in 30 HIV-infected patients of over 60 years. The patients must be at least 60 years old, with a follow-up in the outpatient clinic for at least 1 year and without pathologies that limit his or her life expectancy to less than a year. They must know how to read and write. To be part of the group assigned to the app, they had to have their own smartphone and confirm that they were connected to the internet from that device. Overall, 15 of them were randomized to use an app and 15 were in the control group. All tests were repeated after 6 months. RESULTS: The median age of patients was 66.5 years. Among them, 29 patients had an undetectable viral load at baseline. The median number of comorbid diseases was 2. Overall, 11 of them lived with their partners and 19 lived alone. They spent an average of 5 hours a day sitting down, and 56% (17/30) of them referred high physical activity. They scored 4 out of 5 for general quality of life perception. Moreover, 80% (24/30) presented high adherence to their treatment, and the average number of concomitant medications was 5. In the 6-min walking test, they covered a distance of 400 meters, and 3 of them desaturated during the test. The 15 patients made frequent use of the app, with 2407 sessions and an average of 7 min and 56 seconds time of use with a total of 13,143 screen views. During the 6 months of the trial, 3 non-AIDS events took place.

Sarcopenia, age-related low muscle mass and function, is a well-established independent risk factor for bone fracture in the geriatric population but is understudied in older people living with HIV (PLWH). The objective of this cross-sectional study was to investigate in older PLWH the relationship between muscle mass and bone mineral density (BMD). Sedentary PLWH who were >/=50 years of age, receiving antiretroviral therapy, and enrolled in an exercise intervention trial were included. Established definitions for sarcopenia and osteopenia/osteoporosis were applied to muscle mass data and BMD collected by dual-energy X-ray absorptiometry before exercise training. Participants were 93% male and 33% Caucasian race with median age 61 years, and median CD4 lymphocytes 707 cells/μL. The majority (64%) were overweight and obese by body mass index. Appendicular skeletal muscle index (ASMI) correlated with BMD at the femoral neck (r = 0.49, p < .01), total hip (r = 0.54, p < .01), and lumbar spine (r = 0.48, p < .05). Low BMD at the femoral neck was present in 39% (26% osteopenia, 13% osteoporosis). ASMI was lower among those with low BMD compared with normal BMD (p = .02). Low muscle mass measured by ASMI is associated with low BMD in clinically stable older PLWH. Detailed body composition assessment may help guide lifestyle recommendations to prevent bone fractures in older PLWH.
BACKGROUND: Treatment of hepatitis C virus infections (HCV) with direct acting antivirals (DAA) can prevent new infections.

OBJECTIVE: Findings on the influence of age and HIV on brain and cognition remain equivocal, particularly in aviremic subjects without other age or HIV-related comorbidities. We aimed to (a) examine the effect of HIV status and age on structural brain measurements and cognition, and (b) apply the machine learning technique to identify brain morphometric and cognitive features that are most discriminative between aviremic subjects with HIV on stable combination antiretroviral therapy (cART) and healthy controls. METHOD: Fifty-three HIV-seropositive patients and 62 healthy controls underwent neuropsychological testing (executive functions, attention, memory, learning, psychomotor speed, fluency) and volumetric MRI scans. Voxel-based morphometry, ANCOVAs, machine learning, and multivariate regression were conducted to determine the between group differences in terms of relationship of HIV status, age, and their interaction on neurocognitive and structural brain measures. RESULTS: Volume and gray matter (GM) thickness of the caudate, parahippocampus, insula, and inferior frontal gyrus were smaller in seropositive subjects in comparison with healthy controls (HC). They also performed worse in complex attention and cognitive fluency tasks. Support vector machine (SVM) analysis revealed that the best between-groups classification accuracy was obtained based on cognitive scores encompassing complex attention and psychomotor speed, as well as volumetric measures of white matter and total gray matter; third, fourth, and lateral ventricles; amygdala; caudate; and putamen. Both voxel-based morphometry (VBM) and regression analysis yielded that HIV and aging independently increase brain vulnerability and cognitive worsening.

CONCLUSION: Patients with HIV on effective cART demonstrate smaller volumetric measures and worse cognitive functioning relative to seronegative individuals. There is no interaction between HIV infection and aging. (PsycINFO Database Record (c) 2019 APA, all rights reserved).

There are distinct trajectories to cognitive impairment among participants in the Multicenter AIDS Cohort Study (MACS). Here we analyzed the relationship between regional brain volumes and the individual trajectories to impairment in a subsample (n = 302) of the cohort. 302 (167 HIV-infected; mean age = 55.7 yrs.; mean education: 16.2 yrs.) of the men enrolled in the MACS MRI study contributed data to this analysis. We used voxel-based morphometry (VBM) to segment the brain images to analyze gray and white matter volume at the voxel-level. A Mixed Membership Trajectory Model had previously identified three distinct profiles, and each study participant had a membership weight for each of these three trajectories. We estimated VBM model parameters for 100 imputations, manually performed the post-hoc contrasts, and pooled the results. We examined the associations between brain volume at the voxel level and the MMTM membership weights for two profiles: one considered "unhealthy" and the other considered "Premature aging." The unhealthy profile was linked to the volume of the posterior cingulate gyrus/precuneus, the inferior frontal cortex, and the insula, whereas the premature aging profile was independently associated with the integrity of a portion of the precuneus. Trajectories to cognitive impairment are the result, in part, of atrophy in cortical regions linked to normal and pathological aging. These data suggest the possibility of predicting cognitive morbidity based on patterns of CNS atrophy.

BACKGROUND: Treatment of hepatitis C virus infections (HCV) with direct acting antivirals (DAA) can prevent new infections since cured individuals cannot transmit HCV. However, as DAAs are expensive, many countries defer treatment to advances stages of fibrosis, which results in ongoing transmission. We assessed the epidemiological impact and cost-effectiveness of treatment initiation in different stages of infection in the Netherlands where the epidemic is mainly concentrated among HIV-infected MSMs. METHODS: We calibrated a deterministic mathematical model to the Dutch HCV epidemic among HIV-infected MSM to compare three different DAA treatment scenarios: 1) immediate treatment, 2) treatment delayed to chronic infection allowing spontaneous clearance to occur, 3) treatment delayed until F2 fibrosis stage. All scenarios are simulated from 2015 onwards. Total costs, quality adjusted life years (QALY), incremental cost-effectiveness ratios (ICERs), and epidemiological impact were calculated from a providers perspective over a lifetime horizon. We used a DAA price of...
INTRODUCTION: The elderly population is increasingly benefiting from recent technological advances. In this scenario, geolocation-based dating applications provide a viable alternative for finding partners in a practical and timely manner, but may be accompanied by certain risk behaviors for HIV infection. Although there are considerable number of users over 50 on these applications, no studies have addressed this problem. The aim of the present study was to analyze factors of vulnerability to HIV/AIDS among the population of men who have sex with men (MSM) age 50 years or older who use dating applications, no studies have addressed this problem. The aim of the present study was to analyze factors of vulnerability to HIV/Aids among the population of men who have sex with men (MSM) age 50 years or older who use dating apps. METHODS: This was a cross-sectional, population-survey-based, analytical study, conducted exclusively online with a sample of 412 MSM. The data was collected from the following apps: Grindr(R), Hornet(R), Scruff(R) and Daddy Hunter(R).

RESULTS: Factors associated with a higher chance of having HIV were: sexual relations with an HIV-infected partner (ORa=5.53; 95%CI=2.23-13.73); chemsex (ORa=3.97; 95%CI=1.72-8.92); and, above all, having an HIV-infected partner (ORa=8.02; 95%CI=2.01-32.01). The belief that apps increase protection against sexually transmitted infections (ORa=0.43;
The introduction of highly active antiretroviral therapy (HAART) resulted in a significant increase in life expectancy for HIV patients. Indeed, in 2015, 45% of the HIV+ individuals in the United States were >/=55 years of age. Despite improvements in diagnosis and treatment of HIV infection, geriatric HIV+ patients suffer from higher incidence of comorbidities compared to age-matched HIV- individuals. Both chronic inflammation and dysbiosis of the gut microbiome are believed to be major contributors to this phenomenon, however carefully controlled studies investigating the impact of long-term (>10 years) controlled HIV (LTC-HIV) infection are lacking. To address this question, we profiled circulating immune cells, immune mediators, and the gut microbiome from elderly (>/>=55 years old) LTC-HIV+ and HIV- gay men living in the Palm Springs area. LTC-HIV+ individuals had lower frequency of circulating monocytes and CD4+ T-cells, and increased frequency CD8+ T-
cells. Moreover, levels of systemic IFNγamma and several growth factors were increased while levels of IL-2 and several chemokines were reduced. Upon stimulation, immune cells from LTC-HIV+ individuals produced higher levels of pro-inflammatory cytokines. Last but not least, the gut microbiome of LTC-HIV+ individuals was enriched in bacterial taxa typically found in the oral cavity suggestive of loss of compartmentalization, while levels of beneficial butyrate producing taxa were reduced. Additionally, prevalence of Prevotella negatively correlated with CD4+ T-cells numbers in LTC-HIV+ individuals. These results indicate that despite long-term adherence and undetectable viral loads, LTC-HIV infection results in significant shifts in immune cell frequencies and gut microbial communities.


BACKGROUND: Risks for cardiovascular diseases, including myocardial infarction and stroke, are elevated in people with HIV infection (PWH). However, no trials of statin utilization with clinical cardiovascular disease (CVD) end points have been completed in PWH, and there are sparse real-world data regarding statin use and lipid-lowering effectiveness. We therefore used a unique cohort of PWH and uninfected controls to evaluate (1) differences in statin types used for PWH versus uninfected persons; (2) lipid lowering achieved by statin use for PWH versus uninfected persons; and (3) racial and ethnic disparities in appropriate statin use among PWH and uninfected persons. METHODS: We analyzed a cohort of 5,039 PWH and 10,011 uninfected demographically matched controls who received care at a large urban medical center between January 1, 2000, and May 17, 2017. Medication administration records, prescription data, and validated natural language processing algorithms were used to determine statin utilization. Statins were categorized by generic active ingredient name and intensity (high, moderate, or low). Lipid values collected in routine clinical care were available for analysis. The first set of analyses was restricted to PWH and uninfected matched controls taking statins and compared (1) differences in statin type and (2) difference in cholesterol levels after versus before statin initiation by HIV status. For the second set of analyses, we first used prevalent CVD risk factors to determine participants with statin indications and then determined how many of these participants were taking statins. We then compared statin utilization among persons with indications for statins by race/ethnic group for PWH and uninfected matched controls using multivariable-adjusted logistic regression. RESULTS: Among people prescribed statins, PWH were more likely than controls to have ever taken pravastatin (34.8% vs 12.3%, P < .001) or atorvastatin (72.2% vs 65.6%, P = .002) and less likely to have ever taken simvastatin (14.2% vs 39.5%, P < .001). Among PWH with indications for statin utilization, 55.7% of whites, 39.4% of blacks, and 45.8% of Hispanics were prescribed statins (P < .001). These differences in statin prescription by race/ethnicity remained significant after adjustment for demographics (including insurance status), cardiovascular risk factors, antiretroviral therapy use, HIV viremia, and CD4 count. These racial/ethnic disparities in statin utilization were less pronounced among uninfected persons. CONCLUSIONS: Among PWH with statin indication(s), blacks and Hispanics were less likely than whites to have been prescribed a statin. These racial/ethnic disparities were less pronounced among uninfected persons. There were significant differences in type of statin used for PWH compared to uninfected matched controls. Future efforts addressing disparities in CVD prevention among PWH are warranted.


BACKGROUND: Ambulatory function predicts morbidity and mortality and may be influenced by cardiopulmonary dysfunction. Persons living with HIV (PLWH) suffer from a high prevalence of cardiac and pulmonary comorbidities that may contribute to higher risk of ambulatory dysfunction as measured by 6-minute walk test distance (6-MWD). We investigated the effect of HIV on 6-MWD. METHODS: PLWH and HIV-uninfected individuals were enrolled from 2 clinical centers and completed a 6-MWD, spirometry, diffusing capacity for carbon monoxide (DLCO) and St. George's Respiratory Questionnaire (SGRQ). Results of 6-MWD were compared between PLWH and uninfected individuals after adjusting for confounders. Multivariable linear regression analysis was used to determine predictors of 6-MWD. RESULTS: Mean 6-MWD in PLWH was 431 meters versus 462 in 130 HIV-uninfected individuals (p = 0.0001). Older age, lower forced expiratory volume (FEV1)% or lower forced vital capacity (FVC)%, and smoking were significant predictors of decreased 6-MWD in PLWH, but not HIV-uninfected individuals. Lower DLCO% and higher SGRQ were associated with lower 6-MWD in both groups. In a combined model, HIV status remained an independent predictor of decreased 6-MWD (Mean difference = -19.9 meters, p = 0.005). CONCLUSIONS: HIV infection was associated with decreased ambulatory function. Airflow limitation and impaired diffusion capacity can partially explain this effect. Subjective assessments of respiratory symptoms may identify individuals at risk for impaired physical function who may benefit from early intervention.
With ageing, the potency of individual risk factors traditionally associated with common illnesses declines. Instead, it is becoming clear that the impact of a wide range of age-related deficits not traditionally considered as risk factors for these illnesses increases. These age-related deficits chiefly confer risk as a group, not individually. The many effects of age-related changes can be demonstrated epidemiologically, and in preclinical models, using a frailty index to distinguish between the contributions of traditional and non-traditional risk factors. Quantifying the contribution of age-related deficit accumulation in clinical and preclinical samples offers a powerful new tool for understanding mechanisms of age-related disease. It appears that a range of common late-life illnesses might be targeted by drugs aimed at ageing processes.


INTRODUCTION: People living with HIV (PLWH) on antiretroviral therapy (ART) do not progress to AIDS. However, they still suffer from an increased risk of inflammation-associated complications. HIV persists in long-lived CD4+ T cells, which form the major viral reservoir. The persistence of this reservoir despite long-term ART is the major hurdle to curing HIV. Importantly, the size of the HIV reservoir is larger in individuals who start ART late in the course of infection and have a low CD4+/CD8+ ratio. HIV reservoir size is also linked to the levels of persistent inflammation on ART. Thus, novel strategies to reduce immune inflammation and improve the host response to control the HIV reservoir would be a valuable addition to current ART. Among the different strategies under investigation is metformin, a widely used antidiabetic drug that was recently shown to modulate T-cell activation and inflammation. Treatment of non-diabetic individuals with metformin controls inflammation by improving glucose metabolism and by regulating intracellular immunometabolic checkpoints such as the adenosin 5 monophosphate activated protein kinase and mammalian target of rapamycin, in association with microbiota modification. METHODS AND ANALYSIS: 22 PLWH on ART for more than 3 years, at high risk of inflammation or the development of non-AIDS events (low CD4+/CD8+ ratio) will be recruited in a clinical single-arm pilot study. We will test whether supplementing ART with metformin in non-diabetic HIV-infected individuals can reduce the size of the HIV reservoir as determined by various virological assays. The expected outcome of this study is a reduction in both the size of the HIV reservoir and inflammation following the addition of metformin to ART, thus paving the way towards HIV eradication. ETHICS AND DISSEMINATION: Ethical approval: McGill university Health Centre committee number MP-37-2016-2456. Canadian Canadian Institutes of Health Research/Canadian HIV Trials Network (CTN) protocol CTNPT027. Results will be made available through publication in peer-reviewed journals and through the CTN website. TRIAL REGISTRATION NUMBER: NCT02659306.


OBJECTIVE: Obesity is a common, modifiable cardiovascular and cerebrovascular risk factor. Among people with HIV, obesity may contribute to multisystem dysregulation including cognitive impairment. We examined body mass index (BMI) and central obesity (waist circumference [WC]) in association with domain-specific cognitive function and 10-year cognitive decline in men with HIV infection (MWH) vs HIV-uninfected (HIV-) men. METHODS: A total of 316 MWH and 656 HIV-Multicenter AIDS Cohort Study participants >/=40 years at baseline, with neuropsychological testing every 2 years and concurrent BMI and WC measurements, were included. MWH were included if taking >/=2 antiretroviral agents and had HIV-1 RNA <400 copies/mL at >80% of visits. Mixed-effects models included all visits from 1996 to 2015, stratified by HIV serostatus, and adjusted for sociodemographic, behavioral, and clinical characteristics. At baseline and follow-up, 8% of MWH and 15% of HIV- men and 41% of MWH and 56% of HIV- men were >/=60 years, respectively. RESULTS: Cross-sectionally, higher BMI was inversely associated with motor function in MWH and HIV- men, and attention/working memory in HIV- men. WC was inversely associated with motor function in MWH and HIV- men. Longitudinal associations indicated an obese BMI was associated with a less steep decline in motor function in MWH whereas in HIV- men, obesity was associated with a greater decline in motor function, learning, and memory. WC, or central obesity, showed similar patterns of associations. CONCLUSION: Higher adiposity is associated with lower cognition cross-sectionally and greater cognitive decline, particularly in HIV- men. Overweight and obesity may be important predictors of neurologic outcomes and avenues for prevention and intervention.
BACKGROUND: Unlike their younger counterparts, some of today's older HIV patients were diagnosed before the advent of highly active antiretroviral therapy (HAART). The psychosocial and behavioral outcomes of people living with HIV (PLWH) have been widely studied, and associated factors are well known. However, their evolution both in terms of age and diagnosis-specific cohort effects is not well understood. METHODS: Data from the ANRS-VESPA2 cross-sectional survey, representative of French PLWH, were used to investigate whether psychosocial and behavioral outcomes such as quality of life, need for support and HIV status disclosure, evolve under both the influence of patients' age and diagnosis-specific cohort effects. A semi-parametric generalized additive model (GAM) was employed. The physical and mental components of health-related quality of life, the need for material and moral support, and HIV-status disclosure, constituted our outcomes. RESULTS: Non-linear diagnosis-specific cohort effects were found for physical and mental QoL and HIV-status disclosure. Overall, physical QoL was better in recently diagnosed patients than in those diagnosed in the early 1980s. An increasing influence of diagnosis-specific cohort effects between 1983 and 1995 was observed. No cohort effects were noticeable between 1996 and 2000, while an increasing influence was apparent for patients diagnosed with HIV from 2000 to 2011 (year of study). For mental QoL, the only increase was observed in participants diagnosed with HIV between 1983 and 2000. The relationship between diagnosis-specific cohort effects and HIV status disclosure was negative overall.
participants diagnosed after 2000 were much less likely to disclose than those diagnosed before 1995. The effect of age was significantly associated with all outcomes, with a non-linear influence on mental QoL and with the need for material/moral support. CONCLUSIONS: Psychosocial and behavioral outcomes are complex processes which can be explained in different ways by a combination of the clinical and social contexts which PLWH are exposed to at the time of diagnosis, and by developmental characteristics. A greater understanding of these processes could inform healthcare policy-making for specific HIV generations and different HIV age groups.


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This meta-analysis examined the effects of mindfulness-based interventions (MBIs) on stress, psychological symptoms, and biomarkers of disease among people living with HIV/AIDS (PLWHA). Comprehensive searches identified 16 studies that met the inclusion criteria (N = 1059; M age = 42 years; 20% women). Participants had been living with HIV for an average of 8 years (range = 1-20 years); 65% were currently on antiretroviral therapy. Between-group analyses indicated that depressive symptoms were reduced among participants receiving the MBIs compared to controls (d+ = 0.37, 95% CI 0.03, 0.71). Within-group analyses showed reductions in psychological symptoms (i.e., less anxiety, fewer depressive symptoms) and improved quality of life over time among MBI participants (d+s = 0.40-0.85). No significant changes were observed for immunological outcomes (i.e., CD4 counts) between- or within-groups. MBIs may be a promising approach for reducing psychological symptoms and improving quality of life among PLWHA. Studies using stronger designs (i.e., randomized controlled trials) with larger sample sizes and longer follow-ups are needed to clarify the potential benefits of MBIs for PLWHA.


Background: Recent evidence has demonstrated that MSM attending sexual health clinics who disclosed participating in chemsex (the use of mephedrone, crystal methamphetamine and γ-hydroxybutyrate/γ-butyrolactone (GHB/GBL) to enable, enhance and prolong sexual interactions) had a higher likelihood of being newly diagnosed with HIV-infection. It has been suggested that chemsex has increased among men having sex with men (MSM) attending sexual health clinics in large UK cities. Methods: The prospective cohort study, Attitudes to and Understanding Risk of Acquisition of HIV over Time (AURAH2), collected online questionnaire data from HIV negative or undiagnosed MSM (at enrolment) from 2015 to 2018, recruited from sexual health clinics. We aimed to investigate changes in chemsex, three individual drugs associated with chemsex, frequency of chemsex sessions and measures of sexual behaviour, among the cohort of MSM over the study's 3-year follow-up period. Results: In total 622 MSM completed at least one online questionnaire for the AURAH2 study, of which 400 (64.3%) were still engaged with the study within the last six months of follow-up. Prevalence of chemsex significantly declined during the follow-up from 31.8% (198/622) at the first online questionnaire, to 11.1% (8/72; p<0.001) at the 9th. This decline was reflected in the proportion of MSM reporting use of two of the three individual chemsex drugs: mephedrone use had significantly declined from 25.2% at the first online questionnaire to 9.7% (p<0.001) at the 9th, GHB/GBL use had also declined from 19.9% to 8.3% (p=0.001). While crystal methamphetamine use declined, but not significantly (11.1% to 6.9% [p=0.289]). Most measures of sexual behaviour (any anal sex, group sex, recent HIV test and bacterial STI) also tended to decline over the follow-up period, with the exception of CLAI with more than one and more than two partners. Conclusions: Chemsex and use of two individual chemsex drugs (mephedrone and GHB/GBL) significantly declined over time among individuals in the study, alongside most measures of sexual behaviour with the exception of those related to CLAI. Focusing health promotion and HIV prevention, such as awareness of post-exposure prophylaxis (PEP) and access to pre-exposure prophylaxis (PrEP), on MSM that report chemsex, and in particular problematic chemsex, would be highly beneficial, potentially only necessary for a relatively short period of time for individuals, and could have long term benefits for HIV and STI prevention.


Since the introduction of suppressive antiretroviral therapy (ART), HIV has become a chronic disease, with infected people in high-income countries approaching similar life expectancy to the general population. As this population ages, an increasing number of people with HIV are living with age-, treatment-, and disease-related comorbidities. Lifestyle factors such as smoking, alcohol abuse, and substance misuse have a role in age-related comorbidity. Some degree of immune dysfunction is suggested by the presence of markers of immune activation/inflammation despite effective suppression of HIV replication. Cumulative exposure to some antiretroviral drugs contributes to HIV-associated comorbidities, with risk increasing with age. Specifically, tenofovir disoproxil fumarate (TDF), ritonavir-boosted atazanavir, and ritonavir-boosted lopinavir are associated with renal impairment, and TDF is known to cause loss of bone mineral density. Tenofovir alafenamide (TAF) was developed to improve on the safety profile of TDF, while maintaining its efficacy. TAF has better stability in plasma, and higher intracellular accumulation of tenofovir diphosphate in target cells, which has resulted in improved antiviral activity at lower doses with improved renal and bone safety. TAF has been studied extensively in randomized clinical trials and real-world studies. TAF-based regimens are recommended over TDF-containing regimens for the improved safety profile.

Understanding why persons with human immunodeficiency virus (HIV) have accelerated atherosclerosis and its sequelae, including coronary artery disease (CAD) and myocardial infarction, is necessary to provide appropriate care to a large and aging population with HIV. In this review, we delineate the diverse pathophysilogies underlying HIV-associated CAD and discuss how these are implicated in the clinical manifestations of CAD among persons with HIV. Several factors contribute to HIV-associated CAD, with chronic inflammation and immune activation likely representing the primary drivers. Increased monocyte activation, inflammation, and hyperlipidemia present in chronic HIV infection also mirror the pathophysiology of plaque rupture. Furthermore, mechanisms central to plaque erosion, such as activation of Toll-like receptor 2 and formation of neutrophil extracellular traps, are also abundant in HIV. In addition to inflammation and immune activation in general, persons with HIV have a higher prevalence than uninfected persons of traditional cardiovascular risk factors, including dyslipidemia, hypertension, insulin resistance, and tobacco use. Antiretroviral therapies, although clearly necessary for HIV treatment and survival, have had varied effects on CAD, but newer generation regimens have reduced cardiovascular toxicities. From a clinical standpoint, this mix of risk factors is implicated in earlier CAD among persons with HIV than uninfected persons; whether the distribution and underlying plaque content of CAD for persons with HIV differs considerably from uninfected persons has not been definitively studied. Furthermore, the role of cardiovascular risk estimators in HIV remains unclear, as does the role of traditional and emerging therapies; no trials of CAD therapies powered to detect clinical events have been completed among persons with HIV.


Negative stereotypes regarding the sex lives of older adults persist, despite sexuality being an important factor that influences the quality of life. We conducted a systematic review of the qualitative literature on the sexuality and sexual health of older adults to address which topics have been researched and the quality of research within this field. We searched PsycINFO, SociINDEX, MEDLINE, and CINAHL for qualitative articles investigating the sexuality of adults aged 60+ years. We analyzed 69 articles using thematic analysis to synthesize their findings. We identified two overarching thematic categories: psychological and relational aspects of sexuality (personal meanings and understandings of sex, couplehood aspects, and sociocultural aspects) and health and sexuality (effects of illness and/or treatment on sexuality, and help-seeking behaviors). Research is needed into male sexual desire and pleasure, culture-specific and sexual/gender identities and their effect on outcomes such as help-seeking behavior and sexual satisfaction, and sexual risk-taking in older adults.


Information about the prevalence, and risk factors for subclinical atherosclerosis in an Asian HIV-infected population is limited. Carotid intima-media thickness (cIMT) is one predictor for the risk of cardiovascular disease (CVDs) and mortality. We evaluated the prevalence and risk factors related to carotid atherosclerosis among well-suppressed HIV-infected adults receiving long-term ART from Thailand. This was a cross-sectional study of HIV-infected adults >50 years of age and free from CVDs from Thailand during 1 March 2016 and 30 May 2017. Ultrasonography of the carotid was performed and read by cIMT experienced neurologists who were blinded from the patient care. Subclinical atherosclerosis was defined by carotid plaque or cIMT of the common carotid artery (CCA) >0.9 mm. Totally 316 HIV-infected adults (61% males) were included. Median age was 54.4 years and 15.8% were diabetic, 40.2% had hypertension, and 12.7% were current smokers. The median duration of ART was 16.3 years and 32% were currently on boosted protease inhibitor. The mean overall cIMT of the common carotid arteries were 0.63 (IQR 0.55-0.72) mm. Men had higher cIMT than women, 0.64 (IQR 0.56-0.76) vs. 0.60 (IQR 0.53-0.70), p = .03. Overall, 3.8% had cIMT >0.9 mm and 24.4% had carotid plaque. From the multivariate logistic regression analysis, age per 1 year increase [odds ratio (OR) 1.06; 95% confidence interval (CI) 1.003-1.12; p = .04] and nadir CD4 < 200 cells/mm(3) (OR 1.8; 95%CI 1.02-3.18, p = .04) were significantly associated with subclinical atherosclerosis. High-sensitivity C-reactive protein was not associated with subclinical atherosclerosis. In this well-suppressed HIV-infected Aging Asian cohort with relatively low prevalence of current smokers, 26.9% of them had subclinical atherosclerosis. Advanced age and low nadir CD4 cell count were significantly associated with subclinical atherosclerosis. Given that approximately a quarter of the patients had carotid plaques, longitudinal studies to evaluate the development of future overt coronary artery disease and stroke are warranted.

Neurocognitive impairment (NCI) remains a significant cause of morbidity in human immunodeficiency virus (HIV)-positive individuals despite highly active antiretroviral therapy (HAART). White matter abnormalities have emerged as a key component of age-related neurodegeneration, and accumulating evidence suggests they play a role in HIV-associated neurocognitive disorders. Viral persistence in the brain induces chronic inflammation associated with lymphocytic infiltration, microglial proliferation, myelin loss, and cerebrovascular lesions. In this study, gene expression profiling was performed on frontal white matter from 34 older HIV+ individuals on HAART (18 with NCI) and 24 HIV-negative controls. We used the NanoString nCounter platform to evaluate 933 probes targeting inflammation, interferon and stress responses, energy metabolism, and central nervous system-related genes. Viral loads were measured using single-copy assays. Compared to HIV-controls, HIV+ individuals exhibited increased expression of genes related to interferon, MHC-1, and stress responses, myeloid cells, and T cells and decreased expression of genes associated with oligodendrocytes and energy metabolism in white matter. These findings correlated with increased white matter inflammation and myelin pallor, suggesting interferon (IRFs, IFITM1, ISG15, MX1, OAS3) and stress response (ATF4, XBP1, CHOP, CASP1, WARS) gene expression changes are associated with decreased energy metabolism (SREBF1, SREBF2, PARK2, TXNIP) and oligodendrocyte myelin production (MAG, MOG), leading to white matter dysfunction. Machine learning identified a 15-gene signature predictive of HIV status that was validated in an independent cohort. No specific gene expression patterns were associated with NCI. These findings suggest therapies that decrease chronic inflammation while protecting mitochondrial function may help to preserve white matter integrity in older HIV+ individuals.
The number of older adults living with HIV (OALHIV) is increasing rapidly due to effective antiretroviral therapy. The current research describes sexual behavior, attitudes toward sex, and HIV transmission risk among OALHIV. Participants were HIV-infected persons aged 50 years and older enrolled from community hospitals in Chiang Mai Province, Northern Thailand. Of the 328 participants, 57.6% were women, and the average age was 58.8 years. The majority of participants (93.9%) had undetectable viral load. Most participants (77.1%) thought that it is ok/acceptable for PLHIV to have sex. About one-third of OALHIV participants were sexually active. Being male, younger, married, a previous smoker or a non-smoker, having a positive attitude toward sex, and not having a chronic health condition were independent predictors of having had sex in the last 12 months. Risk of HIV sexual transmission was likely low due to consistent condom use, undetectable viral load, and low instances of extramarital sex.

Srithanaviboonchai, K., et al. (2019). "Sexual Behavior and Attitudes Toward Sex of Older Adults Living with HIV." AIDS Behav.


BACKGROUND: Knowledge of health-related quality of life (HRQOL) of patients receiving opioid substitution treatment (OST) is limited and fragmented. The present study examines the HRQOL of a large national sample of OST patients in Germany and sociodemographic and clinical correlates. METHODS: Cross-sectional data on the HRQOL of 2176 OST patients was compared with German general population norms. Patients were recruited from 63 OST practices across Germany. To identify correlates of HRQOL, as measured with the SF-12, we performed bi- and multivariate analyses with sociodemographic and clinical variables, including patient- and clinician-reported outcomes on physical and mental health. RESULTS: Patients' HRQOL was significantly poorer than in the general population, especially their mental HRQOL. Factors associated with lower physical HRQOL were older age, longer duration of opioid dependence, hepatitis C virus infection, and HIV infection. Benzodiazepine use was associated with lower mental HRQOL, and amphetamine use with higher physical HRQOL, compared to non-use of these substances. For both mental and physical HRQOL, the factor with the strongest positive association was employment and the factors with the strongest negative associations were physical and mental health symptom severity, psychiatric diagnosis, and psychopharmacological medication. CONCLUSIONS: Compared to the general population, we found substantially lower HRQOL in OST patients, especially in their mental HRQOL. OST programs can benefit from further improvement, particularly with regard to mental health services, in order to better serve their patients' needs. Clinicians may consider the use of patient-reported outcome measures to identify patients' subjective physical and psychological needs. Further research is needed to determine if employment is a cause or consequence of improved HRQOL. TRIAL REGISTRATION: ClinicalTrials.gov: NCT02395198, retrospectively registered 16/03/2015.


BACKGROUND: Inflammatory processes may contribute to this risk. We evaluated the associations of 10 biomarkers of systemic inflammation (CRP, IL-6, sTNF-alphaR1 and 2), monocyte activation (CCL2, sCD163, sCD14), coagulation (fibrinogen, D-dimer), and endothelial dysfunction (ICAM-1) with subclinical carotid atherosclerosis among participants in the Multicenter AIDS Cohort Study (MACS). METHODS: Carotid plaque and intima media thickness (IMT) in the common carotid (CCA-IMT) and bifurcation region were assessed by B mode ultrasound among 452 HIV-infected and 276 HIV-uninfected men from 2010-2013. Associations between levels of each biomarker and presence of focal plaque and IMT were assessed by logistic and linear regression models, adjusting for demographics, risk behaviors, traditional cardiovascular disease (CVD) risk factors, and HIV disease characteristics. RESULTS: Compared to HIV-uninfected men, HIV-infected men had significantly higher levels of 8 of the 10 biomarkers. Overall, men with sCD163, CCL2, IL-6, and CRP levels in the highest quintile had approximately 2 times the odds of carotid plaque relative to those with levels in the lowest quintile, independent of demographic and CVD risk factors. Fibrinogen levels were positively associated with CCA-IMT while ICAM-1, CCL2, and sTNF-alphaR1 levels were positively associated with bifurcation-IMT. Among HIV-uninfected men, higher levels of sTNF-alphaR2 were positively associated with CCA-IMT, fibrinogen with bifurcation-IMT and carotid plaque, and ICAM-1 with cardiovascular events.
PURPOSE OF REVIEW: To summarize the state of chronic, treated HIV infection and its contribution to accelerated aging, and to evaluate recent research relevant to the study and treatment of aging and senescence. RECENT FINDINGS: Chronic treated HIV-1 infection is associated with significant risk of end-organ impairment, non-AIDS-associated malignancies, and accelerated physiologic aging. Coupled with the chronologic aging of the HIV-1-positive population, the development of therapies that target these processes is of great clinical importance. Age-related diseases are partly the result of cellular senescence. Both immune and nonimmune cell subsets are thought to mediate this senescent phenotype, a state of stable senescence. Both immune and nonimmune cell subsets are thought to mediate this senescent phenotype, a state of stable...
OBJECTIVE: Despite viral suppression and immune response on antiretroviral therapy, people with HIV infection experience excess mortality compared with uninfected individuals. The Veterans Aging Cohort Study (VACS) Index incorporates clinical biomarkers of general health with age, CD4 cell count, and HIV-1 RNA to discriminate mortality risk in a variety of HIV-positive populations. We asked whether additional biomarkers further enhance discrimination. DESIGN AND METHODS: Using patients from VACS for development and from the Antiretroviral Therapy Cohort Collaboration (ART-CC) for validation, we obtained laboratory values from a randomly selected visit from 2000 to 2014, at least 1 year after antiretroviral therapy initiation. Patients were followed for 5-year, all-cause mortality through September 2016. We fitted Cox models with established predictors and added new predictors based on model fit and Harrell's c-statistic. We converted all variables to continuous functional forms and selected the best model (VACS Index 2.0) for validation in ART-CC patients. RESULTS: Among 28,390 VACS patients and 12,109 ART-CC patients, 7293 and 722 died, respectively. Nadir CD4, CD8, and CD4:CD8 ratio did not improve discrimination. We compared discrimination using c-statistics and Kaplan-Meier plots. RESULTS: Among 28,390 VACS patients and 12,109 ART-CC patients, 7293 and 722 died, respectively. Nadir CD4, CD8, and CD4:CD8 ratio did not improve discrimination. Addition of albumin, white blood count, and BMI, improved c-statistics in VACS from 0.776 to 0.805 and in ART-CC from 0.765 to 0.805. Results were robust in all nine ART-CC cohorts, all lengths of follow-up and all subgroups. CONCLUSION: Addition of albumin, white blood count, and BMI, improved discrimination and is highly transportable to external settings.


OBJECTIVE: Despite viral suppression and immune response on antiretroviral therapy, people with HIV infection experience excess mortality compared with uninfected individuals. The Veterans Aging Cohort Study (VACS) Index incorporates clinical biomarkers of general health with age, CD4 cell count, and HIV-1 RNA to discriminate mortality risk in a variety of HIV-positive populations. We asked whether additional biomarkers further enhance discrimination. DESIGN AND METHODS: Using patients from VACS for development and from the Antiretroviral Therapy Cohort Collaboration (ART-CC) for validation, we obtained laboratory values from a randomly selected visit from 2000 to 2014, at least 1 year after antiretroviral therapy initiation. Patients were followed for 5-year, all-cause mortality through September 2016. We fitted Cox models with established predictors and added new predictors based on model fit and Harrell's c-statistic. We converted all variables to continuous functional forms and selected the best model (VACS Index 2.0) for validation in ART-CC patients. RESULTS: Among 28,390 VACS patients and 12,109 ART-CC patients, 7293 and 722 died, respectively. Nadir CD4, CD8, and CD4:CD8 ratio did not improve discrimination. Addition of albumin, white blood count, and BMI, improved c-statistics in VACS from 0.776 to 0.805 and in ART-CC from 0.765 to 0.805. Results were robust in all nine ART-CC cohorts, all lengths of follow-up and all subgroups. CONCLUSION: Addition of albumin, white blood count, and BMI, improved discriminiation and is highly transportable to external settings.

Tate, J. P., et al. (2019). "Improved discrimination of mortality with Veterans Aging Cohort Study (VACS) Index 2.0 in HIV-positive individuals." AIDS.
Background: Alcohol use disorders (AUDs) are highly prevalent in people living with HIV (PLWH) and are associated with increased HIV risk behaviors, suboptimal treatment adherence, potential interaction with medication pharmacodynamics, and greater risk for disease progression. Preclinical studies show that chronic binge alcohol administration accelerates disease progression and aggravates pathogenesis in the simian immunodeficiency virus (SIV)-infected rhesus macaque.


PURPOSE OF REVIEW: To summarize global efforts to accelerate access to simpler, safer and more affordable antiretroviral drugs and how this has shaped HIV treatment policy over the last decade, and outline future priorities. Several expert consultations aimed at aligning opportunities for optimization of antiretroviral drugs have been convened by WHO in partnership with academic institutions, international agencies, innovators and manufacturers. The increased access to lifelong treatment for people living with HIV also brings about new challenges in the long-term use of antiretroviral (ARVs).

RECENT FINDINGS: The article describes the evolution of global research agenda on ARV optimization ascribing the characteristics of a target product profile, the importance of sequencing of first-line and second-line regimens, the role of programmatic data when looking at policy transition for new ARVs, inclusion of more subpopulations living with HIV, as well as the challenges in identifying what improvements can be made in an era where drugs are already safe, tolerable and efficacious. SUMMARY: Within a framework of evolving treatment harmonization and simplification, future therapeutic options in development must take into consideration safety and efficacy across a range of patient populations as well as the mode of administration in the context of lifelong therapy.


Combination antiretroviral therapy has completely changed the landscape of HIV infection through the control of viral replication of the virus, the restoration of the immune system damage, and the reduction of the complications associated with immunodeficiency. As a consequence, the average age of people living with HIV has been increasing progressively, with a high proportion of diagnosed, as well as newly diagnosed, HIV-infected patients being older than 50 years throughout the world. With the longer life expectancy, characteristics commonly observed in aging are occurring in people with long-term HIV infection, including multiple chronic diseases, changes in cognitive and physical abilities, and the use of multiple medications. HIV-related specific factors, as well as a higher prevalence of environmental, classical factors, increase the risk of comorbidities in the aging HIV-infected population. A close collaboration between different specialists (HIV specialists, geriatricians, primary care physicians, and other specialists) is required to manage the clinical problems that older HIV-infected patients may present. [ABSTRACT FROM AUTHOR]
model despite viral suppression by antiretroviral therapy. Methods: To translate preclinical findings in the rhesus macaque model of chronic binge alcohol administration and SIV infection and to address areas of uncertainty surrounding the biological mechanisms and socioenvironmental modifiers that contribute to the relationship between alcohol use and HIV-associated comorbidities, precocious aging, and disease progression, we designed a translational multiproject, longitudinal, cohort study, and the New Orleans Alcohol Use in HIV (NOAH) Study. The NOAH Study is led by a multidisciplinary team of scientists, with a research focus on the interaction of AUD and HIV. The overarching hypothesis is that alcohol use will lead to adverse health outcomes in PLWH. In this report, we describe the study design and baseline descriptive characteristics of our cohort. Results: Three-hundred and sixty-five participants completed the baseline testing. The cohort is predominantly male (69%) and African American (83.5%). The majority of participants report incomes below 200% of the federal poverty level. CD4 counts <200 cells/μl were found in 12.8% and viral loads <50 copies/ml were found in 73.6%. These HIV status variables did not differ based upon alcohol use. Conclusions: The NOAH Study facilitates bidirectional translational investigation of alcohol's impact on PLWH. Translation of preclinical findings to PLWH permits confirmation of basic biological mechanisms in humans and also allows incorporation of sociobehavioral factors that may affect biology but are challenging to replicate in preclinical models. The NOAH Study is led by a multidisciplinary team of scientists at LSUHSC, with a research focus on the interaction of AUD, HIV, and cART. This clinical study translates preclinical findings in the rhesus macaque model of chronic binge alcohol administration and SIV infection and facilitates bidirectional translational investigation of alcohol's impact on PLWH. Studies address areas of uncertainty surrounding the biological mechanisms and socioenvironmental modifiers that contribute to the relationship between alcohol use and HIV-associated comorbidities, precocious aging, and disease progression. [ABSTRACT FROM AUTHOR]
INTRODUCTION: People living with HIV (PLHIV) on antiretroviral therapy (ART) experience high rates of non-communicable diseases (NCDs). These co-morbidities often accumulate and older adults may suffer from multimorbidity. Multimorbidity has been associated with loss of quality of life, polypharmacy, and increased risk of frailty and mortality. Little is known of the trends or predictors NCD multimorbidity in PLHIV in low- and middle-income countries. METHODS: We examined NCD multimorbidity in adult PLHIV initiating ART between 2003 and 2014 using a multi-site, observational cohort in Brazil. NCDs included cardiovascular artery disease, hyperlipidemia (HLD), diabetes, chronic kidney disease, cirrhosis, osteoporosis, osteonecrosis, venous thromboembolism and non-AIDS-defining cancers. Multimorbidity was defined as the incident accumulation of two or more unique NCDs. We used Poisson regression to examine trends and Cox proportional hazard models to examine predictors of multimorbidity. RESULTS: Of the 6206 adults, 332 (5%) developed multimorbidity during the study period. Parallel to the ageing of the cohort, the prevalence of multimorbidity rose from 3% to 11% during the study period. Older age, female sex (adjusted hazard ratio (aHR) = 1.30 (95% confidence interval (CI) 1.03 to 1.65)) and low CD4 nadir (<100 vs. >/=200 cells/mm(3) aHR = 1.52 (95% CI: 1.15 to 2.01)) at cohort entry were significantly associated with increased risk of multimorbidity. Among patients with incident multimorbidity, the most common NCDs were HLD and diabetes; however, osteoporosis was also frequent in women (16 vs. 35% of men and women with multimorbidity respectively). CONCLUSIONS: Among adult PLHIV in Brazil, NCD multimorbidity increased from 2003 to 2014. Females and adults with low CD4 nadir were at increased risk in adjusted analyses. Further studies examining prevention, screening and management of NCDs in PLHIV in low- and middle-income countries are needed.
measure, which captures 96% of patients indicating low social support. We developed the Multifactoral Assessment of Perceived Social Support (MAPSS) and Short Form (MAPSS-SF); brief, clinically relevant, sufficiently unidimensional measures of SS for use in HIV care.


HIV-positive patients are treated with various antiretroviral-containing drug combinations to control their underlying disease, which may also be combined with drugs aimed to manage independent or secondary comorbidities. This can expose patients to drug-drug interactions (DDIs) that may lead to suboptimal drug exposure, an increased risk of therapeutic failure or poor tolerability, and a need to adopt alternative therapeutic strategies. Although such undesired responses to pharmacological therapies can be appropriately managed in some situations, the fact that the available information is usually incomplete which makes it difficult (if not impossible) to assess DDIs and the consequent adjustments of polytherapies in clinical practice. For these reasons, we set up our ambulatory polytherapy management (Gestione Ambulatoriale Politerapie [GAP]) outpatient clinic in September 2016 to manage polypharmacy in HIV-infected patients. The main aims of the GAP clinic are to check whether patients are treated with drug combinations that are contraindicated due to known or predictable DDIs; assess the clinical and/or pharmacokinetic relevance of the DDIs; and provide written advice as to how the treatments should be modified if possible. We here describe the results of our 2-year experience in various clinical scenarios.


INTRODUCTION: Understanding the intersection of HIV, aging and health is crucial due to the increasing number of people aging with HIV. OBJECTIVE: The objective of the study was to assess the prevalence of, and risk factors for individual comorbidities and multi-morbidity in people living with HIV with similar duration of HIV infection, notwithstanding a 25-year difference at the time of HIV acquisition. METHODS: In a cross-sectional multicentre retrospective study, we compared three match-control age groups. The "Young" were selected from Romania and included HIV-positive patients prenatally infected and assessed at the age of 25-30 years. The "Old" and the "Geriatric" were selected from Italy. These respectively included subjects infected with HIV at the age of 25 years and assessed at the age of 50-55 years, and those infected at the age of 50 years and assessed at the age of 75-80 years. Each group was sex and age matched in a 1:5 ratio with controls selected from the CINECA ARNO database from Italy. We described non-infectious comorbidities (NICM), including cardiovascular disease, hypertension, dyslipidaemia, diabetes, chronic kidney disease, and multi-morbidity (MM>= 3 NICM). RESULTS: MM prevalence in the "Young" group compared to controls was 6.2% vs 0%, while in the "Geriatric" was "68.2% vs 3.6%. Using "Young" as a reference, in multivariate analyses, predictors for MM were as follows: HIV serostatus (OR=47.75, IQR 14.78-154.25, p<0.01) and "Geriatric" vs "Young" (OR=30.32, IQR 5.89-155.98, p<0.01). CONCLUSION: These data suggest that age at acquisition of HIV should be considered as a risk factor for NICM and MM.


Summary Background Research is needed to better understand relations between immunosuppression and HIV viraemia and risk for non-Hodgkin lymphoma, a common cancer in people living with HIV. We aimed to identify key CD4 count and HIV RNA (viral load) predictors of risk for non-Hodgkin lymphoma, overall and by subtype.

Findings Of 102,131 people living with HIV during the study period, 712 people developed non-Hodgkin lymphoma. The key independent predictors of risk for overall non-Hodgkin lymphoma were recent CD4 count (ie, lagged by 6 months; <50 cells per μL vs ≥500 cells per μL, hazard ratio [HR] 3.2, 95% CI 2.2–4.7) and average viral load during a 3-year window lagged by 6 months (a cumulative measure; ≥100 000 copies per mL vs ≤500 copies per mL, HR 9.6, 95% CI 6.5–14.0). These measures were also the key predictors of risk for diffuse large B-cell lymphoma (recent CD4 count <50 cells per μL vs ≥500 cells per μL, HR 2.4, 95% CI 1.4–4.2; average viral load ≥100 000 copies per mL vs ≤500 copies per mL, HR 7.5, 95% CI 4.5–12.7). However, recent CD4 count was the sole key predictor of risk for CNS non-Hodgkin lymphoma (<50 cells per μL vs ≥500 cells per μL, HR 426.3, 95% CI 58.1–3126.4), and proportion of time viral load was greater than 500 copies per mL during the 3-year window (a cumulative measure) was the sole key predictor for Burkitt lymphoma (100% vs 0%, HR 41.1, 95% CI 9.1–186.6).
Interpretation Both recent immunosuppression and prolonged HIV viraemia have important independent roles in the development of non-Hodgkin lymphoma, with likelysubtype heterogeneity. Early and sustained antiretroviral therapy to decrease HIV replication, dampen B-cell activation, and restore overall immune function is crucial for preventing non-Hodgkin lymphoma.


Detailed information of the effects of age and long-term HIV infection on various neurocognitive function have not been fully evaluated yet. In a prospective Japanese nationwide multicenter study of 17 facilities (J-HAND study), 728 HIV-infected individuals completed 14 neuropsychological (NP) tests; Verbal Fluency (VF; category and letter), Digit Span (DS; forward and backward), Trail Making Test (TMT) A-B, Rey-Osterrieth Complex Figure Test (ROCFT; copy, immediate and delayed recall), Story Memory Test (SMT; immediate and delayed recall), Digit Symbol Subset (DSS), and the Grooved Pegboard (GP; dominant and non-dominant). Multivariate analysis identified older age (>50 years) to be associated with lower scores in all three ROCFT and GP dominant [odds ratio (OR) [95% confidence interval (CI)] 1.801 (1.217-2.664), 2402 (1.366-3.055), 2.691 (1.720-4.211), and 2.302 (1.145-4.628), respectively], whereas longer time since diagnosis was associated with a lower score in ROCFT (delayed recall) (OR 1.224, 95%CI 1.045-1.434). In VF letter, older age and longer time since diagnosis were associated with a better score [OR (95%CI) 0.449 (0.234-0.861) and 0.831 (0.692-0.997)]. In DSS and TMT-A, longer time since diagnosis was associated with a better score [OR (95%CI): 0.808 (0.670-0.973) and 0.795 (0.665-0.949), respectively]. Older patients in later years since diagnosis are at higher risk of visuospatial and motor impairments despite ART, whereas they are less likely to develop verbal impairment, suggesting that verbal function is relatively resistant to aging and long history of HIV infection under ART. These findings suggest that custom-tailored supports should be established based on the individual background.


Studies suggest that inflammation might be involved in the pathogenesis of depression. Individuals with human immunodeficiency virus (HIV) have a higher risk of depression and elevated inflammatory profiles. Despite this, research on the link between inflammation and depression among this high-risk population is limited. We examined a sample of men who have sex with men from the Multicenter AIDS Cohort Study in prospective analyses of the association between inflammation and clinically relevant depression symptoms, defined as scores >20 on Center for Epidemiological Studies Depression Scale. We included 1,727 participants who contributed 9,287 person-visits from 1984 to 2010 (8,218 with HIV (HIV+) and 1,069 without (HIV-)). Exploratory factor analysis (EFA) was used to characterize underlying inflammatory processes from 19 immune markers. Logistic regression with generalized estimating equations was used to evaluate associations between inflammatory processes and depressive symptoms stratified by HIV serostatus. Three EFA-identified inflammatory processes (EIPs) were identified. EIP-1 scores—described by soluble tumor necrosis factor receptor 2 (sTNFR2), soluble interleukin-2 receptor alpha (sIL-2Ralpha), sCD27, B-cell activating factor, interferon gamma-induced protein 10 (IP-10), soluble interleukin-6 receptor (sIL-6R), sCD14, and sGP130—were significantly associated with 9% higher odds of depressive symptoms in HIV+ participants (odds ratio = 1.09; 95% confidence interval: 1.03, 1.16) and 33% higher odds in HIV- participants (odds ratio = 1.33; 95% confidence interval: 1.09, 1.61). Findings suggest that immune activation might be involved in depression risk among both HIV+ and HIV- men who have sex with men.


Older persons living with diagnosed HIV (PLWDH) are also at risk for age-related chronic conditions. With conflicting results on studies assessing health literacy and durable viral suppression, this study is the first in assessing this relationship using representative data on older in-care HIV-diagnosed persons with multimorbidity. Weighted data collected 2009-2014 from the Medical Monitoring Project (MMP) was used. Health literacy was assessed using the three-item Brief Health Literacy
BACKGROUND: Tenofovir alafenamide is associated with less renal and bone toxicity than tenofovir disoproxil fumarate and tablet regimen: a multicentre, open-label, phase 3b, randomised trial. Lancet HIV

Maggiolo, F., et al. (2019). "Bone mineral density in virologically suppressed people aged 60 years or older with HIV-1 switching from a regimen containing tenofovir disoproxil fumarate to an elvitegravir, cobicistat, emtricitabine, and tenofovir alafenamide single-tablet regimen: a multicentre, open-label, phase 3b, randomised trial." Lancet HIV 6(10): e655-e666.

BACKGROUND: Among people living with HIV (PLWH), the prevalence of non-HIV related co-morbidities is increasing. Aim of the present study is to describe co-morbidity and multi-morbidity, their clustering mode and the potential disease-disease interactions in a cohort of Italian HIV patients. METHODS: Cross-sectional analysis conducted by the Coordinamento Italiano per lo Studio di Allergia e Infezioni da HIV (CISAI) on adult subjects attending HIV-outpatient facilities. Non-HIV co-morbidities included: cardiovascular disease, diabetes mellitus, hypertension, oncologic diseases, osteoporosis, probable case of chronic obstructive pulmonary disease (COPD), hepatitis C virus (HCV) infection, psychiatric illness, kidney disease. Multi-morbidity was defined as the presence of two or more co-morbidities. RESULTS: One thousand and eighty-seven patients were enrolled in the study (mean age 47.9 +/- 10.8). One hundred-ninety patients (17.5%) had no co-morbidity, whereas 285 (26.2%) had one condition and 612 (56.3%) were multi-morbid. The most recurrent associations were: 1) dyslipidemia + hypertension (237, 21.8%); 2) dyslipidemia + COPD (188, 17.3%); 3) COPD + HCV-Ab+ (141, 12.9%). Multi-morbidity was associated with older age, higher body mass index, current and former smoking, CDC stage C and longer ART duration. CONCLUSIONS: More than 50% of PLWH were multi-morbid and about 30% had three or more concurrent comorbidities. The identification of common patterns of comorbidities address the combined risks of multiple drug and disease-disease interactions.


BACKGROUND: Tenofovir alafenamide is associated with less renal and bone toxicity than tenofovir disoproxil fumarate and might improve the long-term safety of antiretroviral therapy. We aimed to investigate the effect on bone mineral density of switching from a regimen containing tenofovir disoproxil fumarate to one containing tenofovir alafenamide in participants aged 60 years and older. METHODS: We did a prospective, open-label, multicentre, randomised trial in 36 European centres. Participants were virologically suppressed (HIV-1 RNA <50 copies per mL), aged 60 years or older, on a tenofovir disoproxil fumarate-containing regimen and were randomly assigned (2:1) via an interactive web-response system to open-label elvitegravir (150 mg), cobicistat (150 mg), emtricitabine (200 mg), and tenofovir alafenamide (10 mg) daily or continued therapy containing tenofovir disoproxil fumarate (300 mg). Participants were stratified by spine and hip bone mineral density categories. Primary endpoints were change from baseline to week 48 in spine and hip bone mineral density with a null hypothesis of zero between-group difference tested at a significance level of 0.05. This study was registered with ClinicalTrials.gov, NCT02616783. FINDINGS: Between Dec 22, 2015, and March 21, 2018, 167 participants were randomly assigned to elvitegravir, cobicistat, emtricitabine, and tenofovir alafenamide (n=111 [66%]) or tenofovir disoproxil fumarate (n=56 [34%]). One participant in the elvitegravir, cobicistat, emtricitabine, and tenofovir alafenamide group did not receive treatment and was excluded from all analyses. At week 48, the mean percentage change in spine bone mineral density was 2.24% (SD 3.27) in the elvitegravir, cobicistat, emtricitabine, and tenofovir alafenamide group and -0.10% (3.39) in the tenofovir disoproxil fumarate group (between-group difference 2.34% [95% CI 1.34-3.32]; p<0.0001), and mean percentage change in hip bone mineral density was 1.33% (2.0) in the elvitegravir, cobicistat, emtricitabine, and tenofovir alafenamide group and -0.73% (3.21) in the tenofovir disoproxil fumarate group (difference 2.04% [1.17-2.90]; p<0.0001). The most common adverse events were nasopharyngitis (12 [11%]), back pain (nine [8%]), and diarrhoea (eight [7%]) in the elvitegravir, cobicistat, emtricitabine, and tenofovir alafenamide group; and bronchitis (six [11%]), vitamin D deficiency (four [7%]), and arthralgia (four [7%]) in the tenofovir disoproxil fumarate group. 22 (20%) participants in the elvitegravir, cobicistat, emtricitabine, and tenofovir alafenamide group and one (2%) participant in the tenofovir disoproxil fumarate group had an adverse event that was considered to be related to treatment. No treatment-related serious adverse events were observed. The proportions of adverse events leading to premature treatment discontinuation were similar between groups (four [4%] in the elvitegravir, cobicistat, emtricitabine, and tenofovir alafenamide group; and one [2%] in the tenofovir disoproxil fumarate group). INTERPRETATION: The significantly improved bone mineral density, overall safety, and efficacy data show the feasibility of switching from a regimen containing tenofovir disoproxil fumarate to elvitegravir,
cobicistat, emtricitabine, and tenofovir alafenamide in virologically suppressed people living with HIV aged 60 years or older. FUNDING: Gilead Sciences.


We assessed successful aging among older people living with HIV (PLWH) compared with older people without HIV. One hundred ten older men and women in Palm Springs, California completed a self-administered 28-question survey, which collected data on physiological and psychosocial factors related to successfully aging with HIV, including demographics, HIV status, sexual activity, health and well-being, experiences of stigma or discrimination, feelings of isolation, receipt of disability benefits, work and volunteer participation, and presence of comorbid infectious diseases, noninfectious diseases, and geriatric syndromes. Most participants were male (96.4%), non-Hispanic white (84.5%), college educated (61.7%), and ranged in age from 55 to 87 years (median = 64 years). Respondents with HIV were significantly older than those without HIV (p = .04). The overall prevalence of two or more comorbid conditions across the sample was 59.1%. PLWH were more likely to report depression (p = .008). PLWH were also significantly more likely to report having a current sex partner living with HIV (p < .001) and receiving disability benefits than people without HIV (41.9% vs. 6.3%). Among PLWH, there was a significant relationship between not working or volunteering and feelings of isolation (p = .005). For people without HIV, we found a significant relationship between feelings of isolation and not living with someone (p < .001), but there was no such relationship among PLWH—possibly reflecting the strength of the support network for PLWH in Palm Springs. Our findings suggest that older PLWH experience successful aging to a similar degree compared with their peers without HIV. However, depression and social isolation remain highly salient issues that threaten successful aging and with which PLWH must contend.


We report the sharp reduction in the incidence of AIDS defining cancers in a multicentric, retrospective study carried out since 1991 and involving six Infectious Diseases Units spread across Italy. However, due to the parallel increase in non-AIDS defining cancers, cancer incidence was not reduced. Focusing on predictors of death in HIV-positive patients with neoplastic disease, multivariate models revealed that males as well as drug abusers were independently associated with a poor clinical outcome.


BACKGROUND: Worldwide, young transgender women (YTW) contend with exceptionally high risks of HIV infection. Cross-sectional studies have suggested that co-occurring epidemics or "syndemics" of psychosocial problems may accelerate HIV acquisition and transmission through elevated sexual risk behavior among transgender women. We aimed to examine how a syndemic of 7 psychosocial problems potentiates HIV sexual risk behavior among a multicity, longitudinal cohort of sexually active YTW in the United States. METHODS: Between 2012 and 2015, 233 YTW from Boston, MA, and Chicago, IL, completed behavioral surveys at baseline, 4, 8, and 12 months. We used generalized estimating equations to examine the prospective relationship of overlapping psychosocial problems and HIV sexual risk behavior (ie, condomless anal or vaginal sex) among YTW. RESULTS: The prevalence of 7 psychosocial syndemic problems was substantial at baseline and remained high at each time point: 6.4% reported polydrug use in the past 4 months (excluding stimulants); 7.7% reported heavy alcohol use in the past 4 months; 10% reported a history of childhood sexual abuse; 15.9% reported stimulant use in the past 4 months; 41.7% reported experiencing lifetime intimate partner violence; 42.1% reported clinically significant depressive symptoms; and 68.6% reported lifetime transgender-specific victimization. We identified a statistically significant positive "dose-response" relationship between the number of psychosocial syndemic problems and condomless anal or vaginal sex over time. CONCLUSIONS: The accumulation of "syndemic" psychosocial problems predicted HIV sexual risk behavior in a prospective cohort of YTW. Given the high prevalence of psychosocial problems and HIV sexual risk behavior, as well as having the highest HIV incidence among any risk group, the HIV prevention agenda requires a shift toward improved assessment of psychosocial comorbidities and stronger integration with gender-affirming and supportive mental health, violence recovery, and addiction treatment services for this population.
Older persons living with HIV (PLWH), often defined as age 50 years and older, are a rapidly growing population, with high rates of chronic pain, substance use, and decreased physical functioning. No interventions currently exist that address all three of these health outcomes simultaneously. An 8-week behavioral intervention combining cognitive-behavioral therapy and tai chi reinforced with text messaging (CBT/TC/TXT) was developed and pilot tested in a community-based AIDS service organization with substance use PLWH aged 50 years and older who experienced chronic pain. Fifty-five participants were enrolled in a three-arm randomized controlled trial that compared the CBT/TC/TXT intervention (N=18) to routine Support Group (SG) (N=19) and Assessment Only (AO) (N=18) to assess the intervention’s feasibility, acceptability and preliminary efficacy to reduce pain and substance use and improve physical performance. Participants were assessed at baseline, treatment-end (week 8) and week 12. Feasibility and acceptability indicators showed moderate levels of participant enrollment (62% of those eligible), excellent 12-week assessment completion (84%) and high attendance at CBT and tai chi sessions (>60% attended at least 6 of 8 sessions). Efficacy indicators showed within-group improvements from baseline to week 12 in the CBT/TC/TXT group, including all four substance use outcomes, percent pain relief in the past 24h, and in two physical performance measures. Observed between-group changes included greater reductions in days of heavy drinking in the past 30 days for both CBT/TC/TXT (19%) and SG (13%) compared to the AO group. Percent pain relief in the past 24h improved in the CBT/TC/TXT group relative to SG, and the CBT/TC/TXT’s physical performance score improved relative to both the SG and AO groups. Findings demonstrate that the CBT/TC/TXT intervention is feasible to implement, acceptable and has preliminary efficacy for reducing substance use and pain and improving physical performance among a vulnerable population of older PLWH.


In mental health and substance abuse treatment, individualized assessments provide information on the specific thoughts and cognitive processes influencing a person's behavior, emotional responses, and psychological functioning. Given the lack of automated assessment procedures or individualized clinical interventions in the growing health disparities in the South Los Angeles of USA, we developed a novel system using idiographic techniques to automatically and quickly generate individualized patient assessment data for use in clinical interventions.


Self-perception of aging is an important predictor of quality of life. Therefore, we sought to examine self-perceptions of aging (age discrepancy and aging satisfaction) between HIV-positive and HIV-negative men in the Multicenter AIDS Cohort Study (MACS). We included 835 HIV-negative and 784 HIV-positive men aged 50 years and older who had completed a survey about age discrepancy and aging satisfaction from the "Attitude toward own aging" subscale of the Philadelphia Geriatric Center Morale scale. Multinomial generalized logit models were generated to assess self-perception of aging by HIV-status. Most of the participants self-identified as white, former smokers, and had completed high school. HIV-positive individuals reported higher prevalence of comorbidities than HIV-negative individuals. After adjusting for covariates, positive age discrepancy (older subjective age) was positively associated with being HIV-positive and having less than a high school education, depressive symptoms, diabetes, and medium and low aging satisfaction. Low aging satisfaction was associated with being a current and former smoker and having depressive symptoms, diabetes, and no age and positive age discrepancy. Being black had decreased odds of low aging satisfaction. These findings should inform health care professionals to promote positive views of aging in the assessment and management of HIV, depression, and diabetes.

OBJECTIVE: Obesity is a common, modifiable cardiovascular and cerebrovascular risk factor. Among people with HIV, obesity may contribute to multisystem dysregulation including cognitive impairment. We examined body mass index (BMI) and central obesity (waist circumference [WC]) in association with domain-specific cognitive function and 10-year cognitive decline in men with HIV infection (MWH) vs HIV-uninfected (HIV-) men. METHODS: A total of 316 MWH and 656 HIV- Multicenter AIDS Cohort Study participants >/=40 years at baseline, with neuropsychological testing every 2 years and concurrent BMI and WC measurements, were included. MWH were included if taking >/=2 antiretroviral agents and had HIV-1 RNA <400 copies/mL at >80% of visits. Mixed-effects models included all visits from 1996 to 2015, stratified by HIV serostatus, and adjusted for sociodemographic, behavioral, and clinical characteristics. At baseline and follow-up, 8% of MWH and 15% of HIV- men and 41% of MWH and 56% of HIV- men were >/=60 years, respectively. RESULTS: Cross-sectionally, higher BMI was inversely associated with motor function in MWH and HIV- men, and attention/working memory in HIV- men. WC was inversely associated with motor function in MWH and HIV- men. Longitudinal associations indicated an obese BMI was associated with a less steep decline in motor function in MWH whereas in HIV- men, obesity was associated with a greater decline in motor function, learning, and memory. WC, or central obesity, showed similar patterns of associations. CONCLUSION: Higher adiposity is associated with lower cognition cross-sectionally and greater cognitive decline, particularly in HIV- men. Overweight and obesity may be important predictors of neurologic outcomes and avenues for prevention and intervention.
BACKGROUND: HIV-infected persons have an increased risk of atherosclerosis relative to uninfected individuals. 

Inflammatory processes may contribute to this risk. We evaluated the associations of 10 biomarkers of systemic inflammation (CRP, IL-6, sTNF-alphaR1 and 2), monocyte activation (CCL2, sCD163, sCD14), coagulation (fibrinogen, D-dimer), and endothelial dysfunction (ICAM-1) with subclinical carotid atherosclerosis among participants in the Multicenter AIDS Cohort Study (MACS). METHODS: Carotid plaque and intima media thickness (IMT) in the common carotid (CCA-IMT) and bifurcation region were assessed by B mode ultrasound among 452 HIV-infected and 276 HIV-uninfected men from 2010-2013. Associations between levels of each biomarker and presence of focal plaque and IMT were assessed by logistic and linear regression models, adjusting for demographics, risk behaviors, traditional cardiovascular disease (CVD) risk factors, and HIV disease characteristics. RESULTS: Compared to HIV-uninfected men, HIV-infected men had significantly higher levels of 8 of the 10 biomarkers. Overall, men with sCD163, CCL2, IL-6, and CRP levels in the highest quintile had approximately 2 times the odds of carotid plaque relative to those with levels in the lowest quintile, independent of demographic and CVD risk factors. Fibrinogen levels were positively associated with CCA-IMT while ICAM-1, CCL2, and sTNF-alphaR1 levels were positively associated with bifurcation-IMT. Among HIV-uninfected men, higher levels of sTNF-alphaR2 were positively associated with CCA-IMT, fibrinogen with bifurcation-IMT and carotid plaque, and ICAM-1 with carotid plaque. CONCLUSION: In addition to greater levels of systemic inflammation, heightened monocyte activation (sCD163, CCL2) may contribute to the burden of atherosclerosis among HIV-infected persons.


Background: Alcohol use disorders (AUDs) are highly prevalent in people living with HIV (PLWH) and are associated with increased HIV risk behaviors, suboptimal treatment adherence, potential interaction with medication pharmacodynamics, and greater risk for disease progression. Preclinical studies show that chronic binge alcohol administration accelerates disease progression and aggravates pathogenesis in the simian immunodeficiency virus (SIV)-infected rhesus macaque model despite viral suppression by antiretroviral therapy. Methods: To translate preclinical findings in the rhesus macaque model of chronic binge alcohol administration and SIV infection and to address areas of uncertainty surrounding the biological mechanisms and socioenvironmental modifiers that contribute to the relationship between alcohol use and HIV-associated comorbidities, precocious aging, and disease progression, we designed a translational multiproject, longitudinal, cohort study, and the New Orleans Alcohol Use in HIV (NOAH) Study. The NOAH Study is led by a multidisciplinary team of scientists, with a research focus on the interaction of AUD and HIV. The overarching hypothesis is that alcohol use will lead to adverse health outcomes in PLWH. In this report, we describe the study design and baseline descriptive characteristics of our cohort. Results: Three-hundred and sixty-five participants completed the baseline testing. The cohort is predominantly male (69%) and African American (83.5%). The majority of participants report incomes below 200% of the federal poverty level. CD4 counts <200 cells/μl were found in 12.8% and viral loads <50 copies/ml were found in 73.6%. These HIV status variables did not differ based upon alcohol use. Conclusions: The NOAH Study facilitates bidirectional translational investigation of alcohol's impact on PLWH. Translation of preclinical findings to PLWH permits confirmation of basic biological mechanisms in humans and also allows incorporation of sociobehavioral factors that may affect biology but are challenging to replicate in preclinical models. The NOAH Study is led by a multidisciplinary team of scientists at LSUHSC, with a research focus on the interaction of AUD, HIV, and cART. This clinical study translates preclinical findings in the rhesus macaque model of chronic binge alcohol administration and SIV infection and facilitates bidirectional translational investigation of alcohol’s impact on PLWH. Studies address areas of uncertainty surrounding the biological mechanisms and socioenvironmental modifiers that contribute to the relationship between alcohol use and HIV-associated comorbidities, precocious aging, and disease progression. [ABSTRACT FROM AUTHOR]

The Veterans Aging Cohort Study (VACS) Index has been associated with HIV-associated neurocognitive disorder (HAND) in some populations but has not been studied in sub-Saharan Africa. We investigated whether the VACS Index is associated with HAND in a rural population in Rakai, Uganda. HIV-infected (HIV+) adults on antiretroviral therapy underwent a neurocognitive battery for determination of HAND stage using Frascati criteria. VACS component scores were recorded for all participants. Out of 156 study participants, HAND stages were 49% normal cognition, 15% asymptomatic neurocognitive impairment, 31% minor neurocognitive disorder, and 7% HIV-associated dementia. There was no significant association between VACS Index and any HAND stage. In this first study of the VACS Index in sub-Saharan Africa, we found no association between VACS Index score and HAND.


The medial prefrontal cortex (mPFC) is a key regulator of neurocognition. The glutamatergic pyramidal neurons are the predominant component of neurons in the mPFC. Aging and HIV profoundly alter the structure and function of mPFC pyramidal neurons, including, but are not limited to, dysregulation of NMDA receptors and voltage-gated calcium channels. Here we assessed the impact of aging and in vivo HIV exposure on the functional activity (firing) of mPFC pyramidal neurons mediated by voltage-gated K(+) (Kv) channels and inwardly-rectifying K(+) (Kir) channels using patch-clamp recording in rat brain slices ex vivo. We found that aging and HIV significantly affect firing in different manners by altering the activity of Kv and likely Kir channels, associated with changes in membrane properties and the mRNA levels of specific Kv channels. Evoked firing was significantly decreased in mPFC neurons of older (12 month, 12m) rats compared to younger (6/7 week, 6/7wk) rats, regardless of HIV status. In contrast, firing was significantly increased in neurons from Tg rats compared to non-Tg rats, regardless of age. Aging/HIV-induced alterations in firing were mediated by dysfunctional Kv channels and Kir channels, which exhibit significant changes in their activity and/or expression induced by aging and HIV exposure in vivo. Collectively, these novel findings demonstrate that aging is associated with a significant decline of mPFC neuronal activity; while long-term HIV exposure in vivo could drive mPFC neurons from over-activation to loss of firing, which could ultimately exacerbate the decline of mPFC neuronal activity.


Approximately 37 million people worldwide are infected with human immunodeficiency virus (HIV). One highly significant complication of HIV infection is the development of HIV-associated neurocognitive disorders (HAND) in 15-55% of people living with HIV (PLWH), that persists even in the antiretroviral therapy (ART) era. The entry of HIV into the central nervous system (CNS) occurs within 4-8 days after peripheral infection. This establishes viral reservoirs that may persist even in the presence of ART. Once in the CNS, HIV infects resident macrophages, microglia, and at low levels, astrocytes. In response to chronic infection and cell activation within the CNS, viral proteins, inflammatory mediators, and host and viral neurotoxic factors produced over extended periods of time result in neuronal injury and loss, cognitive deficits and HAND. Substance abuse is a common comorbidity in PLWH and has been shown to increase neuroinflammation and cognitive disorders. Additionally, it has been associated with poor ART adherence, and increased viral load in the cerebrospinal fluid (CSF), that...
may also contribute to increased neuroinflammation and neuronal injury. Studies have examined mechanisms that contribute to neuroinflammation and neuronal damage in PLWH, and how substances of abuse exacerbate these effects.

This review will focus on how substances of abuse, with an emphasis on methamphetamine (meth), cocaine, and opioids, impact blood brain barrier (BBB) integrity and transmigration of HIV-infected and uninfected monocytes across the BBB, as well as their effects on monocytes/macrophages, microglia, and astrocytes within the CNS. We will also address how these substances of abuse may contribute to HIV-mediated neuropathogenesis in the context of suppressive ART. Additionally, we will examine the effects of extracellular dopamine, a neurotransmitter that is increased in the CNS by substances of abuse, on HIV neuropathogenesis and how this may contribute to neuroinflammation, neuronal insult, and HAND in PLWH with active substance use. Lastly, we will discuss some potential therapies to limit CNS inflammation and damage in HIV-infected substance abusers.


HIV-associated neurocognitive disorders (HAND) represent an important source of neurologic complications in individuals with HIV. The dynamic, often subclinical, course of HAND has rendered diagnosis, which currently depends on neuropsychometric (NP) evaluation, a challenge for clinicians. Here, we present evidence that functional brain connectivity, derived by large-scale Granger causality (lsGC) analysis of resting-state functional MRI (rs-fMRI) time-series, represents a potential biomarker to address this critical diagnostic need. Brain graph properties were used as features in machine learning tasks to 1) classify individuals as HIV(+) or HIV(-) and 2) to predict overall cognitive performance, as assessed by NP scores, in a 22-subject (13 HIV(-), 9 HIV(+)) cohort. Over nearly all seven brain parcellation templates considered, support vector machine (SVM) classifiers based on lsGC-derived brain graph features significantly outperformed those based on conventional Pearson correlation (PC)-derived features (p<0.05, Bonferroni-corrected). In a second task for which the objective was to predict the overall NP score of each subject, the lsGC-based SVM regressors consistently outperformed the PC-based regressors (p<0.05, Bonferroni-corrected) on nearly all templates. With the widely used Automated Anatomical Labeling (AAL90) template, it was determined that the brain regions that figured most strongly in the SVM classifiers included those of the default mode network (posterior cingulate cortex, angular gyrus) and basal ganglia (caudate nucleus), dysfunction in both of which have been observed in previous structural and functional analyses of HAND.


BACKGROUND: There is growing concern about the health impact of heavy alcohol use in people infected with human immunodeficiency virus (HIV+). Mixed findings of past studies regarding the cognitive impact of alcohol use in HIV+ adults have been mixed, with inconsistent evidence that alcohol consumption exacerbates HIV-associated brain dysfunction. This study examined contributions of current heavy drinking, lifetime alcohol use disorder (AUD), and age to cognitive deficits in HIV+ adults, and relative to other HIV-associated clinical factors. METHODS: Cognitive performance of HIV+ adults (n = 104) was assessed, and comparisons were made between heavy current to nonheavy drinkers (NIAAA criteria), lifetime AUD versus no-AUD, and older (>50 years) versus younger participants. Hierarchical regression analyses were conducted to examine the association between cognitive performance and current heavy drinking, lifetime AUD, and older age, while also correcting for HIV clinical factors and history of other substance use. RESULTS: Individuals reporting current heavy drinking and meeting criteria for lifetime AUD demonstrated the greatest degree of deficits across multiple cognitive domains. Deficits were greatest among HIV+ adults with lifetime AUD, and older age was also associated with weaker cognitive performance. Lifetime AUD and older age independently exhibited stronger associations with cognitive performance than HIV clinical factors (e.g., viral load, current CD4, and nadir CD4) or past opiate and cocaine use. CONCLUSIONS: Current heavy drinking and lifetime AUD adversely affect cognitive function in HIV+ adults. Greatest deficits existed when there was a history of AUD and continued current heavy drinking, indicating that past AUD continues to have an adverse impact and should not be ignored. That alcohol use was more strongly associated with cognitive performance than HIV clinical factors underscore clinical importance of targeting reduction in heavy alcohol consumption in HIV+ adults.

The brain is particularly sensitive to changes in energy supply. Defects in glucose utilization and mitochondrial dysfunction are hallmarks of nearly all neurodegenerative diseases and are also associated with the cognitive decline that occurs as the brain ages. Chronic neuroinflammation driven by glial activation is commonly implicated as a contributing factor to neurodegeneration and cognitive impairment. Human immunodeficiency virus-1 (HIV-1) disrupts normal brain homeostasis and leads to a spectrum of HIV-associated neurocognitive disorders (HAND). HIV-1 activates stress responses in the brain and triggers a state of chronic neuroinflammation. Growing evidence suggests that inflammatory processes and bioenergetics are interconnected in the propagation of neuronal dysfunction. Clinical studies of people living with HIV and basic research support the notion that HIV-1 creates an environment in the CNS that interrupts normal metabolic processes at the cellular level to collectively alter whole brain metabolism. In this review, we highlight reports of abnormal brain metabolism from clinical studies and animal models of HIV-1. We also describe diverse CNS cell-specific changes in bioenergetics associated with HIV-1. Moreover, we propose that attention should be given to adjunctive therapies that combat sources of metabolic dysfunction as a mean to improve and/or prevent neurocognitive impairments.

BACKGROUND: Comprehensive care given to people living with HIV/AIDS is improving over time; however, their concurrent infection, which is underappreciated. An overview of the pharmacologic and psychosocial interventions relevant to the differentiation between depression and apathy. A section is dedicated to the question of suicidality in chronic HIV infection, which is underappreciated. An overview of the pharmacologic and psychosocial interventions relevant to depression and apathy in HIV cohorts treated with antiretroviral treatment is provided. The chapter concludes with future directions for the research on apathy and depression with emphasis on the question of aging and the need for longitudinal studies.

This chapter provides an overview of the current research on the question of depression and apathy in HIV-associated neurocognitive disorders (HAND) in the era of chronic HIV infection. After presenting the epidemiology of each condition showing that depression and apathy are the two most frequent psychiatric comorbidities of HAND, we review the current research, particularly in relation to the milder forms of HAND that characterize treated HIV cohorts. Doing so, we include findings on depression and apathy in non-HIV aging population and the risk of dementia, findings that are relevant to the aging HIV cohorts carrying a high burden of psychiatric comorbidities. We then present a review of the research pertaining to the differentiation between depression and apathy. A section is dedicated to the question of suicidality in chronic HIV infection, which is underappreciated. An overview of the pharmacologic and psychosocial interventions relevant to depression and apathy in HIV cohorts treated with antiretroviral treatment is provided. The chapter concludes with future directions for the research on apathy and depression with emphasis on the question of aging and the need for longitudinal studies.

BACKGROUND: Comprehensive care given to people living with HIV/AIDS is improving over time; however, their concurrent cognitive illness is still ignored, under screened and treated particularly in developing countries. And this problem is also striking in Ethiopia. Therefore, the objective of this study was to assess HIV-associated neurocognitive disorders and associated factors among adult people living with HIV/AIDS. METHODS: An institution based cross sectional study was conducted from April to May, 2017 at Gamo Gofa zone public Hospitals. International HIV Dementia Scale was used to screen HIV associated neurocognitive disorders. Logistic regression analysis was used to assess predictors of neurocognitive disorders. RESULT: A total of 684 study participants were included in this study with a response rate of 98%. Among them,

BACKGROUND: The correlation among high levels of total homocysteine, low levels of B12 vitamin, and neurocognitive impairment in HIV negative patients has been the main research topic in some of the latest reviews. The aim of this study was to examine if the alteration of homocysteine, B12 vitamin, and D vitamins plasma levels was present in HIV-positive, and their relationship with cognitive function. METHODS: 57 HIV infected were enrolled and underwent the serum measurement of homocysteine, B12, and D vitamins. The neurocognitive evaluation investigated 5 cognitive domains, through a neuropsychological battery test RESULTS: Homocysteine was found to be elevated in 70.2% of cases, B12 vitamin mean levels were low in 8 participants (14.0%), and 8 patients had D hypovitaminosis (14.0%). Abnormal homocysteine levels were associated with worse performance of verbal fluency (p = 0.003) and worse executive function (Stroop E test p = 0.040). The 25-OH D hypovitaminosis was associated with worse performances in executive functions in three different tests: Stroop E (p = 0.049), Trail B (p = 0.035), and Wais Digit Span (p = 0.042). Pathological levels of B12 Vitamin were also associated to worse performances in executive functions (Trail B Test and Wais Digit Span respectively p = 0.002 and 0.029) and with a lower speed in psychomotor processing (Peg Board Test on dominant hand, p = 0.014). CONCLUSIONS: In this study serum homocysteine, B12, and D vitamin levels are associated with neurocognitive performances; in fact low performance neurocognitive was correlated with hyperhomocysteine and low B12 vitamin, and D vitamin levels. Evidence of the alteration of these parameters could facilitate the early identification of a neurocognitive impairment.

Previously, we found that high levels of soluble insulin receptor (sIR) in the cerebrospinal fluid (CSF) of an HIV-infected women cohort were associated with the presence and severity of HIV-associated neurocognitive disorders (HAND). In this study we investigated if CSF from this population, HIV-1 Tat, and selected cytokines induces sIR secretion from human neuronal cells. Twenty-three (23) HIV-seropositive women stratified by cognitive status and five HIV- seronegative women.
In the era of combined antiretroviral therapy (cART), HIV-1 infection has transformed from a death sentence to a manageable, chronic disease. Although the life expectancy of HIV+ individuals is comparable to that of the uninfected subjects paradoxically, there is increased prevalence of age-associated comorbidities such as atherosclerosis, diabetes, osteoporosis & neurological deficits in the context of HIV infection. Drug abuse is a common comorbidity of HIV infection and is often associated with increased neurological complications. Chronic neuroinflammation (abnormal microglial and astrocyte activation) and neuronal synaptodendritic injury are the features of CNS pathology observed in HIV (+) individuals that are taking cART & that abuse drugs. Neuroinflammation is the driving force underlying premature aging associated with HIV (+) infection, cART and drugs of abuse. Autophagy is a highly conserved process critical for maintaining cellular homeostasis. Dysregulated autophagy has been shown to be linked with abnormal immune responses & aging. Recent emerging evidence implicates the role of HIV/HIV proteins, cART, & abused drugs in disrupting the autophagy process, thereby leading to exaggerated microglial/astrocyte activation and neuronal synaptodendritic injury. The current review aims to unravel the role of dysregulated autophagy in the context of single or co-exposure of microglia, astrocytes, and neurons to HIV/HIV proteins, drugs of abuse &/or cART and will also discuss the pathways involved in dysregulated autophagy-mediated neuroinflammation.


Neurocognitive impairment (NCI) is common in people aging with HIV and can adversely affect health-related quality of life. However, early NCI may be largely asymptomatic and neurocognitive function is rarely assessed in the context of routine screening for HIV-1. Thus, the use of sensitive screening tools and techniques for early NCI is essential in the context of routine care to help identify individuals at risk for future neurocognitive decline.


Alcohol use disorders (AUDs) are highly comorbid with human immunodeficiency virus (HIV) infection, occurring at nearly twice the rate in HIV positive individuals as in the general population. Individuals with HIV who consume alcohol show worse long-term prognoses and may be at elevated risk for the development of HIV-associated neurocognitive disorders. The direction of this relationship is unclear, and likely multifactorial. Chronic alcohol exposure and HIV infection independently promote cognitive dysfunction and further may interact to exacerbate neurocognitive deficits through effects on common targets, including corticostrital glutamate and dopamine neurotransmission. Additionally, drug and alcohol use is likely to reduce treatment adherence, potentially resulting in accelerated disease progression and subsequent neurocognitive impairment. The development of neurocognitive impairments may further reduce cognitive control over behavior, resulting in escalating alcohol use. This review will examine the complex relationship between HIV infection and alcohol use, highlighting impacts on dopamine and glutamate systems by which alcohol use and HIV act independently and in tandem to alter corticostrital circuit structure and function to dysregulate cognitive function.


In the era of combined antiretroviral therapy (cART), HIV-1 infection has transformed from a death sentence to a manageable, chronic disease. Although the life expectancy of HIV+ individuals is comparable to that of the uninfected subjects paradoxically, there is increased prevalence of age-associated comorbidities such as atherosclerosis, diabetes, osteoporosis & neurological deficits in the context of HIV infection. Drug abuse is a common comorbidity of HIV infection and is often associated with increased neurological complications. Chronic neuroinflammation (abnormal microglial and astrocyte activation) and neuronal synaptodendritic injury are the features of CNS pathology observed in HIV (+) individuals that are taking cART & that abuse drugs. Neuroinflammation is the driving force underlying premature aging associated with HIV (+) infection, cART and drugs of abuse. Autophagy is a highly conserved process critical for maintaining cellular homeostasis. Dysregulated autophagy has been shown to be linked with abnormal immune responses & aging. Recent emerging evidence implicates the role of HIV/HIV proteins, cART, & abused drugs in disrupting the autophagy process in brain cells such as microglia, astrocytes, and neurons. It can thus be envisioned that co-exposure of CNS cells to HIV proteins, cART and/or abused drugs could have synergistic effects on the autophagy process, thereby leading to exaggerated microglial/astrocyte activation, ultimately promoting the aging process. Restoration of autophagic function could thus provide an alternative therapeutic strategy for mitigating neuroinflammation & ameliorating the premature aging process. The current review aims to unravel the role of dysregulated autophagy in the context of single or co-exposure of microglia, astrocytes, and neurons to HIV/HIV proteins, drugs of abuse &/or cART and will also discuss the pathways involved in dysregulated autophagy-mediated neuroinflammation.
Human immunodeficiency virus enters the central nervous system (CNS) early after systemic infection, and may cause neural injury and associated neurocognitive impairment through multiple direct and indirect mechanisms. An international conference of multidisciplinary neuroAIDS experts convened in 2005 to propose operationalized research criteria for HIV-related cognitive and everyday functioning impairments. The resulting classification system, known as the Frascati criteria, defined three types of HIV-associated neurocognitive disorder (HAND): asymptomatic neurocognitive impairment, mild neurocognitive disorder, and HIV-associated dementia (HAD). Consideration of comorbid conditions that can influence neurocognitive performance, such as developmental disabilities, non-HIV forms of CNS compromise (neurological and systemic), severe psychiatric conditions, and substance use disorders, is essential to differential diagnosis. Since the introduction of combination antiretroviral therapy (ART), rates of severe HAND (i.e., HAD) have greatly declined, although the milder forms of HAND remain quite prevalent, even in virally suppressed people living with HIV (PLWH). Beyond ART, clinical management of HAND includes behavioral interventions focused on neurocognitive and functional improvements. This chapter covers a range of HAND-related topics, such as the neuropathological mechanisms of HIV-related CNS injury, assessment and diagnostic systems for neurocognitive and everyday functioning impairment in HIV, treatment and protective factors, aging with HIV, HAND in international settings, and ongoing challenges and controversies in the field. Future needs for progress with HAND include advances in early detection of mild cognitive deficits and associated functional impairment in PLWH; biomarkers that may be sensitive to its underlying pathogenesis; and differential diagnosis of HAND versus age-related, non-HIV-associated disorders.
BACKGROUND: HIV-associated distal polyneuropathy (HIV-PN) affects large and small sensory nerve fibers and can cause tactile insensitivity. This exploratory study forms part of an effort to apply subsensory electrical nerve stimulation (SENS) to improve tactile sensitivity of patients with HIV-PN. This work presented an opportunity to use a robust protocol to quantitatively describe the vibrotactile sensitivity of individuals with HIV-PN on effective antiretroviral therapy (ART) and correlate these findings with commonly used clinical vibration testing and scoring grades. METHODS: The vibration perception thresholds (VPTs) of 20 patients with HIV-PN at three vibration frequencies (25, 50, and 128 Hz) were measured. We compare the vibration perception threshold (VPT) outcomes to an age- and gender-matched control cohort. We further correlated VPT findings with 128 Hz tuning fork (TF) assessments performed on the HIV-PN participants, accrued as part of a larger study. HIV-PN was defined as having at least one distal symmetrical neuropathic sign, although 18 of 20 had at least two neuropathic signs. CONCLUSIONS: HIV-PN participants were found to have lower VPT sensitivity than controls for all three vibration frequencies, and VPT was more sensitive to higher vibration frequencies for both HIV-PN and controls. VPT sensitivity was reduced with older age. Years on ART was correlated with VPT-25 Hz but not with VPT in general. Notably, VPT sensitivity did not correlate with the clinically used 128 Hz TF severity grades. Outcomes of tests for interaction with vibration frequency suggest that HIV-PN pathology does not affect all mechanoreceptors similarly.


Detailed information of the effects of age and long-term HIV infection on various neurocognitive function have not been fully evaluated yet. In a prospective Japanese nationwide multicenter study of 17 facilities (J-HANd study), 728 HIV-infected individuals completed 14 neuropsychological (NP) tests; Verbal Fluency (VF; category and letter), Digit Span (DS; forward and backward), Trail Making Test (TMT) A-B, Rey-Osterrieth Complex Figure Test (ROCFT; copy, immediate and delayed recall), Story Memory Test (SMT; immediate and delayed recall), Digit Symbol Subset (DSS), and the Grooved Pegboard (GP; dominant and non-dominant). Multivariate analysis identified older age (>/= 50 years) to be associated with lower scores in all three ROCFT and GP dominant [odds ratio (OR) [95% confidence interval (CI)] 1.801 (1.217-2.664), 2402 (1.366-3.055), 2.691 (1.720-4.211), and 2.302 (1.145-4.628), respectively], whereas longer time since diagnosis was associated with a lower score in ROCFT (delayed recall) (OR 1.224, 95%CI 1.045-1.434). In VF letter, older age and longer time since diagnosis were associated with a better score [OR (95%CI) 0.449 (0.234-0.861) and 0.831 (0.692-0.997)]. In DSS and TMT-A, longer time since diagnosis was associated with a better score [OR (95%CI): 0.808 (0.670-0.973) and 0.795 (0.665-0.949), respectively]. Older patients in later years since diagnosis are at higher risk of visuospatial and motor impairments despite ART, whereas they are less likely to develop verbal impairment, suggesting that verbal function is relatively resistant to aging and long history of HIV infection under ART. These findings suggest that custom-tailored supports should be established based on the individual background.


People over the age of 50 are the fastest growing segment of the HIV-infected population in the USA. Although antiretroviral therapy has remarkable success controlling the systemic HIV infection, HIV-associated neurocognitive disorder (HAND) prevalence has increased or remained the same among this group, and cognitive deficits appear more severe in aged patients with HIV. The mechanisms of HAND in the aged population are not completely understood; a leading hypothesis is that aged individuals with HIV might be at higher risk of developing Alzheimer's disease (AD) or one of the AD-related dementias (ADRD). There are a number of mechanisms through which chronic HIV disease alone or in combination with antiretroviral therapy and other comorbidities (e.g., drug use, hepatitis C virus (HCV)) might be contributing to HAND in individuals over the age of 50 years, including (1) overlapping pathogenic mechanisms between HIV and aging (e.g., decreased proteostasis, DNA damage, chronic inflammation, epigenetics, vascular), which could lead to accelerated cellular aging and neurodegeneration and/or (2) by promoting pathways involved in AD/ADRD neuropathogenesis (e.g., triggering amyloid beta, Tau, or alpha-synuclein accumulation). In this manuscript, we will review some of the potential common mechanisms involved and evidence in favor and against a role of AD/ADRD in HAND.
OBJECTIVE: Substance use is common among individuals infected with HIV, yet whether neurocognitive effects of HIV can be distinguished from more nonspecific effects of drug dependence and associated comorbidities is not known. DESIGN: Cross-sectional observational study of neurocognitive function among HIV-infected and uninfected individuals with and without substance use disorders (SUDs). METHODS: We compared the performance of 458 (31% HIV-infected) substance-dependent individuals (SDIs) and 90 individuals (23% HIV-infected) with no history of SUDs on measures of delay discounting and probability learning, tasks, which are differentially sensitive to addictive processes and HIV serostatus, respectively. RESULTS: In factorial analyses of covariance adjusted for age, years of education, and sex, we found that SDIs showed significantly higher rates of delay discounting, regardless of HIV serostatus (P < 0.05). Conversely, HIV-infected individuals performed significantly more poorly on probability learning compared with uninfected groups, regardless of SUD history (P < 0.05). CONCLUSION: Theory-driven cognitive neuropsychological tasks may have the capacity to detect neurocognitive effects of HIV not attributable solely to substance use; evidence from functional neuroimaging studies with more selective neurocognitive probes will be critical for hypothesis testing and mapping underlying brain systems more precisely.


The success of combination antiretroviral therapy (cART) has transformed HIV infection into a chronic condition, resulting in an increase in the number of older, cART-treated adults living with HIV. This has increased the incidence of age-related, non-AIDS comorbidities in this population. One of the most common comorbidities is depression, which is also associated with cognitive impairment and a number of neuropsychopathologies. In older people living with HIV, treating these overlapping disorders is complex, often creating pill burden or adverse drug-drug interactions that can exacerbate these neurologic disorders. Depression, NeuroHIV and many of the neuropsychiatric therapeutics used to treat them impact the dopaminergic system, suggesting that dopaminergic dysfunction may be a common factor in the development of these disorders. Further, changes in dopamine can influence the development of inflammation and the regulation of immune function, which are also implicated in the progression of NeuroHIV and depression. Little is known about the optimal clinical management of drug-drug interactions between cART drugs and antidepressants, particularly in regard to dopamine in older people living with HIV. This review will discuss those interactions, first examining the etiology of NeuroHIV and depression in older adults, then discussing the interrelated effects of dopamine and inflammation on these disorders, and finally reviewing the activity and interactions of cART drugs and antidepressants on each of these factors. Developing better strategies to manage these comorbidities is critical to the health of the aging, HIV-infected population, as the older population may be particularly vulnerable to drug-drug interactions affecting dopamine.


Older HIV-infected patients are at risk for both HIV-associated neurocognitive disorder (HAND) and Alzheimer’s disease. We investigated neuroimaging and neuropsychological performance of 61 virally suppressed older adults withHAND (mean [SD] age 64.3 [3.9] years), 53 demographically matched individuals with mild cognitive impairment of the Alzheimer’s type (MCI-AD; 65.0 [4.8]), and 89 healthy controls (65.0 [4.3]) cross-sectionally and over 20 months. At the baseline, both disease groups exhibited lower volumes in multiple cortical and subcortical regions compared with controls. Hippocampal volume differentiated MCI-AD from HAND. Cognitively, MCI-AD performed worse on memory and language compared with HAND. Adjusted longitudinal models revealed greater diffuse brain atrophy in MCI-AD compared with controls, whereas HAND showed greater atrophy in frontal gray matter and cerebellum compared with controls. Comparing HAND with MCI-AD showed similar atrophy rates in all brain regions explored, with no significant findings. MCI-AD exhibited more pronounced language decline compared with HAND. These findings reveal the need for further work on unique cognitive phenotypes and neuroimaging signatures of HAND compared with early AD, providing preliminary clinical insight for differential diagnosis of age-related brain dysfunction in geriatric neuroHIV.

We assessed a ketogenic diet (KD) intervention protocol and the cognitive effects of KD in older adults with HIV-associated neurocognitive impairment. Adults older than 50 years and living with HIV and mild-to-moderate neurocognitive impairment were randomized to either a KD or a patient-choice diet for 12 weeks followed by a 6-week washout period. A neurocognitive battery was administered at baseline, Week 12, and Week 18. Paired t tests compared groups at baseline, and multivariate analyses of covariance were used to assess between-group differences on primary outcome variables at Weeks 12 and 18. We enrolled 17 participants, and 14 completed the study. No between-group baseline differences were noted. The KD group demonstrated improved executive function and speed of processing at Week 12, which were negated after participants resumed their usual diets. Our study supports the potential efficacy of a KD for the treatment of HIV-associated neurocognitive impairment.


OBJECTIVE: There is a lack of evidence for the neurobiological underpinning of asymptomatic neurocognitive impairment (ANI) and mild neurocognitive disorders (MNDs) in virally suppressed HIV-positive persons. We hypothesized that such mild impairment would be associated with focal brain atrophy. DESIGN: A cross-sectional observational study. METHODS: Eighty-five virally suppressed HIV-positive and 44 geographically, demographically and lifestyle comparable HIV-negative men underwent anatomical MRI, neuropsychological evaluation and HIV laboratory tests. Volumes of interest (VOI) from magnetic resonance (MR) images were extracted using FreeSurfer to yield grey and white matter volumes in regions associated with HIV-related brain injury. HIV-associated neurocognitive disorder (HAND) [ANI = 38%, MND = 13%, HIV-associated dementia (HAD) = 3% vs. neuropsychologically-normal] was classified using Global Deficit Score (GDS >/=0.5) and functional decline. Effects of HIV status on VOI were assessed with multivariate analyses controlling for family-wise error. HAND categories and HIV biomarker effects on VOI were assessed with multiple regression. RESULTS: Relative to the HIV-negative group, the HIV-positive group demonstrated subcortical grey (d = 0.50-0.60) and white matter (d = 0.43-0.69) atrophy, with relative cortical sparing (d = 0.23). ANI showed reduced medial-orbitofrontal white matter compared with NP-normal cases (P = 0.04). MND showed enlarged lateral ventricles (P = 0.02) and reduced caudal-middle-frontal white matter (P = 0.04), caudal-anterior-cingulate white matter (P = 0.006) and inferior-parietal white matter (P = 0.04) compared with neuropsychologically normal. Across the HIV-positive group, lower CD4+/CD8 ratio was the strongest predictor of atrophy in subcortical regions. Across HAND categories, HIV disease duration uniquely predicted greater medial-orbitofrontal white matter atrophy only in ANI (P = 0.002). CONCLUSION: ANI shows specific frontal white matter atrophy to which HIV disease duration is a unique contributor. MND is characterized by more widespread subcortical atrophy.


The success of anti-retroviral therapy has improved the quality of life and lifespan of HIV+individuals, transforming HIV infection into a chronic condition. These improvements have come with a cost, as chronic HIV infection and long-term therapy have resulted in the emergence of a number of new pathologies. This includes a variety of the neuropathological and neurocognitive effects collectively known as HIV-associated neurocognitive disorders (HAND) or NeuroHIV. These effects persist even in the absence of viral replication, suggesting that they are mediated the long-term changes in the CNS induced by HIV infection rather than by active replication. Among these effects are significant changes in catecholaminergic neurotransmission, especially in dopaminergic brain regions. In HIV-infected individuals not treated with ARV show prominent neuropathology is common in dopamine-rich brain regions and altered autonomic nervous system activity. Even infected individuals on therapy, there is significant dopaminergic neuropathology, and elevated stress and norepinephrine levels correlate with a decreased effectiveness of antiretroviral drugs. As catecholamines function as immunomodulatory factors, the resultant dysregulation of catecholaminergic tone could substantially alter the development of HIV-associated neuroinflammation and neuropathology. In this review, we discuss the role of catecholamines in the etiology of HIV neuropathogenesis. Providing a comprehensive examination of what is known about these molecules in the context of HIV-associated disease demonstrates the importance of further studies in this area, and may open the door to new therapeutic strategies that specifically ameliorate the effects of catecholaminergic dysregulation on NeuroHIV.

OBJECTIVE: Neurocognitive performance among older persons, including those living with HIV (people living with HIV [PLWH]), exhibits significant heterogeneity, suggesting subpopulations with differing profiles of neurocognitive impairment (NCI). Metabolic factors are associated with NCI, but their relationships to cluster-derived NCI profiles are unknown.

METHOD: Participants (144 PLWH and 102 HIV uninfected) aged 50+ years completed a neuropsychological battery assessing seven cognitive domains. Latent class analysis (LCA) identified NCI profiles separately by HIV serostatus and in a combined sample. Obtained classes were examined against the Montreal Cognitive Assessment (MoCA) and diagnoses of HIV-associated neurocognitive disorders (HAND). Multinomial regression identified metabolic predictors of classification.

RESULTS: LCA identified three latent classes in each participant sample: Class1Multidomain NCI (high probability of impairment across multiple domains), Class2Learning & Recall NCI (high probability of impairment in learning and recall), and Class3NC Unimpaired (low probability of NCI across all domains). Severity of NCI implied by classes corresponded with MoCA scores and HAND diagnoses. In analyses on the combined sample, compared to HIV-uninfected individuals, PLWH more likely to be in Class1Multidomain NCI. Among PLWH, those with dyslipidemia and hypertension had greater odds of classification in Class1Multidomain NCI while those with central obesity had higher odds of classification in Class2Learning & Recall NCI; metabolic syndrome approached significance as a differential predictor. Regardless of HIV status, individuals with diabetes were more likely to be in Class1Multidomain NCI. CONCLUSIONS: Metabolic risk factors confer heightened risk of NCI in HIV infection. Interventions to reduce metabolic risk may improve neurocognitive outcomes among PLWH.
Fluid biomarkers for cognitive impairment have the advantage of being relatively noninvasive and capable of monitoring neuronal and other brain cell health in real time. Biomarkers can predict the onset of dementing illness, but also correlate with cognition in a dynamic way allowing us to follow treatment responses and determine brain recovery. Chronic HIV infection causes cognitive impairment in a subset of individuals suggesting "premature aging." Exosomes are small extracellular vesicles that are shed from all cells. They are important in normal cell-to-cell communication as they contain cellular proteins, mRNA transcripts, and miRNAs. Exosome cargo varies depending on the health of the cell and pathological state; specific proteins/mRNAs and/or miRNAs are present and may serve as biomarkers. Exosomes of variable cellular origin can be isolated from peripheral blood by various methods. Neuron-derived exosomes (NDEs) can be isolated using a precipitation/immunoaffinity approach using antibodies against neuronal cell adhesion molecule L1CAM and the contents queried for central nervous system (CNS) disorders including HIV-associated neurological disorders (HAND) and Alzheimer's disease (AD). As these studies are recent, numerous questions arise including which neuronal proteins are in NDEs and whether their contents differ in different CNS pathologies or with age. In addition, can the NDE cargo predict as well as diagnose cognitive impairment and could exosomal contents be used as therapeutic biomarkers, or theramarkers, of neuronal recovery from effective treatment? This mini-review will show some new data and review recent studies on NDE from individuals with HIV infection and AD. HIV-associated neurocognitive disorders (HAND) are pathologies seen in a subset of individuals with chronic HIV infection. They belong to the spectrum of neurodegenerative diseases that result in death or dysfunction of neurons with similarities to Alzheimer disease (AD) but also distinctive differences (reviewed (Canet et al., Front Cell Neurosci 12: 307, 2018)). Both disorders are difficult to diagnose without neuropsychological testing and both need new biomarkers to judge progression as well as recovery with treatment. Both disorders involve neuroinflammation and several common targets. AD is associated with aging and HIV is thought to initiate premature aging. In HIV infection, amyloid beta (Abeta), which is deposited in "plaques" in AD, is soluble and its relevance to HIV-associated cognitive impairment is controversial (Achim et al., J Neuroimmune Pharmacol 4: 190-199, 2009; Rempel and Pulliam, AIDS 19: 127-135, 2005). Abeta deposition is required for AD pathological diagnosis, but is not necessarily causative (Barage and Sonawane, Neuropeptides 52: 1-18, 2015; Hardy and Selkoe, Science 297: 353-356, 2002; Morris et al., Acta Neuropathol...
HIV-associated neurocognitive disorders (HAND) continue to affect a large proportion of persons living with HIV despite effective viral suppression with combined antiretroviral therapy (cART). Importantly, milder versions of HAND have become more prevalent. The pathogenesis of HAND in the era of cART appears to be multifactorial with contributions from central nervous system (CNS) damage that occur prior to starting cART, chronic immune activation, cART neurotoxicity, and various age-related comorbidities (i.e., cardiovascular and cerebrovascular disease, diabetes, hyperlipidemia). Individuals with HIV may experience premature aging, which could also contribute to cognitive impairment. Likewise, degenerative disorders aside from HAND increase with age and there is evidence of shared pathology between HAND and other neurodegenerative diseases, such as Alzheimer’s disease, which can occur with or without co-existing HAND. Given the aforementioned
complex interactions associated with HIV, cognitive impairment, and aging, it is important to consider an age-appropriate
differential diagnosis for HAND as the HIV-positive population continues to grow older. These factors make the accuracy
and reliability of the diagnosis of mild forms of HAND in an aging population of HIV-infected individuals challenging. The
complexity of current diagnosis of mild HAND also highlights the need to develop reliable biomarkers. Ultimately, the
identification of a set of specific biomarkers will be required to achieve early and accurate diagnosis, which will be
necessary assuming specific treatments for HAND are developed.

Rubin, L. H., et al. (2019). "The current understanding of overlap between characteristics of HIV-associated neurocognitive disorders

The advent of effective antiretroviral medications (ARVs) has led to an aging of the HIV population with approximately 50%
people with HIV (PWH) being over the age of 50 years. Neurocognitive complications, typically known as HIV-associated
neurocognitive disorders (HAND), persist in the era of ARVs and, in addition to risk of HAND, older PWH are also at risk for
age-associated, neurodegenerative disorders including Alzheimer's disease (AD). It has been postulated that risk for AD may
be greater among PWH due to potential compounding effects of HIV and aging on mechanisms of neural insult. We are now
faced with the challenge of disentangling AD from HAND, which has important prognostic and treatment implications given
the more rapidly debilitating trajectory of AD. Herein, we review the evidence to date demonstrating both parallels and
differences in the profiles of HAND and AD. We specifically address similarities and difference of AD and HAND as it relates
to (1) neuropsychological profiles (cross-sectional/longitudinal), (2) AD-associated neuropathological features as evidenced
from neuropathological, cerebrospinal fluid and neuroimaging assessments, (3) biological mechanisms underlying cortical
amyloid deposition, (4) parallels in mechanisms of neural insult, and (5) common risk factors. Our current understanding of
the similarities and dissimilarities of AD and HAND should be further delineated and leveraged in the development of
differential diagnostic methods that will allow for the early identification of AD and more suitable and effective treatment
interventions among graying PWH.


BACKGROUND: Medical comorbidities accumulate in older persons living with HIV (PLWH), causing disability and reduced
quality of life. Sensory neuropathy and polypharmacy may contribute to balance difficulties and falls. The contribution of
neuropathy is understudied. OBJECTIVE: To evaluate the contribution of chronic distal sensory polyneuropathy (cDSPN) to
balance disturbances among PLWH. METHODS: Ambulatory PLWH and HIV- adults (N = 3379) were prospectively studied.
All participants underwent a neurologic examination to document objective abnormality diagnostic of cDSPN and reported
neuropathy symptoms including pain, paresthesias, and numbness. Participants provided detailed information regarding
balance disturbance and falls over the previous 10 years. Balance disturbances were coded as minimal or none and mild-to-
moderate. Covariates included age, HIV disease, and treatment characteristics and medications (sedatives, opioids, and
antihypertensives). RESULTS: Eleven percent of participants reported balance disturbances at some time during the last 10
years; the rate in PLWH participants exceeding that for HIV- [odds ratio 2.59, 95% confidence interval: 1.85 to 3.64]. Fifty-
two percent met criteria for cDSPN. Balance problems were more common in those with cDSPN [odds ratio = 3.3 (2.6-4.3)].
Adjusting for relevant covariates, balance disturbances attributable to cDSPN were more frequent among HIV+ than HIV- 
(interaction P = 0.001). Among individuals with cDSPN, older participants were much more likely to report balance
disturbances than younger ones. CONCLUSIONS: cDSPN contributes to balance problems in PLWH. Assessments of cDSPN in
older PLWH should be a clinical priority to identify those at risk and to aid in fall prevention and the ensuing consequences,
including bone fractures, subdural hematoma, hospital admissions, and fatal injury.

Saloner, R., et al. (2019). "Neurocognitive SuperAging in Older Adults Living With HIV: Demographic, Neuromedical and Everyday

OBJECTIVES: Studies of neurocognitively elite older adults, termed SuperAgers, have identified clinical predictors and
neurobiological indicators of resilience against age-related neurocognitive decline. Despite rising rates of older persons
living with HIV (PLWH), SuperAging (SA) in PLWH remains undefined. We aimed to establish neuropsychological criteria for
SA in PLWH and examined clinically relevant correlates of SA. METHODS: 734 PLWH and 123 HIV-uninfected participants
between 50 and 64 years of age underwent neuropsychological and neuromedical evaluations. SA was defined as
demographically corrected (i.e., sex, race/ethnicity, education) global neurocognitive performance within normal range for
25-year-olds. Remaining participants were labeled cognitively normal (CN) or impaired (CI) based on actual age. Chi-square and analysis of variance tests examined HIV group differences on neurocognitive status and demographics. Within PLWH, neurocognitive status differences were tested on HIV disease characteristics, medical comorbidities, and everyday functioning. Multinomial logistic regression explored independent predictors of neurocognitive status. RESULTS: Neurocognitive status rates and demographic characteristics differed between PLWH (SA=17%; CN=38%; CI=45%) and HIV-uninfected participants (SA=35%; CN=55%; CI=11%). In PLWH, neurocognitive groups were comparable on demographic and HIV disease characteristics. Younger age, higher verbal IQ, absence of diabetes, fewer depressive symptoms, and lifetime cannabis use disorder increased likelihood of SA. SA reported increased independence in everyday functioning, employment, and health-related quality of life than non-SA. CONCLUSIONS: Despite combined neurological risk of aging and HIV, youthful neurocognitive performance is possible for older PLWH. SA relates to improved real-world functioning and may be better explained by cognitive reserve and maintenance of cardiometabolic and mental health than HIV disease severity. Future research investigating biomarker and lifestyle (e.g., physical activity) correlates of SA may help identify modifiable neuroprotective factors against HIV-related neurobiological aging. (JINS, 2019, 25, 507-519).


Background: HIV-associated peripheral neuropathy (PN) is common in people living with HIV. Its management is mostly symptomatic utilising pharmacological approaches. Objectives: This study determined the effects of an exercise intervention on PN among Rwandan people living with HIV receiving antiretroviral therapy (ART). Methods: A 12-week single-blinded randomised controlled trial using the Brief Peripheral Neuropathy Screen (BPNS) as the assessment tool tested the effects of an exercise intervention on PN, followed by a 12-week non-intervention period. A total of 120 people with HIV-asssociated PN on ART were randomised to an exercise or no exercise group. Both groups continued receiving routine care. A bivariate analysis using Pearson’s chi-square test for significant differences in PN symptoms and signs, between groups, at baseline, after the 12 weeks intervention and 12 weeks post-intervention using generalised linear regression models to determine predictors of treatment outcomes was undertaken, utilising an intention-to-treat analysis (alpha p <= 0.05). Results: At 12 weeks, the intervention group compared to the control: neuropathic pain 70% versus 94% (p < 0.005), PN symptoms severity - mild and/or none in 85% versus 60% (p < 0.001) and radiation of PN symptoms reduced, 80% versus 37% (p < 0.001). There were no differences in PN signs at 12 weeks intervention and at 12 weeks post-intervention. Having changed the antiretroviral (ARV) and having developed PN symptoms after the start on ARVs predicted treatment improvement, while demographic factors did not predict any treatment outcome. Conclusion: A physiotherapist-led exercise intervention improved PN symptoms, but with non-significant improvement in PN signs. Factors related to early diagnosis and treatment of PN were facilitators for the improvement of PN symptoms. Clinical implications: Physiotherapist-led exercises should be integrated into the routine management of people living with HIV on ART with PN symptoms.


Approximately 50% of older adults with HIV meet the Frascati diagnostic criteria of HIV-associated neurocognitive disorders (HAND) which can interfere with everyday function such as medication adherence, employment, and driving ability, thus reducing quality of life. As the number of older adults with HIV continues to grow, many will become vulnerable to cognitive frailty, especially as they experience multimorbidities, polypharmacy, and geriatric syndromes. Healthcare professionals need strategies to prevent, remediate, and compensate for cognitive losses observed in memory, language, executive functioning, and speed of processing. Sadly, there are no standard protocols or accepted treatment/intervention guidelines to address HAND at this time. Fortunately, evidence from the cognitive aging literature indicates that cognitive training can protect and improve cognition in normal older adults and may even reduce the incidence of dementia/MCI. This article provides the scientific context in which computerized cognitive training approaches have been successfully used in older adults and provides examples of how these approaches have been translated to adults with HIV. Evidence from ongoing clinical trials are also presented that suggest that reversing a diagnosis of HAND may be possible. Recommendations for clinical practice and research are provided.
The synergistic effects of HIV and aging on the brain may compromise cognitive reserve, resulting in HIV-associated neurocognitive disorder. The neuroscience literature suggests that computerized cognitive training programs represent a practical strategy to protect or remediate cognitive functioning in older adults. Such cognitive training programs may hold similar therapeutic benefits for adults living with HIV. This systematic review evaluated the effects of cognitive training interventions in adults living with HIV. This systematic review includes 13 studies that have been conducted or are being conducted. Results suggest that cognitive training may improve the cognitive domain that is the target of training. One case study even demonstrated a reversal of HIV-associated neurocognitive disorder after cognitive training. Although greater evidence is needed to establish treatment guidelines, current evidence suggests that cognitive training improves cognitive function, which translates to more optimal everyday functioning (i.e., driving), improved mood, greater locus of control, and enhanced quality of life.

Approximately 59% of adults living with HIV experience HIV-associated neurocognitive disorder, a collection of symptoms and cognitive deficits in various cognitive domains. As the HIV population ages, the prevalence and severity of such cognitive deficits are expected to grow. Understanding how these cognitive deficits manifest is important for nurses and health care providers. This article provides an overview of cognitive reserve and evidence of how it is compromised by HIV, aging, and individual characteristics. Within this context of cognitive reserve, the role of neuroinflammation, neurotoxicity, substance use, comorbidities, depression and anxiety, social isolation, and sedentary lifestyle is reviewed. From this, strategies used to address cognitive deficits are provided, including topics such as psychostimulants, cognitive training, multimodal lifestyle interventions, and compensation strategies. Scenarios of successful and unsuccessful cognitive aging are presented to provide a lifespan perspective of cognitive reserve. Implications for clinical practice and research are provided, as it relates to aging.

OBJECTIVE: The causes of neurocognitive and everyday functioning impairment among aging people living with HIV (PLWH) are multifactorial. Exposure to stress and trauma can result in neurocognitive deficits via activation of neurological and other biological mechanisms. METHOD: PLWH (n = 122) and persons without HIV (n = 95), 35-65 years of age, completed four questionnaires that were used to generate a trauma, economic hardship (food insecurity and low socioeconomic status), and stress composite variable (TES). Participants also completed a comprehensive neuropsychological battery and standardized self-reports of activities of daily living (ADLs). We examined the independent and interactive effects of TES and HIV status on neurocognitive performance and ADL declines. RESULTS: PLWH had more traumatic events, more food insecurity, lower socioeconomic status, and higher perceived stress compared with HIV- individuals (all ps < .0001). Among PLWH, a higher composite TES score was associated with worse executive functioning (p = .02), worse learning (p = .02), worse working memory (p = .02), and more ADL declines (p < .0001), even after controlling for relevant demographic, psychiatric, substance use, and HIV disease covariates. On their own, individual TES components did not predict these outcomes. Conversely, no significant relationships were observed between TES and cognitive domains nor ADL declines among HIV- individuals. CONCLUSIONS: A composite score of trauma, economic hardship, and stress was significantly associated with worse neurocognitive performance and functional declines among PLWH. These adverse experiences may contribute to neurocognitive and daily functioning difficulties commonly observed among PLWH. Longitudinal studies are needed to elucidate the relationships between economic/psychosocial adversities and cognitive/functional outcomes over time, and examine potential mediators, such as inflammatory biomarkers. (PsycINFO Database Record (c) 2018 APA, all rights reserved).

BACKGROUND: The adverse consequences of HIV and related comorbidities on the central nervous system remain prevalent in the era of combination antiretroviral therapy. Metabolic syndrome (MetS) is a common comorbidity in HIV and has been linked to increased neurocognitive impairment in the general population. We investigated the association...
between MetS and neurocognition among persons living with HIV (PLHIV). METHODS: Participants included 109 PLHIV and 92 HIV-uninfected adults (HIV-) from the Multi-dimensional Successful Aging cohort study at the University of California San Diego (age: M = 50.8, SD = 8.0). Participants completed neuropsychological, psychiatric, and neurocognitive assessments. Based on a comprehensive neurocognitive battery, we examined global neurocognitive deficits (based on the entire battery) and neurocognitive deficits in 7 domains (verbal fluency, learning, recall, executive function, working memory, speed of information processing, and fine motor skills). MetS was determined via the standard criteria by the National Cholesterol Education Program's Adult Treatment Panel-III. Covariates examined included demographics and psychiatric comorbidities (and HIV disease characteristics among PLHIV). RESULTS: MetS had an independent significant effect on global neurocognitive deficits among PLHIV (P = 0.03) but not among their HIV- counterparts (P = 0.93). Among PLHIV, MetS was most strongly associated with the neurocognitive domains of learning, fine motor skills, and executive function. Diabetes and elevated triglycerides were the MetS components most strongly linked with increased global neurocognitive deficits in PLHIV. CONCLUSIONS: The present findings underscore the need for early identification of PLHIV at risk for MetS and the implementation of preventive and treatment approaches to lessen the development of MetS and neurocognitive impairment among PLHIV.

STIGMA


HIV-related stigma is associated with many negative health outcomes among people living with HIV (PLHIV). The theory of intersectionality suggests that the interactions of social identities affect PLHIV's experiences of stigma. This study aims to identify individual and interactive marginalized-group identities correlated with enacted HIV-related stigma among PLHIV in Florida. The sample (n = 932) was majority male (66.6%), Black (58.5%), and non-Latino (80.2%) with 53% reporting experiences of HIV-related stigma. In multinomial regression models, the interaction between race and ethnicity was significant where non-White Latinos had higher odds of experiencing high levels of enacted stigma [AOR (CI) 7.71 (2.41, 24.73), p < 0.001] compared to white non-Latinos. Additionally, racial minorities were less likely to have experienced moderate or high levels of enacted stigma [AOR (CI) 0.47 (0.31, 0.72), p < 0.001; AOR (CI) 0.39 (0.22, 0.70), p = 0.002, respectively]. Moreover, women had higher odds of experiencing high levels of enacted stigma [AOR (CI) 2.04 (1.13, 3.67), p = 0.018]. The results suggest that intersectionality is important to consider in HIV-related stigma research and future interventions.


As the UNAIDS 90-90-90 targets for people living with HIV are increasingly being reached in many contexts, health-related quality of life, the so-called fourth 90, warrants special attention. HIV-related stigma and discrimination are major barriers for overall health-related quality of life despite impressive clinical and virological improvements in HIV care. There is a scarcity of well designed intervention studies that document stigma reduction in people living with HIV and few studies that specifically assess the effect of stigma on health-related quality of life. Further, few interventions target discrimination from providers outside of HIV-specific care or involve people living with HIV in both the design and implementation. Lastly, evidence on methods to reduce stigma in several underrepresented key populations and geographical regions is insufficient and research on intersectional stigma (ie, the convergence of multiple stigmatised identities) needs further attention.

Recent campaigns try to reduce social stigma associated with persons living with HIV. For example, a German campaign raised awareness that infection is unlikely in low-risk day-to-day interactions. Research has yet to show that there are no harmful side effects. This is essential because such messages promote a less threatening picture of HIV and thus may unintentionally increase complacency. We tested the possible side effects on the willingness to have sex without condoms. An experiment was conducted in which participants were exposed to anti-stigma messages or not. Anti-stigma messages did not elicit an increase in the willingness to have sex without condoms.


Young Black men who have sex with men's (YBMSM) attitudes and personal beliefs about themselves and their risk for HIV can be modified as a result of experiences with racism and HIV stigma. In-depth qualitative interviews were conducted with 25 HIV-negative YBMSM, aged 18-24, in North Carolina and Maryland. Data were thematically analyzed to capture participants' experiences and thoughts related to stigmatizing experiences and their perception of risk for HIV. Participants reported experiencing HIV stigmatizing and blatant racist commentary related to their identities as YBMSM. Participants described diverse strategies to distance themselves from these negative stereotypes and decrease their sexual risk for HIV. The findings highlight that HIV stigma and racial stereotypes are one of the many types of discrimination that YBMSM experience within the Black and gay communities and in society; leading to psychological distress and an altered perception of self and sexual risk.


HIV and sexuality stigma impede HIV prevention and care efforts. HealthMPowerment.org (HMP) is an interactive mobile phone- and web-based HIV prevention and care intervention for young Black men who have sex with men (YBMSM; ages 18-30) in the United States. HMP included three forums where participants could share their experiences. In this study, we explored whether engaging in stigma-related discussions was associated with changes in YBMSM’s stigma-related scores throughout the trial. YBMSM (ages 18-30; N = 238) participating in HMP completed surveys at baseline, and 3 and 6 month follow-ups that included a series of scales focused on HIV and sexuality (internalized homophobia; sexual prejudice) stigma. Sixty-two participants contributed to the forums (1497 posts). We coded instances where YBMSM's conversations were stigma related (915 posts, 61.1%), including discussions of anticipated (74/915, 8.1%), experienced (125/915, 13.7%), internalized (410/915, 44.8%), and/or challenged (639/915, 69.8%) stigma regarding sexuality and HIV. Using a mixed methods approach, we examined whether changes in YBMSM's stigma scores were associated with stigma-related discussions within the forum. We controlled for age, HIV status, income, and educational attainment in these multivariable models. YBMSM who discussed experiencing HIV stigma in the forums reported decreases in perceived HIV stigma over time (b = -0.37, p <= 0.05). YBMSM whose forum posts indicated anticipated HIV stigma reported increases in HIV stigma over time (b = 0.46, p <= 0.01). Participants who challenged sexuality-related stigma in forums had lower internalized homophobia (b = -0.68, p <= 0.01) at baseline. YBMSM whose discussions focused on experiencing sexuality-related stigma reported increases in internalized homophobia (b = 0.39, p <= 0.01) and sexual prejudice (b = 0.87, p <= 0.05) over time. Developing strategies to combat stigma remains a key priority. HMP created an online space where YBMSM could discuss HIV and sexuality stigma. Although a limited number of HMP participants authored the majority of these forum discussions, the discussions were associated with changes in the sample's stigma scores over time. Online interventions (e.g., social media, apps) should consider the inclusion of forums to address stigma and test the efficacy of forums to improve YBMSM's HIV prevention and care continuum outcomes.


HIV stigma affects many persons living with HIV in the United States, and reducing stigma is central to the US Centers for Disease Control and Prevention's (CDC) mission to promote health and prevent HIV transmission. To this end, CDC funds and implements programmatic activities, research, communication campaigns, and monitoring through data collection and public health surveillance. Centers for Disease Control and Prevention-funded programs have developed promising interventions and educational materials for reducing HIV stigma. Research conducted by CDC staff and their collaborators have made important contributions to the scientific literature on stigma, which have informed current CDC programmatic
efforts, including public education activities and social marketing campaigns. By monitoring HIV stigma in multiple populations, CDC can evaluate the population-level effectiveness of stigma-reduction efforts and identify key populations in need of support and intervention. This article describes these and other recent CDC efforts to address HIV stigma, and discusses new strategies with the potential to further reduce stigma.


Cities worldwide are striving to get to zero HIV stigma as a condition to get to zero new infections. We tracked an indicator of perceived HIV stigma across surveys of men who have sex with men (MSM) in San Francisco from 2011 to 2017. Little improvement in perceived HIV stigma was observed, from 22.3% (95% CI 18.7-26.3) of MSM agreeing with the statement "Most people would discriminate against someone with HIV" in 2011 to 21.0% (95% CI 17.5-24.9) in 2017 (chi(2) test for trend 0.252, p = 0.616). Success in ending the epidemic may flag without addressing the causes of HIV stigma.


Research has documented the negative impact of stigma on health outcomes for people living with HIV (PLHIV). How central HIV is to the identity of the individual may increase the negative effects of stigma, including greater psychological distress, while having strong social supports may play a buffering role. This study aimed to establish whether internalised stigma mediates the relationship between the centrality of HIV identity and psychological distress, while also assessing the role of social support as a moderator. PLHIV (n = 181) responded to a survey assessing experiences of living with HIV focussed on centrality of HIV identity, internalised stigma, and wellbeing. After controlling for age and education, findings from the mediation analysis show that the more central HIV is to an individual's identity, the more stigma is internalised and the greater the negative impact on psychological wellbeing. However, this is only the case for people with low levels of social support. Regardless of how central HIV is to identity, social support appears to act as a buffer and promote positive wellbeing. For those working with PLHIV, promoting the importance of good social support systems may be one way to address some of the negative impacts of stigma.


The population of people with HIV is aging globally as access to anti-retroviral therapy becomes more widely available. The diversity of older population with HIV has an impact on their experiences of stigma. HIV stigma may be enacted or felt. Enacted stigma is the prejudice, discrimination, and mistreatment that individuals and societies use to sanction people with HIV. Felt stigma refers to the internalized feelings of shame, guilt, and fear that arise from enacted stigma. Nondisclosure is rooted in the fear of negative consequences of revealing one's HIV status, such as losing a job, or being rejected by one's social network. Stigma may also affect social integration through self-protective withdrawal to avoid anticipated stigma. In addition to facing HIV stigma, people with HIV may possess multiple discredited identities due to their race, ethnicity, gender identity, etc., which is described as intersectionality. Older age represents an additional intersectional identity that affects people with HIV through the experience of ageism. Stigma and discrimination from HIV or any discredited identity are linked to poorer physical and mental health outcomes. Given the pervasiveness of stigma, it is not surprising that many older adults with HIV are socially isolated and report greater self-perceived stigma compared to those who are more socially integrated. While there is evidence that HIV stigma has declined compared to previous eras, more research is needed on HIV stigma among older adults in low- and middle-income countries to design policies and programs to combat HIV stigma globally. [ABSTRACT FROM AUTHOR]
Perceived HIV-related stigma continues to persist among people living with HIV and coping strategies are crucial to overall health. Coping may be associated with perceived HIV-related stigma. However, research examining differences by sex and sexual orientation is lacking. Therefore, the aims of the study were to assess the association between ways of coping and perceived HIV-related stigma, and to examine the relationship by sex and sexual orientation. Data were obtained from 346 individuals (191 men and 155 women) living with HIV. Multiple linear regression models showed that overall, distancing, and attack/escape avoidance coping were positively associated with perceived HIV-related stigma among the overall population, among men who have sex with men (MSM), and among women overall and heterosexual women. Among men overall, distancing and attack/escape avoidance coping were positively associated with perceived HIV-related stigma. Among women who have sex with women (WSW), attack/escape avoidance coping was positively associated with perceived HIV-related stigma. Effect sizes indicated small effects for overall coping and medium to large effects for distancing and attack/escape avoidance coping. Interventions focused on reducing perceived HIV-related stigma among populations living with HIV should address distancing and attack/escape avoidance strategies especially among women, regardless of sexual orientation, and MSM.


Efforts to identify and address social inequities in HIV pre-exposure prophylaxis (PrEP) access are urgently needed. We investigated early-adopting PrEP prescribers’ beliefs about how stigma contributes to PrEP access disparities in health care and explored potential intervention strategies within the context of PrEP service delivery. US-based PrEP prescribers were recruited through professional networks and participant referrals. Qualitative interviews were conducted, transcribed, and thematically analyzed. Participants (n = 18) were primarily male (72%); white (39%) or Asian (33%); and heterosexual (56%). Most practiced in the Northeastern (67%) or Southern (22%) United States; were physicians (94%); and specialized in HIV/infectious disease (89%). Participants described multiple forms of structural and interpersonal stigma impeding PrEP access. The requirement that PrEP be prescribed was a perceived deterrent for populations with medical mistrust and/or low health literacy. Practice norms such as discussing PrEP only in response to patient requests were seen as favoring more privileged groups. When probed about personally held biases, age-related stereotypes were the most readily acknowledged, including assumptions about older adults being sexually inactive and uncomfortable discussing sex. Participants criticized providers who chose not to prescribe PrEP within their clinical practice, particularly those whose decision reflected personal values related to condomless sex or discomfort communicating about sex with their patients. Suggested solutions included standardizing PrEP service delivery across patients and increasing cultural competence training. These early insights from a select sample of early-adopting providers illuminate mechanisms through which stigma could compromise PrEP access for key populations and corresponding points of intervention within the health care system.


Although anticipated HIV-related stigma—the expectation that one will experience prejudice and discrimination in the future as a result of others learning his or her HIV positive status—is theorized to be a robust predictor of antiretroviral therapy (ART) non-adherence, the association between anticipated stigma and ART non-adherence has been inconsistent. It may be, however, that anticipated stigma reliably, but indirectly, contributes to poor ART adherence through other psychosocial mechanisms. In the current study, we examine whether anticipated stigma indirectly contributes to treatment non-adherence through increased medication concerns. In a cross-sectional study, 585 people living with HIV in Atlanta and Macon, Georgia completed measures of anticipated HIV-related stigma, HIV-medication concerns, and HIV-treatment adherence. A latent variable mediation analysis revealed that anticipated stigma was positively associated with increased medication concerns, which consequently contributed to treatment non-adherence. Results reveal a psychosocial mechanism by which anticipated stigma contributes to ART non-adherence.


Pre-Exposure Prophylaxis (PrEP) is an effective, though sometimes stigmatized, strategy for HIV prevention. With the goal of examining how PrEP stigma can be addressed, this study examined the media’s handling of stigma related to PrEP by searching the Canadian Newsstream and Daily Xtra news databases for key terms related to PrEP. Overall, 101 media
Entering HIV care is a vulnerable time for newly diagnosed individuals often exacerbating psychosocial difficulties, which life among patients newly entering HIV care. "AIDS Care: 1-8.

Public stigma surrounding HIV is related to heightened emotional distress, poor psychological functioning, and reduced Social Health of Men Who Have Sex With Men Living With HIV." Am J Mens Health 13(5): 155798319873778.

Using syndemics theory as a framework, we explored the experience of men who have sex with men in India in relation to four syndemic conditions (depression, alcohol use, internalised homonegativity and violence victimisation) and to understand their resilience resources. Five focus groups were conducted among a purposive sample of diverse men along with seven key informant interviews with HIV service providers. Participants’ narratives suggested various pathways by which syndemic conditions interact with one another to sequentially or concurrently increase HIV risk. Experiences of discrimination and violence from a range of perpetrators (family, ruffians and police) contributed to internalised homonegativity and/or depression, which in turn led some men to use alcohol as a coping strategy. Stigma related to same-sex sexuality, gender non-conformity and sex work contributed to the production of one or more syndemic conditions. While rejection by family and male regular partners contributed to depression/alcohol use, support from family, regular partners and peers served as resources of resilience. In India, HIV prevention and health promotion efforts among men who have sex with men could be strengthened by multi-level multi-component interventions to reduce intersectional/intersecting stigma, address syndemic conditions and foster resilience - especially by promoting family acceptance and peer support.


Public stigma surrounding HIV is related to heightened emotional distress, poor psychological functioning, and reduced subjective well-being in people living with HIV. For men who have sex with men (MSM) living with HIV, they may also face stigmatizing attitudes within the gay community, which create an additional burden to their health. Grounded in the psychological mediation framework, the present study examined the underlying psychological processes through which HIV stigma from the public and within the gay community influences the mental and social health of MSM living with HIV.

Findings from 206 Chinese MSM living with HIV in Hong Kong indicated that negative self-concept, maladaptive coping, and peer isolation mediated the effect of HIV stigma on mental and social health. The study revealed the cognitive, regulatory, and interpersonal processes underlying HIV stigma and health. Feeling intense HIV stigma from the public and within the gay community may render MSM living with HIV more vulnerable to negative self-concept, maladaptive coping, and peer isolation, which contribute to poor mental and social health. To combat prejudice and discrimination against people living HIV, stigma reduction initiatives should be implemented not only in the public, but also in the gay community. Cognitive-behavioral interventions can also be used to restructure negative self-beliefs and build adaptive emotion regulation skills, which can improve stigma-related health outcomes among MSM living with HIV.


Entering HIV care is a vulnerable time for newly diagnosed individuals often exacerbating psychosocial difficulties, which may contribute to poor health-related quality of life (HRQOL) ultimately influencing health behaviors including ART adherence, the driver of viral load suppression. Understanding HRQOL in people newly entering HIV care is critical and has the potential to guide practice and research. This exploratory cross-sectional study examined demographic, clinical, and psychosocial factors associated with limitations in four specific domains of HRQOL among persons initially entering outpatient HIV care at four sites in the United States (n = 335). In the unadjusted analysis, female gender was significantly associated with sub-optimal HRQOL with women having increased odds of reporting HRQOL challenges with pain, mood, mobility, and usual activity when compared to men. The adjusted models demonstrated attenuation of parameter estimates and loss of statistical significance for the associations with impaired HRQOL observed among women in
BACKGROUND: The relationship of internalized HIV stigma to key care cascade metrics in the United States is not well established using large-scale, geographically diverse data. SETTING: Center for AIDS Research Network of Integrated Clinical Systems (CNICS) cohort study. METHODS: Beginning in February 2016, we administered a yearly, validated 4-item internalized HIV stigma scale (response scale 1 = strongly disagree to 5 = strongly agree, Cronbach’s alpha 0.91) at 7 CNICS sites and obtained cohort data through November 2017. We compared mean stigma levels by sociodemographic characteristics and used multivariable logistic regression, controlling for the same sociodemographic covariates, to evaluate the association between mean stigma and (1) concurrent viremia; (2) missed visits; and (3) poor visit constancy. We used inverse probability weighting (IPW) to account for differences between patients who did and did not undergo stigma assessment. RESULTS: Of 13,183 CNICS patients, 6448 (49%) underwent stigma assessment. Mean stigma was 1.99 (SD 1.07), and 28.6% agreed/strongly agreed with at least 1 stigma question. Patients younger than 50 years, racial/ethnic minorities, cis-women, and heterosexuals had higher mean stigma. Mean stigma score was associated with concurrent viremia [adjusted odds ratio (AOR) 1.13, 95% confidence interval (CI): 1.02 to 1.25, P < 0.02], missed visits (AOR 1.10, 95% CI: 1.02 to 1.19, P < 0.01), and poor visit constancy, although the effect on visit constancy was attenuated in the IPW model (AOR 1.05, 95% CI: 0.98 to 1.13, P < 0.17). CONCLUSIONS: Higher internalized HIV stigma had a modest but statistically significant association with concurrent viremia and poor retention in care. Further inquiry with prospective analyses is warranted.

Relationships that traverse sociodemographic categories may improve community attitudes toward marginalized groups and potentially protect members of those groups from stigma and discrimination. The present study evaluated whether internalized HIV stigma and perceived HIV-related discrimination in health care settings differ based on individual- and neighborhood-level characteristics of women living with HIV (WLHIV). We also sought to extend previous conceptual and empirical work to explore whether perceived HIV-related discrimination mediated the association between neighborhood racial diversity and internalized HIV stigma. A total of 1256 WLHIV in the Women’s Interagency HIV Study (WIHS) attending 10 sites in metropolitan areas across the United States completed measures of internalized HIV stigma and perceived HIV-related discrimination in health care settings. Participants also provided residential information that was geocoded into Federal Information Processing Standard (FIPS) codes and linked with census-tract level indicators. In cross-sectional analyses, greater neighborhood racial diversity was associated with less internalized HIV stigma and less perceived HIV-related discrimination regardless of individual race. Neighborhood median income was positively associated with internalized HIV stigma and perceived discrimination, while individual income was negatively associated with perceptions of stigma and discrimination. In an exploratory mediation analysis, neighborhood racial diversity had a significant indirect effect on internalized HIV stigma through perceived HIV-related discrimination. An indirect effect between neighborhood income and internalized stigma was not supported. These findings suggest that greater neighborhood racial diversity may lessen HIV stigma processes at the individual level and that HIV stigma-reduction interventions may be most needed in communities that lack racial diversity.


Objective: HIV stigma undermines health and well-being of people living with HIV (PLWH). Conceptual work on stigma mechanisms suggests that experiences of stigma or discrimination increase internalised stigma. However, not all PLWH may internalise the HIV discrimination they experience. We aimed to investigate the role of stress associated with events of HIV-related discrimination on internalised HIV stigma, as well as the downstream effects on depressive symptoms and alcohol use severity. Design: 199 participants were recruited from an HIV clinic in the southeastern United States. Main study...
HIV-related discrimination was assessed using items adapted from measures of enacted HIV stigma and
discrimination. Participants rated perceived stress associated with each discrimination item. Internalised HIV stigma was
assessed using the internalised stigma subscale of the HIV Stigma Mechanisms Scale. Depressive symptoms were assessed
with the Centre for Epidemiological Studies-Depression Index. Alcohol use severity was assessed with the Alcohol Use
Disorders Identification Test. Results: In serial mediation models, HIV-related discrimination was indirectly associated with
both depressive symptoms and alcohol use severity through its associations with stress and internalised HIV stigma.

Conclusions: Understanding the mechanisms through which PLWH internalise HIV stigma and lead to poor health outcomes
can yield clinical foci for intervention.

Behav.

HIV stigma is a harmful social phenomenon present in United States (US)-based health care settings. This study assessed the
efficacy of a participatory PhotoVoice-informed stigma reduction training program focusing on people living with HIV
(PLWH) and targeting health care workers. Seventy-three (N = 73) participants were assessed at baseline (T1), within
approximately a week of the training (T2), and at a 3-month follow-up (T3) regarding their HIV/AIDS knowledge, attitudes
towards PLWH, and observations of enacted HIV stigma. Findings indicated that the training increased knowledge and
improved attitudes (beta = 0.56, p < 0.01; beta = 0.58, p < 0.01, respectively) at T2, but these effects diminished at T3 (beta
= -0.03, p > 0.05; beta = -0.29, p > 0.05, respectively). The training did not, however, have an impact on observations of
enacted stigma at T2 (beta = 0.10, p > 0.05) or at T3 (beta = 0.02, p > 0.05). Additional participatory stigma reduction
programs that involve diverse groups of health care workers, offer salient study incentives, include time-saving training
methods, and comprise a variety of stigma measures, may be particularly beneficial.


OBJECTIVE: This study aims to determine the relationship between stigma, religiosity, and the quality of life of HIV-positive
men who have sex with men (MSM) in Medan. METHODS: This is an analytical observational study with a cross-sectional
approach. Data in demographics, stigma, religiosity, and quality of life were obtained directly from the participants. Data
were taken from April to May 2018. There were 175 subjects who met the criteria which; (i) HIV-positive MSM; (ii)
aged >/=18 y.o.; and (iii) able to read and write. RESULTS: Bivariate analysis found that there is a negative relationship
between stigma and quality of life (p-value=0.007), and there is a positive relationship between religiosity and quality of life
(p-value=0.000). CONCLUSION: These findings suggest that stigma is an indicator of poor quality of life, while higher
religiosity is associated with better quality of life. An interdisciplinary approach is needed in health care planning and social
services, to improve the quality of life of HIV-positive MSM.


Internalized stigma undermines health among people diagnosed with HIV and other sexually transmitted infections (STI),
yet limited research has examined how internalized stigma develops. Black gay and bisexual men (n = 151) reported their
race and sexual orientation internalized stigma once before HIV/STI diagnosis and their HIV/STI internalized stigma monthly
for 1 year after HIV/STI diagnosis. Multilevel analyses demonstrated that race and sexual orientation internalized stigma
before diagnosis were associated with greater HIV/STI internalized stigma after diagnosis. More research is needed to
understand how internalized stigma develops, including within the context of other identities and broader environmental
characteristics to inform intervention efforts.

Behav Med.

Since the beginning of the HIV epidemic stigma has served as a strong barrier to effectively delivering HIV prevention and
treatment. Due in part to its complex nature, stigma is difficult to address and novel methods of understanding stigma are
needed. Based on formative and empirical research with N = 236 primarily Black men living with HIV, a HIV
OBJECTIVES: African-American women suffer disproportionately from HIV, breast cancer, and other illnesses. Little is known about the relationship between internalized HIV-related stigma and health beliefs related to other illnesses, including breast cancer. Our study examined (1) the relationship between internalized HIV-related stigma and breast health beliefs over time and (2) the moderating effects of participating in a stigma reduction intervention and/or social support.

METHODS: Data from 239 African-American women receiving care for HIV in Chicago, IL, or Birmingham, AL, enrolled in the Unity randomized controlled trial, were used in this secondary analysis. Threat of breast cancer was measured in terms of perceived susceptibility, fear, and adverse consequences as well as an overall perceived threat of breast cancer. We used multivariate models with generalized estimating equations to examine the relationship between internalized HIV-related stigma and breast health beliefs across three time points (baseline, immediately post-workshop, and at 12-month follow-up) and to examine if the study arm (HIV stigma reduction vs. breast cancer education) or social support moderated the relationship. RESULTS: Internalized HIV-related stigma was associated with greater overall perceived threat (p < 0.001), susceptibility (p = 0.03), fear (p < 0.001), and perceived adverse consequences (p < 0.001) of breast cancer. These associations remained consistent across study arms and across all levels of social support. CONCLUSIONS: Future studies that examine co-morbid health conditions among African-American women living with HIV should consider the impact of HIV-related stigma on attitudes and beliefs related to co-morbid conditions.


Background: Stigma against HIV profoundly affects the quality of life (QOL) of people living with HIV/AIDS (PLWHA). We aimed to assess the factors associated with QOL in PLWHA in Iran, specifically HIV-related stigma, sociodemographic and clinical characteristics. Methods: Two hundred PLWHA participated in this cross-sectional study. Data were collected using sociodemographic, stigma, and WHO-QOL-BREF questionnaires. Correlations, ANOVAs, and Student’s t-distribution tests were performed as bivariate analyses. We employed stepwise multiple linear regression analysis to explore the main factors associated with QOL domains. Results: Six domains of QOL were negatively correlated with three domains of stigma (p<0.001 for all). Stepwise multiple linear regression revealed that, after adjusting for confounders, lack of healthcare insurance, having no basic knowledge of HIV/AIDS prior to diagnosis, low monthly income of participants and family, and stigma (blaming and distancing, discrimination, and fear) were associated with low mean score of different domains of QOL. Conclusion: Our findings indicated that increasing HIV/AIDS-related stigma decreases QOL in PLWHA in Iran. Attention toward decreasing stigma, improving healthcare plan, and cultivating economic condition should be given high priority to ensure improvement in total QOL and corresponding domains in PLWHA’s life.


African American women experience higher rates of HIV than other women in the United States, and stigma has been identified as an important determinant of engagement in HIV care. Our study examined whether key variables moderated the effect of an anti-stigma intervention on outcomes among African American women receiving treatment for HIV. Twelve potential moderators included: age, years lived with HIV, marital status, employment status, education level, PTSD diagnosis, alcohol use, social support, baseline CD4 count, baseline viral load, and number of children. Outcomes included changes in: HIV-related stigma, social support, depressive symptoms, PTSD symptoms, alcohol use, viral load, and engagement in HIV care. Results suggest that the intervention is associated with greater improvement in engagement in care among participants with PTSD or depression at baseline, and may help maintain engagement in care among African American women in the United States.
participants experiencing certain mental health conditions. This provides opportunities to address discriminatory structural barriers that lead to stigma and drop-offs in HIV care.


Evidence suggests that HIV-related stigma is a contributing factor to mental health and substance use problems among people living with HIV (PLWH). Limited research, however, has examined the differential effects that multiple stigma constructs, specifically, anticipated, enacted, and internalized stigma may have on mental health and alcohol use disorders among PLWH. Furthermore, no studies have examined this relationship within the larger context of urban life stressors. The purpose of this study was to examine associations of an overall HIV-related stigma measure and four HIV stigma subscales on depression, anxiety, and hazardous drinking among a sample of 380 PLWH in New Orleans. Log-Poisson models with generalized estimating equations were used to estimate relative risks (RR) and 95% confidence intervals (CI). A test of interaction was used to determine presence of effect modification by urban life stressors. Overall, higher levels of HIV-stigma were associated with depressive symptoms (RR 1.67, 95% CI 1.25, 2.23), anxiety symptoms (RR 1.91, 95% CI 1.17, 3.12), and hazardous drinking (RR 1.45, 95% CI 1.02, 2.05). Internalized HIV-stigma (measured using the negative self-image subscale) was associated with all three outcomes and had the highest magnitude point estimates across the four stigma subscales. Urban life stressors, measured by the Urban Life Stressors Scale (ULSS), modified the association between HIV-related stigma and mental health and alcohol use disorders (P < 0.2), highlighting the importance for examining the larger urban environmental context. Findings from this study may inform interventions to reduce HIV-related stigma operating at the individual and structural level.


INTRODUCTION: Self-stigma-negative self-judgements resulting in shame, worthlessness and self-blame-may play a crucial role in emotional reactions and cause emotional distress among many people living with HIV and other chronic illnesses. Furthermore, self-stigma negatively impacts on self-agency, quality of life, adherence to treatment, and access to services. High levels of self-stigma have been reported across many countries, however few programmes or interventions exist to specifically tackle this phenomenon. This paper reports the findings of a pilot study carried out in Zimbabwe using a programme incorporating "Inquiry-Based Stress Reduction (IBSR): The Work of Byron Katie"-a guided form of self-inquiry which helps users to overcome negative thoughts and beliefs. OBJECTIVES: The primary objective of this uncontrolled pilot study was to examine the potential role of the IBSR intervention in helping people living with HIV to overcome self-stigma and associated states. METHODS: 23 people living with HIV (17 Female, 6 male, average age 41 years) were recruited from a local HIV support network, via open call for volunteers. All participants received the intervention, consisting of a 12-week facilitated programme using techniques derived from IBSR: The Work of Byron Katie. Qualitative and quantitative data were collected and analysed pre- and post-programme. RESULTS: After taking part in the intervention, participants reported significant improvements in factors including self-stigma (1-month follow-up vs baseline Z = 2.1, p = 0.039; 3-month follow-up vs baseline Z = 3.0, p = 0.003, n = 23, Wilcoxon Matched Pairs Signed Rank Test) and depression (1mo vs baseline Z = 3.7, p = <0.001; 3mo vs baseline Z = 3.3, p = 0.001). Qualitatively, participants reported improvements including lessened fears around disclosure of their HIV status, reduced feelings of life limitations due to HIV, and greater positive mentality. Improvements persisted at three-month follow-up. CONCLUSION: With further development and larger comparative studies to confirm effects, the IBSR programme could become a novel tool to enable people living with HIV to support themselves in overcoming self-stigma.
INTRODUCTION: Stigma and discrimination (SAD) related to HIV compromise access and adherence to treatment and support programs among people living with HIV (PLHIV). The ambitious goal of ending the epidemic of HIV by 2030 set by the United Nations Joint Program of HIV/AIDS (UNAIDS) will thus only be achieved if HIV-related stigma and discrimination are reduced. The objective of this review was to locate, appraise and describe international literature reporting on interventions that addressed HIV-related SAD in healthcare settings. METHODS: The databases searched were: Cumulative Index to Nursing and Allied Health (CINAHL), Excerpta Medica Database from Elsevier (EMBASE), PubMed and Psychological Information (PsycINFO) database. Two individuals independently appraised the quality of the papers using appraisal instruments from the Joanna Briggs Institute (JBI). Data were extracted from papers included in the review using the standardized data extraction tool from JBI. Quality of evidence for major outcomes was assessed using Grading of Recommendations, Assessment, Development and Evaluation (GRADE). RESULTS: We retained 14 records reporting on eight studies. Five categories of SAD reduction (information-based, skills building, structural, contact-based and biomedical interventions) were identified. Training popular opinion leaders (POLs) resulted in significantly lower mean avoidance intent scores (MD = -1.87 [95% CI -2.05 to -1.69]), mean prejudicial attitude scores (MD = -3.77 [95% CI -5.4 to -2.09]) and significantly higher scores in mean compliance to universal precaution (MD = 1.65 [95% CI 1.41 to 1.89]) when compared to usual care (moderate quality evidence). The Summary of Findings table (SOF) is shown in Table 1. CONCLUSIONS: Evidence of moderate quality indicates that training popular opinion leaders is effective in reducing avoidance intent and prejudicial attitude and improving compliance to universal precaution. Very low quality evidence indicates that professionally-assisted peer group interventions, modular interactive training, participatory self-guided assessment and intervention, contact strategy combined with information giving and empowerment are effective in reducing HIV-related stigma. Further Randomized Controlled Trials (RCTs) are needed. Future trials need to use up-to-date and validated instruments to measure stigma and discrimination.


Cisgender men partnered with transgender women are an understudied and hard to engage population in HIV prevention efforts. Relationship stigma—the anticipation of negative treatment based on having a relationship with a member of a stigmatized group—has been linked to adverse health behaviors, but it remains unclear whether different sources of relationship stigma (i.e., family, friends, and the general public) are associated with HIV risk behaviors and whether these associations may vary by men's sexual identities (e.g., gay, bisexual, and heterosexual). The current study examined associations between relationship stigma and HIV risk behaviors and whether these associations were moderated by sexual identity. We recruited a convenience sample of 185 cisgender men in primary partnerships with transgender women to participate in a one-time survey. Gay identified men reported greater levels of relationship stigma from the general public compared with heterosexually identified men. In multivariable models, higher levels of relationship stigma from the public were associated with increased odds of engaging in drug use prior to having condomless sex and receiving an STI diagnosis in the last 30 days. There were significant interaction effects such that higher levels of relationship stigma from the public were associated with both indicators of HIV risk for gay identified men but not for heterosexually identified men. Findings support the importance of HIV prevention approaches accounting for relationship stigma from the general public and the diverse sexual identities of men partnered with transgender women when seeking to increase linkage to and engagement in HIV prevention services, including biomedical prevention strategies.


Introduction: Human immunodeficiency virus (HIV)-related stigma refers to the negative beliefs, feelings, and attitudes, while discrimination is the unfair and unjust treatment of people living with HIV/acquired immunodeficiency syndrome (PLHA). Their manifestations are context-specific and have varied impacts. Objectives: (1) To determine the different contexts in which PLHA face stigma and discrimination. (2) To study the impact of stigma and discrimination on the health of the PLHA. Methodology: A qualitative study was conducted among PLHA at the office of the network for positives. Fourteen key informant interviews were conducted on PLHA and the peer counselors to determine the contexts in which they faced stigma and discrimination. To understand its impact on health, two Focus Group Discussions were carried out.
The relationship between perceived community stigma and treatment adherence has been established in previous literature. Yet, less is known about explicit circumstances in which perceived community stigma deters people living with HIV (PLWH) from maintaining care. This research examines the impact of perceived community stigma against PLWH on self-reported barriers and supports to remain in HIV care services. We used survey data from a 3-year study of the HIV test and treat (T&T) continuum of services in Hartford, CT, surveying 200 PLWH. Logistic regression was used to determine if
perceived community stigma had a statistically significant effect on the willingness of PLWH to utilize HIV care services. Results revealed that an increase in perceived stigma predicted willingness to see a doctor in 6 months for those who 'had a fear of poor treatment' (\(\text{chi}(2)(6) = 21.995, p < 0.001\)) and 'were concerned about privacy' (\(\text{chi}(2)(6) = 16.670, p < 0.01\)). An increase in perceived stigma was also a significant factor in the belief that supportive case managers helped with accessing HIV care services (\(\text{chi}(2)(1) = 6.817, p < 0.01\)). Our findings suggest that having a high degree of perceived community stigma is impactful in instances where individuals anticipate stigma or discrimination.


This study focuses on how gay men communicate about pre-exposure prophylaxis (PrEP), focusing on how they learned about PrEP, how they discussed adoption with health care providers, and to what extent they have encountered stigma on social networks. In this qualitative study, 39 gay PrEP users were interviewed about PrEP. A majority of the participants learned about PrEP via friends and potential sex partners, and a majority of the participants experienced stigma from their health care provider and from other gay men online, mainly referring to promiscuity and risks of STIs. The authors recommend that health care providers should be trained in minimizing the expression of stigmatizing attitudes and should increase their knowledge of PrEP.


Stigma has negatively influenced the lives of people living with HIV since the beginning of the epidemic. It affects every facet of their lives and can cause mental health problems, loss of human rights, and barriers to care. Studies in developing countries have shown a high prevalence of HIV stigma among health care workers. Few studies have been conducted in the United States. We used a validated instrument to survey 330 health care workers in Washington, DC, a high HIV prevalence area. The goal was to obtain data to assess the severity of the problem. We found that stigmatizing beliefs and attitudes were prevalent as reflected in responses from 66% of the participants. Of clinicians surveyed, 31% reported using double gloves. Participants with stigma training had lower stigma levels, whereas older individuals and support staff were more stigmatizing. Negative attitudes affect access to care and have major public health implications.


The role of stigma on psychological wellness and treatment outcomes in people living with HIV (PLWH) has been well documented. However, within the context of the southern United States, the intersection between HIV-related stigma and social-ecological factors has been understudied. Thus, a results-based convergent, mixed synthesis design was used to examine the manifestations of HIV-related stigma in PLWH in the U.S. South. A literature search was conducted using PsycINFO, PubMed (includes MEDLINE), and CINAHL. The first level of screening by title and abstract was administered on 1,829 articles. A full-text screening of 169 studies was completed, and a total of 30 relevant articles were extracted. The mixed synthesis highlighted intervention strategies that can reduce HIV-related stigma while promoting positive health-behavior change. The findings of this review underscored the uniqueness of PLWH in the south and demonstrated the crucial role of intersectionality in investigating HIV-related stigma in treating and preventing HIV.


OBJECTIVE: This study aims to identify factors that influence HIV testing motivation among women at the Dr. H. Abdul Moeloek General Hospitalin Lampung, Indonesia. METHOD: A cross-sectional method was used in this study that employed a consecutive sampling technique involving 120 women with HIV. The participants were outpatients at the Voluntary Counseling and Testing (VCT) Dr. H. Abdul Moeloek General Hospital. This study utilized three instruments: the Berger HIV Stigma Scale, HIV Knowledge Questionnaire (HIV-KQ-18) and Safe Sex Behavior Questionnaire (SSBQ). RESULTS: The study examined factors that influence HIV testing motivation among women: HIV-related stigma, knowledge about HIV and HIV...
OBJECTIVE: African-American women are more likely than other women in the United States to experience poor HIV-related health; HIV stigma may contribute to these outcomes. This study assessed the relationship between HIV stigma and viral load, over time, among a sample of African-American women receiving treatment for HIV, and explored social support and depressive symptoms as mediators. DESIGN: Secondary analysis of longitudinal data. METHODS: Data came from a randomized trial of an intervention to reduce HIV stigma among African-American women in HIV care in Chicago, Illinois and Birmingham, Alabama. Sociodemographic and psychosocial data were collected at up to six study visits over 14 months.


Antiretroviral therapies (ART) suppress HIV replication, thereby preventing HIV disease progression and potentially preventing HIV transmission. However, there remain significant health disparities among people living with HIV, particularly for women living in impoverished rural areas. A significant contributing factor to HIV-related disparities is a stigma. And yet, the relative contributions of stigma, gender, socio-economics, and geography in relation to health outcomes are understudied. We examined the associations of internalized stigma and enacted stigma with community-level income inequality and HIV viral suppression—the hallmark of successful ART—among 124 men and 74 women receiving care from a publicly funded HIV clinic serving rural areas with high-HIV prevalence in the southeastern US. Participants provided informed consent, completed computerized interviews, and provided access to their medical records. Gini index was collected at the census tract level to estimate community-level income inequality. Individual-level and multilevel models controlled for point distance that patients lived from the clinic and quality of life, and included participant gender as a moderator. We found that for women, income inequality, internalized stigma, and enacted stigma were significantly associated with HIV suppression. For men, there were no significant associations between viral suppression and model variables. The null findings for men are consistent with gender-based health disparities and suggest the need for gender-tailored prevention interventions to improve the health of people living with HIV in rural areas. Results confirm and help to explain previous research on the impact of HIV stigma and income inequality among people living with HIV in rural settings.


OBJECTIVE: African-American women are more likely than other women in the United States to experience poor HIV-related health; HIV stigma may contribute to these outcomes. This study assessed the relationship between HIV stigma and viral load, over time, among a sample of African-American women receiving treatment for HIV, and explored social support and depressive symptoms as mediators. DESIGN: Secondary analysis of longitudinal data. METHODS: Data came from a randomized trial of an intervention to reduce HIV stigma among African-American women in HIV care in Chicago, Illinois and Birmingham, Alabama. Sociodemographic and psychosocial data were collected at up to six study visits over 14 months.


OBJECTIVES: The present study examined the intersectionality of stigma across varying groups of older persons living with HIV (PWH). METHODS: Four focus groups of older PWH (gay/bisexual men, heterosexual men, heterosexual and bisexual women, and Spanish-speaking) were audio-recorded and transcribed. Inductive thematic text analysis was used to identify qualitative themes. RESULTS: Five major themes emerged from the data: 1) disclosure of HIV status; 2) types of stigma experienced; 3) discrimination experienced; 4) other outcomes associated with experiencing stigma; and 5) influence of aging on social isolation experienced due to stigma. Findings indicate women did not suffer from the intersection of stigmas. Other groups suffered from the intersection of stigma due to HIV status and age (gay/bisexual males); HIV status and perceived stigma of sexual orientation or drug use (heterosexual males); and HIV status and culture/ethnicity (Spanish-speaking). CONCLUSIONS: Results indicate that many at-risk groups, including heterosexual men, homosexual men, and Spanish-speaking individuals, experience an intersection of stigma between aging and their sexuality, HIV status, or real or perceived drug use. CLINICAL IMPLICATIONS: Results highlight the need for HIV support, especially social support, to address intersection of stigmas for unique groups of individuals disproportionately affected by HIV.

OBJECTIVE: To examine whether experienced poverty stigma is associated with worse HIV care and treatment outcomes.

BACKGROUND: Stigma remains a reality for many people living with HIV. Stigma bears on mental health, but we hypothesized that it might also affect cognition, in turn affecting function. METHODS: We estimated the impact of HIV-related stigma on brain health and everyday functioning among 512 older white men living with HIV in Canada, using the International Classification of Functioning, Disability and Health as a comprehensive framework to integrate biopsychosocial perspectives. Experience of HIV-related stigma, as indicated by a single self-report item, was related to cognitive test performance, cognitive symptoms, and mood. Structural equation modeling was used to estimate the relationships between these variables. FINDINGS: A comprehensive structural equation model was built including personal, environmental, and biological factors, measures of mental and cognitive health, activity limitations, and participation restrictions. HIV-related stigma contributed to lower cognitive test performance and worse mental health. These in turn affected real-world function. The paths from stigma to cognition and mood had distinct downstream effects on physical, cognitive, and meaningful activities. INTERPRETATION: This provides evidence that HIV-related stigma is a threat to cognitive as well as mental health, with a negative impact on everyday function in men aging with HIV. This argues for direct links between the psychosocial and biological impacts of HIV at the level of the brain. Stigma reduction may be a novel route to addressing cognitive impairment in this population. FUNDING: Operating support was provided by the Canadian Institutes of Health Research (TCO-125272) and by the CIHR HIV Clinical Trials Network (CTN-273).


OBJECTIVE: To examine whether experienced poverty stigma is associated with worse HIV care and treatment outcomes.

DESIGN: We analyzed cross-sectional data from 433 women living with HIV enrolled in the Women's Adherence and Visit...
Engagement substudy of the Women's Interagency HIV Study. METHODS: Exposure was experienced poverty stigma, measured using the Perceived Stigma of Poverty Scale. Outcomes were viral suppression, CD4 cell count at least 350 cells/μl, and attending all HIV care visits in the past 6 months. Multivariable logistic regression models adjusted for income, age, race/ethnicity, education, substance use, months taking antiretroviral therapy (ART), number of antiretroviral pills in ART regimen, unstable housing, relationship status, and exchanging sex for money, drugs, or shelter. We also explored whether self-reported at least 95% ART adherence mediated the relationship between poverty stigma and viral suppression and CD4 cell count at least 350 cells/μl. RESULTS: Experienced poverty stigma was associated with lower adjusted odds of viral suppression [adjusted odds ratio (aOR) 0.76; 95% confidence interval (CI) 0.61-0.96], CD4 cell count at least 350 cells/μl (aOR 0.69; 95% CI 0.52-0.91), and attending all HIV care visits (aOR 0.73; 95% CI: 0.54-0.98). Exploratory mediation analysis suggests that at least 95% ART adherence significantly mediates the relationship between experienced poverty stigma and viral suppression and CD4 cell count at least 350 cells/μl. CONCLUSION: Longitudinal research should assess these relationships over time. Findings support interventions and policies that seek to reduce poverty stigma among people living with HIV.


Sexual orientation stigma stems from discriminatory social contexts and may ultimately impact the behavioral health of stigmatized individuals through stress-related pathways. Sexual minority stigma is of particular concern in Europe given the diversity of social contexts on the continent and sexual minority men's rapidly increasing risk of HIV infection, especially in Central and Eastern Europe, potentially rooted in stigma. This study assesses whether stigma in the ubiquitous social contexts surrounding sexual minority men (e.g., family, workplace, government) may place them at higher risk for HIV contraction across six countries. We utilized a large cross-sectional survey sample of HIV-negative sexual minority men (N = 2087; mean age = 31.6, SD = 9.7) from six European countries to test whether those who reported sexual orientation stigma also engaged in more HIV risk-related behaviors, including condomless sex with casual partners (in the absence of PrEP) and substance use before and during sex. Regression analyses were performed in Mplus. We found that a one standard deviation increase in reported sexual orientation stigma was significantly associated with the following during the last sexual encounter: a 19% increase in odds of sex under the influence of alcohol, 27% increase in odds of sex under the influence of cannabis, 49% increase in odds of sex under the influence of illicit drugs, an 11% increase in odds of condomless sex with casual partners in the past 6 months, and a 26% increase in odds of knowing where to receive an HIV test. Sexual minority men who reported perceiving greater sexual orientation-related stigma within their ubiquitous social contexts were significantly more likely to report sexual risk and alcohol and drug use during their last sexual encounter, yet reported more knowledge of preventive services. Contextual stigma might serve as a precursor to behavioral risks of HIV infection, generating maladaptive stress responses capable of being modified through individually-focused interventions. Structural interventions are also needed to ultimately reduce stigma at its source.


We used baseline data from a sample of African-American women living with HIV who were recruited to participate in a stigma-reduction intervention in Chicago and Birmingham (2013-2015) to (1) evaluate the relationship between HIV-related stigma and viral suppression, and (2) assess the role of depression and nonadherence to antiretroviral therapy (ART) as mediators. Data from women were included in this secondary analysis if they were on ART, had viral load data collected within 8-weeks of study entry and had complete covariate data. We used logistic regression to estimate the total effect of HIV-related stigma (14-item Stigma Scale for Chronic Illness) on viral suppression (< 200 copies/mL), and serial mediation analysis to estimate indirect effects mediated by depressive symptoms (8-item Patient Health Questionnaire) and ART nonadherence (number of days with missed doses). Among 100 women who met study inclusion criteria, 95% reported some level of HIV-related stigma. In adjusted models, higher levels of HIV-related stigma were associated with lower odds of being virally suppressed (AOR = 0.93, 95% CI = 0.89-0.98). In mediation analysis, indirect effects through depression and ART nonadherence were not significant. Findings suggest that HIV-related stigma is common among African-American women living with HIV, and those who experience higher levels of stigma are less likely to be virally suppressed. However, the mechanisms remain unclear.
INTRODUCTION: African-American women living with HIV report substantial HIV-related stigma and depression. Resilience resources are strength-based resources that may moderate the effects of HIV-related stigma on poor psychosocial outcomes such as depression. OBJECTIVE: To evaluate whether religiosity, social support, and ethnic identity moderate the effects of HIV-related stigma on depression among African-American women living with HIV. METHODS: We used baseline data (May 2013-October 2015) from a randomized controlled trial testing the efficacy of an HIV-related stigma-reduction intervention among African-American women living with HIV in Chicago, IL, and Birmingham, AL, who were older than 18 years and currently receiving HIV services. To assess whether religiosity (7-item Religious Beliefs and Behaviors survey), social support (select subscales from the Medical Outcomes Study Social Support Survey), and ethnic identity (Commitment subscale from the Multigroup Ethnic Identity Measure) modified the relationship between HIV-related stigma (Stigma Scale for Chronic Illness) and depression (8-item Patient Health Questionnaire), we conducted 3 separate moderation analyses using linear regression with interactions between HIV-related stigma and each moderator of interest, adjusted for study site, age, time since diagnosis, and education. RESULTS: Among 226 African-American women living with HIV, greater levels of HIV-related stigma were associated with greater depression in all 3 models ($P < 0.05$). Only religiosity modified this association ($P = 0.04$), with a weaker association among women reporting higher levels of religiosity. CONCLUSIONS: The protective effects of religiosity may be leveraged in interventions for African-American women living with HIV struggling with HIV-related stigma.


INTRODUCTION: Women living with HIV (WLHIV) experience stigma and elevated exposure to violence in comparison with HIV-negative women. We examined the mediating role of experiencing recent violence in the relationship between stigma and depression among WLHIV in Canada. METHODS: We conducted a cohort study with WLHIV in three Canadian provinces. Recent violence was assessed through self-reported experiences of control, physical, sexual or verbal abuse in the past three months. At Time 1 (2013-2015) three forms of stigma were assessed (HIV-related, racial, gender) and at Time 2 (2015-2017) only HIV-related stigma was assessed. We conducted structural equation modelling (SEM) using the maximum likelihood estimation method with Time 1 data to identify direct and indirect effects of gender discrimination, racial discrimination and HIV-related stigma on depression via recent violence. We then conducted mixed effects regression and SEM using Time 1 and Time 2 data to examine associations between HIV-related stigma, recent violence and depression. RESULTS: At Time 1 ($n = 1296$), the direct path from HIV-related stigma (direct effect: $\beta = 0.200, p < 0.001$; indirect effect: $\beta = 0.014, p < 0.05$) to depression was significant; recent violence accounted for 6.5% of the total effect. Gender discrimination had a significant direct and indirect effect on depression (direct effect: $\beta = 0.167, p < 0.001$; indirect effect: $\beta = 0.050, p < 0.001$); recent violence explained 23.15% of the total effect. Including Time 1 and Time 2 data ($n = 1161$), mixed-effects regression results indicate a positive relationship over time between HIV-related stigma and depression (Acoef: 0.04, 95% CI: 0.03, 0.06, $p < 0.001$), and recent violence and depression (Acoef: 1.95, 95% CI: 0.29, 4.42, $p < 0.05$), controlling for socio-demographics. There was a significant interaction between HIV-related stigma and recent violence with depression (Acoef: 0.04, 95% CI: 0.01, 0.07, $p < 0.05$). SEM analyses reveal that HIV-related stigma had a significant direct and indirect effect on depression over time (direct effect: $\beta = 0.178, p < 0.001$; indirect effect: $\beta = 0.040, p < 0.001$); recent violence experiences accounted for 51% of the total effect. CONCLUSIONS: Our findings suggest that HIV-related stigma is associated with increased experiences of recent violence, and both stigma and violence are associated with increased depression among WLHIV in Canada. There is an urgent need for trauma-informed stigma interventions to address stigma, discrimination and violence.

Despite strides in HIV prevention and lesbian, gay, bisexual, and transgender care, comprehensive care centers are of critical importance for lesbian, gay, bisexual, and transgender communities and people with HIV/AIDS who continue to contend with intersecting stigmas and chronic minority stressors. Building on the integrated attachment and sexual minority stress model, we discuss these themes by highlighting a group vignette from an urban psychiatric clinic that has provided affirmative psychotherapy to marginalized communities affected by HIV/AIDS for over 2 decades. The authors have rotated at the clinic as cofacilitators of a weekly, process-oriented group for sexual minority men who are HIV positive.
or are affected by HIV. In this article, we provide a theoretical foundation for HIV-affirming group psychotherapy and clinical integration of minority stress and attachment-based interventions. Group psychotherapy provides a rare opportunity to bond an often-isolated community by evoking factors of universality, cohesiveness, and catharsis. It simultaneously enables us to confront individual existential concerns with serostatus disclosure, grief, and feelings of victimization, as well as challenge internalized stigma and rejection sensitivity. We apply these issues to a verbatim clinical exchange, analyzing attachment-related themes and issues pertaining to minority stress and stigma, as well as discuss group mechanisms for attachment interventions. (PsycINFO Database Record (c) 2019 APA, all rights reserved).


Stigma remains a leading barrier to HIV care. To determine the influence of disclosure stigma (DS), fear of disclosing one's serostatus, on virologic suppression, a cross-sectional study was performed at the largest publicly-funded HIV clinic in South Texas. A survey was administered to participants who were >/=18 years old, living with HIV, and receiving antiretroviral therapy. Surveys included demographics, adherence questionnaire, and a validated HIV-stigma scale with DS as the sum of 10 items ranked 0-3, with score of 30 indicating highest stigma. The primary outcome was lack of virologic suppression (LOVS): most recent HIV-1 RNA > 20 copies/ml. A bivariate analyses examined predictors of DS, dichotomized at the median. Depression score, perceived stress, and lack of friend/family support were associated with DS. Logistic regression models examined the relationship between DS, as a continuous variable, and LOVS. For 275 participants (69% Hispanic), median DS score was 18.5. DS was significantly inversely associated with LOVS (aOR 0.94 per 1 scale point; CI 0.89, 0.99) after adjustment for age, gender/sexual orientation, race/ethnicity, and drug use. The unanticipated inverse association between DS and LOVS highlights the complexity of this relationship. However, the balance of data in this cohort demonstrate an overall negative impact of DS.


Engagement in HIV care reduces HIV-related health disparities that persist across racial/ethnic and gender lines; yet, African American (AA) women face multiple challenges to remaining engaged in care, including HIV-related stigma. We analyzed longitudinal data from 239 participants in the Unity Health Study to estimate associations between HIV-related stigma and engagement in care among AA women linked to HIV care. In adjusted Poisson regression analyses, engagement in care was not associated with HIV-related stigma but was associated with older age (incidence rate ratio [IRR] = 1.01, 95% confidence interval [CI] = [1.00-1.01], p = .01), higher levels of education (IRR = 1.18, 95% CI = [1.02-1.35], p = .03), and higher levels of social support (IRR = 1.05, 95% CI = [1.01-1.09], p = .04). Our findings suggest the need for targeted interventions to enhance engagement in care and to incorporate social support into health promotion programming for AA women living with HIV.


People living with HIV/AIDS (PLWHA) engage in proactive coping behaviors to minimize the risk of interpersonal stigma. This study explores proactive coping processes in navigating HIV/AIDS-related stigma within immediate families. Data for this study come from 19 one-on-one, qualitative interviews with a diverse, clinical sample of PLWHA in Philadelphia, PA. Thematic analysis indicated that participants continue to experience enacted, anticipated, and internalized forms of HIV/AIDS-related stigma. Participants discussed status concealment and selective disclosure as proactive coping resulting from anticipated stigma and physical distancing as proactive coping motivated by internalized HIV/AIDS-related stigma. Study findings demonstrate how living with a stigmatized condition can affect PLWHA social interactions with close networks like immediate families, specifically in eliciting stigma-avoidant behaviors. Anti-stigma efforts that educate immediate families to overcome stigmatizing attitudes and provide HIV-positive family members with high-quality social support should be coupled with efforts that target health-promotive self-management strategies for PLWHA.

Background: Stigmatization due to HIV status may interfere with disease management among persons living with HIV (PLWHA) by heightening serostatus disclosure concerns and vulnerability to depressive symptoms. Purpose: In this cross-sectional study, indirect effects of disclosure concerns and depressive symptoms were examined for the association of stigma to treatment adherence (medication and clinic appointment adherence) in an outpatient sample of PLWHA. Method: Participants (N = 179; 47% White, 41% African-American; 35% MSM) completed measures of stigma-related experiences, concerns about disclosing HIV status, depression, and medication adherence; clinic appointment attendance was obtained from chart data. Results: Stigma had an indirect effect on medication adherence (but not clinic attendance) via disclosure concerns. Stigma had indirect effects on both medication adherence and clinic attendance via depressive symptoms. In path analyses including both disclosure concerns and depressive symptoms, combined indirect effects emerged for both medication adherence and clinic attendance. There was a significant indirect pathway from stigma to disclosure concerns to depression to clinic attendance, whereas the positioning of the mediators was swapped for the significant indirect pathway from stigma to medication adherence. Conclusions: These analyses provide evidence that stigmatizing experiences negatively affect treatment adherence through the indirect effects of disclosure concerns and depressive symptoms. Disclosure concerns and depressive symptoms are two mechanisms worthy of further research to enhance understanding of the association between stigma and treatment adherence difficulties.


The present study examined the association between anxiety, stigma, social support and intention to use illicit drugs, and the moderating role of social support on the association between anxiety/stigma and intention to use illicit drugs among 450 Chinese HIV-positive MSM. Findings show that controlling for significant background variables, self-stigma and anxiety were positively associated with intention to use illicit drugs, while social support was negatively associated with intention to use illicit drugs. A significant moderation effect of social support was also observed, that the negative association between self-stigma/anxiety and intention to use illicit drugs was only significant among participants with lower levels of social support. Findings highlight the importance of reducing self-stigma and anxiety, and promoting social support in drug use prevention for HIV-positive MSM.


A substantial body of literature has characterized how psychosocial factors, including HIV-related stigma and coping, are associated with HIV testing and HIV care utilization post-diagnosis. Less is known about if certain psychosocial characteristics pre-diagnosis may also predict linkage to care among individuals who receive an HIV-positive diagnosis. We examined if pre-diagnosis awareness/perception about HIV-related stigma and dispositional coping styles predicted linkage to HIV care within three months post-diagnosis with a secondary analysis of 604 patients from a randomized controlled trial (Sabes Study). Awareness/perception about HIV-related stigma, dispositional maladaptive and adaptive coping were measured before patients underwent an HIV test. Linkage to care was measured as receipt of care within three months of receiving the diagnosis. After adjusting for covariates, individuals who reported greater dispositional maladaptive coping pre-diagnosis had lower odds of linking to care, OR = 0.82, 95%CI [0.67, 1.00], p = .05. There was also a non-significant inverse association between dispositional anxiety and intention to use illicit drugs was only significant among participants with lower levels of social support. Findings suggest the need for further longitudinal research and highlight the potential utility of pre-diagnosis psychosocial assessment and tailored counseling when providing positive HIV diagnosis results.


OBJECTIVE: The aim of our study was to examine the relationship between HIV stigma and adherence to antiretroviral (ARV) therapy among women with HIV. METHOD: 120 women with HIV involved in this cross-sectional study. The participant were outpatients at the Voluntary Counseling and Testing (VCT) Abdul Moeloek Hospital in Lampung, Indonesia. RESULTS: We examined data from 120 patients. Through chi-squared tests, a statistically significant correlation between HIV stigma and adherence to ARV therapy was revealed (p-value=0.045; OR 2.274) women with low levels of stigma toward HIV
demonstrated adherence to ARV treatment that was 2.27 times greater than that of women with high levels of stigma toward HIV. CONCLUSIONS: One way to increase adherence to ARV therapy in women with HIV is by minimizing its stigma. This can be done by increasing their self-confidence and not differentiating between people living with HIV and others in the provision of health services.


BACKGROUND: Internalized HIV stigma is a public health concern as it can compromise HIV prevention, care and treatment. This paper has two aims. First, it highlights the urgent need for research evidence on internalized HIV stigma based on critical knowledge gaps. Here, critical knowledge gaps were identified based on most up-to-date systematic review-level evidence on internalized stigma related to HIV and mental health difficulties. Secondly, the paper calls for a shift in focus of internalized HIV stigma research, one that moves beyond psychological frameworks to integrate social, structural and intersectional conceptualizations of stigma. This part of the paper reviews the evolution of stigma theory since Goffman’s 1963 seminal work - which defined stigma - to present. MAIN TEXT: Despite studies consistently suggesting that internalized HIV stigma is more prevalent than enacted stigma, there is little evidence of well-established programs to address it. In addition to this, considerable gaps in basic knowledge about the drivers of internalized HIV stigma hamper the development of an evidence-based response to the problem. The limited intervention and epidemiological research on the topic treats internalized HIV stigma as a purely psychological phenomenon. The second part of the paper provides arguments for studying internalized HIV stigma as a function of social and structural forces: (1) Individual-level interventions for internalized HIV stigma are rooted in out-dated theoretical assumptions; (2) From an ethics point of view, it could be argued that individual-level interventions rely on a victim-centric approach to a public health problem; (3) Social and structural approaches to internalized HIV stigma must be explored due to the high opportunity cost associated with small-scale individual-level interventions. CONCLUSIONS: Critical gaps in intervention and epidemiological research in internalized HIV stigma remain. There has been an absence of a shared, sound theoretical understanding of internalized HIV stigma as a manifestation of social and structural factors. This commentary sought to stimulate a dialogue to remedy this absence. Future research should take into account ethical considerations, the evolution of stigma theory over the past five decades, intersectionality and opportunity cost when framing hypotheses, developing theories of change and designing interventions.


Background: Self-stigma, also known as internalised stigma, is a global public health threat because it keeps people from accessing HIV and other health services. By hampering HIV testing, treatment and prevention, self-stigma can compromise the sustainability of health interventions and have serious epidemiological consequences. This review synthesised existing evidence of interventions aiming to reduce self-stigma experienced by people living with HIV and key populations affected by HIV in low-income and middle-income countries. Methods: Studies were identified through bibliographic databases, grey literature sites, study registries, back referencing and contacts with researchers, and synthesised following Cochrane guidelines. Results: Of 5880 potentially relevant titles, 20 studies were included in the review. Represented in these studies were 9536 people (65% women) from Ethiopia, India, Kenya, Lesotho, Malawi, Nepal, South Africa, Swaziland, Tanzania, Thailand, Uganda and Vietnam. Seventeen of the studies recruited people living with HIV (of which five focused specifically on pregnant women). The remaining three studies focused on young men who have sex with men, female sex workers and men who inject drugs. Studies were clustered into four categories based on the socioecological level of risk or resilience that they targeted: (1) individual level only, (2) individual and relational levels, (3) individual and structural levels and (4) structural level only. Thirteen studies targeting structural risks (with or without individual components) consistently produced significant reductions in self-stigma. The remaining seven studies that did not include a component to address structural risks produced mixed effects. Conclusion: Structural interventions such as scale-up of antiretroviral treatment, prevention of medication stockouts, social empowerment and economic strengthening may help substantially reduce self-stigma among individuals. More research is urgently needed to understand how to reduce self-stigma among young people and key populations, as well as how to tackle intersectional self-stigma.
BACKGROUND: Public health systems in resource-constrained settings have a critical role to play in the elimination of HIV transmission but are often financially constrained. This study is an evaluation of a mother-infant-pair model called "Umoyo," which was designed to be low cost and scalable in a public health system. Facilities with the Umoyo model dedicate a clinic day to provide services to only HIV-exposed infants (HEIs) and their mothers. Such models are in operation with reported success in Zambia but have not been rigorously tested. This work establishes whether the Umoyo model would improve 12-month retention of HEIs. METHODS: A cluster randomized trial including 28 facilities was conducted across two provinces of Zambia to investigate the impact on 12-month retention of HEIs in care. These facilities were offering Prevention of Mother-to-Child-Transmission (PMTCT) services and supported by the same implementing partner. Randomization was achieved by use of the covariate-constrained optimization technique. Secondary outcomes included the impact of Umoyo clinics on social support and perceived HIV stigma among mothers. For each of the outcomes, a difference-in-difference analysis was conducted at the facility level using the unweighted t test. RESULTS: From 13 control (12-month retention at endline: 45%) and 11 intervention facilities (12-month retention at endline: 33%), it was found that Umoyo clinics had no impact on 12-month retention of HEIs in the t test (p = 0.11; 99% CI = 0.11, 0.22). Regarding social support and stigma, the un-weighted t test showed no impact though sensitivity tests showed that Umoyo had an impact on increasing social support (0.31; 99% CI 0.08, 0.54) and reducing perceived stigma from health care workers (-0.27; 99% CI = 0.46, 0.08). CONCLUSION: The Umoyo approach of having a dedicated clinic day for HEIs and their mothers did not improve retention of HEIs though there are indications that it can increase social support among mothers and reduce stigma. Without further support to the underlying health system, based on the evidence generated through this evaluation, the Umoyo clinic day approach on its own is not considered an effective intervention to increase retention of HIV-exposed infants. TRIAL REGISTRATION: Pan African Clinical Trial Registry, ID: PACTR201702001970148 . Prospectively registered on 13 January 2017.

Pinkston, M. M. and A. E. Schierberl Scherr (2019). "Being diagnosed with HIV was the icing on the cake of my life". A case study of fostering resiliency through flexible interventions along the stigma-sickness slope. Psychotherapy (Chic).

The experiences of transgender individuals have been reflected in the stigma-sickness slope in which early stigma leads to marginalization and discrimination, placing an individual at risk for poverty and engagement in higher risk behaviors, eventually leading to sickness, such as HIV infection. For instance, the prevalence of HIV infection among transwomen is 49 times greater than among the general population. Traditional models of care provision for transgender individuals with HIV do not consider the burdens of multiple comorbidities and fear of discrimination impacting access and engagement in HIV medical care and psychotherapy. The present case study will describe how evidence- and strengths-based treatments can be flexibly integrated to promote sustained engagement in psychotherapy and improve patient outcomes. Our patient, a Latina transwoman, presented to psychotherapy at the time of her HIV diagnosis with mental and physical health concerns representative of marginalized populations. Nearly 3 years of treatment with 2 therapists in a medical setting are detailed, illustrating the realistic delivery of evidence-based care to promote minority resilience and disrupt the stigma-sickness slope. Through this case study, we present recommendations to address barriers to care. (PsycINFO Database Record (c) 2019 APA, all rights reserved).


OBJECTIVES: This study investigated whether sexual orientation moderated the mediation effects of coping resources (i.e., spirituality and complementary and integrative health [CIH] use) in the relationship between HIV stigma and psychological well-being (PWB) among older men with HIV (MWH). METHOD: Data from the Research of Older Adults with HIV (ROAH) study was used (N = 640, Age 50+). Structural equation modeling (SEM) was employed to examine a coping resource mediation model. We used a multiple-group procedure to test moderation effects by sexual orientation. RESULTS: HIV stigma was negatively associated with spirituality and PWB. HIV stigma accounted for a significant amount of variance in PWB, with significant indirect effects via spirituality, indicating a partial mediation. Chi-square difference tests supported the hypothesis that this mediation effect was moderated by sexual orientation. CIH use was not statistically significant. DISCUSSION: HIV stigma's negative relationship with PWB was salient in both groups. Spirituality's buffer between HIV
Evidence suggests that psychosocial stress negatively impacts immunological health in HIV-positive individuals. However, few studies have explored this association in substance-using older adults living with HIV (OALWH). We evaluated the effect of depression, loneliness, substance use problems, and HIV stigma on primary markers of immune function in a sample of 120 OALWH with substance-related issues. HIV stigma correlated with the greatest number of factors, including depression, loneliness, and substance use problems. Older age and antiretroviral adherence were associated with viral suppression, which was in turn associated with higher percentage of CD4 count. Multivariate path analyses demonstrated that lower HIV stigma and viral suppression were the only factors independently associated with higher percentage of CD4 count, with a significant indirect effect of adherence on CD4 through viral suppression. HIV stigma emerged as the most salient factor associated with both psychosocial well-being and immune health in the current study, suggesting that it is a critical factor to consider in future interventions for the rapidly growing population of OALWH.
Among places where people living with HIV experience and anticipate HIV-related stigma, stigma in health care settings may be particularly harmful. Utilizing an exploratory sequential mixed methods approach, we conducted interviews (n = 76) and questionnaires (N = 460) with older adult women living with HIV enrolled in the Women’s Interagency HIV Study in Birmingham, AL; Jackson, MS; Atlanta, GA; and San Francisco, CA. Interviews addressed facilitators and barriers to HIV treatment adherence, including HIV-related stigma. Qualitative data were coded using thematic analysis. Questionnaires assessed self-reported antiretroviral therapy (ART) adherence and experienced and anticipated HIV-related stigma from various sources (i.e., health care personnel, family, partner, and community). Covariate-adjusted logistic regression analyses examined total and mediated effects of stigma on ART adherence. Interviewees described fears and experiences of stigma in health care settings; including privacy violations, disrespect for patient autonomy, and reproductive coercion; and how these influenced their adherence to HIV treatment recommendations. Experienced and anticipated HIV-related stigma in health care settings were associated with suboptimal (or <95%) ART adherence in separate models controlling for experienced or anticipated stigma, respectively, from other sources. When entered together, only anticipated stigma in health care settings was associated with suboptimal ART adherence, controlling for anticipated and experienced stigma from other sources. The effect of anticipated stigma in health care settings on suboptimal ART adherence may work through the pathways of lower adherence self-efficacy, higher depressive symptoms, and higher coping by substance use. These findings indicate that interventions should promote cultures of acceptance within health care settings and resilience-based strategies for women to combat stigma and promote life-sustaining behaviors.


Social stigma is linked to improper HIV treatment adherence, but how stigma impairs adherence outcomes is poorly understood. This study included 93 people living with HIV in the United States who participated in focus groups or one-on-one interviews regarding how stigma might affect medication management. Latent content analysis and constant comparative techniques of participant responses that were produced three thematic groupings that described how participants (a) orient to HIV stigma, (b) manage HIV stigma in ways that directly impair treatment adherence, and (c) manage HIV stigma in ways that may indirectly impair adherence. These findings illustrate the need to understand how patients orient to HIV stigma when prescribing medications and the complications that are inherent to such assessments. In addition, these findings provide a simple framework for organizing the different ways in which stigma management strategies may disrupt treatment adherence. Conceptually, these findings also offer a paradigm shift to extent theories on disclosure and concealment, in which only disclosure has been cast as an active process. These findings demonstrate how concealment is far from a passive default, often requiring enormous effort. Ultimately, these findings may guide intervention programs that help to entirely eliminate HIV by promoting optimized counseling and subsequent treatment adherence.


PURPOSE: To ascertain the relationship between HIV-related stigma and suicidality among people living with HIV receiving care at a hospital in Nigeria. DESIGN AND METHODS: Four hundred and ten participants were administered a sociodemographic and clinical history questionnaire, the 40-item Berger’s HIV-stigma scale, and the Mini International Neuropsychiatric Interview (MINI) to diagnose suicidality and depression in a cross-sectional study. FINDINGS: Fifty-four (13.2%) reported suicidality; suicidal ideation was commonest and suicide plans least, in the month preceding the study. Higher suicidality risk was significantly associated with stigma (P < 0.001) and major depressive disorder ( P < 0.001). PRACTICE IMPLICATIONS: Suicidality is common and is associated with HIV-related stigma.


BACKGROUND: Opioid agonist therapies with methadone are associated with higher levels of adherence to antiretroviral therapy (ART); yet, no studies have explored factors associated with optimal ART levels in HIV-positive patients on methadone maintenance treatment, including explanatory pathways using mediation analysis. SETTING: Participants...
Perceived social support, coping strategy, and internalized stigma have been linked with the quality of life (QOL) among people living with HIV (PLHIV). However, little is known about how these psychosocial factors interact with each other and affect QOL. This study incorporated a moderated mediation model to investigate whether coping strategy mediates the relationship between perceived social support and QOL, and to examine whether this mediating effect varies with the level of internalized stigma among PLHIV. A cross-sectional study was conducted among 599 PLHIV in Nepal. The multidimensional scale of perceived social support, World Health Organization Quality of Life-BREF, Brief COPE, and AIDS-related stigma scales were used to measure perceived social support, QOL, coping strategy, and internalized stigma, respectively. Data were analyzed using structural equation modeling, and moderated mediation analysis was conducted with multi-group approach. The relationship between perceived social support and QOL was significantly and partially mediated by problem-focused coping strategy. Internalized stigma significantly moderated the mediating effect of coping strategies on the association between perceived social support and QOL. For high internalized stigma group (total stigma score > 2), the effects of perceived social support on QOL were indirect (beta = 1.48; 61.0% of total effects) through the mediating effect of coping strategy, especially problem-focused coping one. For low internalized stigma group (total stigma score <= 2), problem-focused coping strategy did not significantly affect the QOL, and most of the effects of perceived social support were direct (beta = 1.24; 99.2% of total effects). Internalized stigma was found to moderate the mediating effect of problem-focused coping on the relationship between perceived social support and QOL. Enhancing the problem-focused coping and social support may be helpful to improve QOL among PLHIV reporting high stigma.
Stigma theory is concerned with inclusion and opportunities that influence well-being. Rehabilitation is also concerned with social inclusion and well-being. This is a central concern in one of the leading rehabilitation theories, the World Health Organization's International Classification of Functioning, Disability and Health. Despite these shared concerns, the relationship between the fields of stigma and rehabilitation has not been well theorized to date. Using human immunodeficiency virus (HIV) as an example, this article presents an analysis of three ways that stigma may be conceptualized within the context of the International Classification of Functioning, Disability and Health. Three broad spheres of stigma are described: enacted, self, and structural stigma. These three forms of stigma are then aligned in unique ways with three particular constructs of the International Classification of Functioning, Disability and Health: participation restrictions, environmental, and personal contextual factors. This conceptualization illustrates how rehabilitation professionals and other practitioners, policy makers and researchers can better understand the dynamic and nuanced forms of stigma and how they relate to rehabilitation. Implications for rehabilitation This article enables rehabilitation professionals to better understand stigma as it relates to rehabilitation and human immunodeficiency virus. Rehabilitation professionals have the important job of allies and advocates for persons experiencing restrictions in these domains as a result of stigma.


Among people living with HIV (PLWH), HIV-related stigma predicts nonadherence to antiretroviral therapy (ART); however, the role of stigma associated with drug use is largely unknown. We examined the association between substance use (SU) stigma and optimal ART adherence in a sample of 172 self-reported HIV-infected drug users. Participants completed surveys on SU, stigma, and ART adherence. The three substance classes with the greatest number of participants exhibiting moderate/high-risk scores were for cocaine/crack cocaine (66.28%), cannabis (64.53%), and hazardous alcohol consumption (65.70%). Multivariable logistic regression was conducted to investigate associations between levels of SU stigma and optimal ART adherence, adjusting for sociodemographic characteristics, severity of illicit drug use (alcohol, smoking and substance involvement screening test) and alcohol use severity (Alcohol Use Disorders Identification Test-C), HIV-related stigma, and social support. The odds of optimal adherence among participants experiencing moderate [Adjusted Odds Ratio (AOR) = 0.36, p = 0.039] and very high (AOR = 0.25, p = 0.010) levels of anticipated SU stigma were significantly lower than participants experiencing low levels of anticipated SU stigma. No other stigma subscales were significant predictors of ART adherence. Interventions aiming to improve ART adherence among drug-using PLWH need to address anticipated SU stigma.


Background: HIV-related stigma among people living with HIV/AIDS (PLWHA) is the foremost barrier to HIV prevention, treatment, care, and support. The aim of this study was to identify the perceived stigma level of PLWHA and its relation with selected demographic and situational factors in Pokhara, Nepal. Methods: Cross-sectional descriptive study was conducted among 282 PLWHA after probability sampling from antiretroviral treatment center of Western Regional Hospital, Pokhara, Nepal. Face-to-face interview was taken by using Bunn standard HSS tool. Stigma was measured in terms of felt stigma (public attitude concern [PAC], disclosure concern [DC], negative self-image [NSI]), enacted stigma [ES], as well as overall stigma. Result: The mean score of PAC, DC, NSI, ES, and overall stigma was 3.09, 3.02, 2.79, 1.66, and 2.52, respectively, where mean score of all domains of felt stigma (PAC, DC, and NSI) was >2.5, thus reflecting a higher level of felt stigma. ANOVA and t-test revealed higher level of overall stigma among younger age group (P<0.001), highly educated group (P=0.007), unmarried group (P<0.001), and recently HIV-diagnosed group (P=0.003). Conclusion: The study suggests high level of felt stigma, which has devastating effects on PLWHA as well as leads to nondisclosure of sero-positive status. So considering the significant impact of felt stigma on control of HIV epidemic, it is important to have a broader comprehension of this phenomenon and its repercussions on PLWHA via timely intervention like better educational intervention and counseling to PLWHA, wide-scale societal awareness campaigns, and more focused local interventions.
HIV stigma represents a major barrier across the continuum of HIV care that is associated with compromised engagement and retention in HIV care along with adherence to antiretroviral treatment. Therefore, stigma reduction efforts are critical to improving HIV health outcomes. However, there is no gold-standard evidence-based psychotherapy intervention for addressing stigma related to HIV or other marginalized identities. This article examines the role of psychotherapy to address the adverse cognitive, emotional, and behavioral effects of HIV stigma among persons with HIV, with the aims of promoting psychological well-being and supporting health behaviors associated with enhanced HIV treatment retention, adherence, and overall health outcomes. A psychotherapy approach informed by intersectionality theory is proposed, according to which multiple categories of identity, social status, privilege, and oppression simultaneously influence psychological life, including the experience of HIV stigma. Intersectionality-informed psychotherapy strategies to address HIV stigma are described and illustrated using a hypothetical clinical case example. Implications of an intersectionality-informed framework for therapist advocacy also are discussed. (PsycINFO Database Record (c) 2019 APA, all rights reserved).


There exists a paucity of research on the psychosocial risk factors of HIV/AIDS among men who have sex with men (MSM) in settings where they are stigmatized or face prosecution. The present study investigates discrimination against people living with HIV (PLHIV), internalized homophobia, HIV/AIDS personal responsibility beliefs and HIV knowledge in a purposive sample of 106 self-identified MSM obtained through a web-based survey disseminated by two voluntary welfare organizations. Results indicate that internalized homophobia is positively associated with discrimination against PLHIV. Internalized homophobia also substantially mediates the effect of HIV/AIDS personal responsibility beliefs on discrimination against PLHIV, highlighting the confounded nature of HIV/AIDS and homosexual stigma in a setting where stigma is deep-rooted and institutionalized. Internalized homophobia may thus serve as a barrier to the effectiveness of HIV prevention efforts among MSM in Singapore.


Gay, bisexual and queer men in Singapore are disproportionately represented in prevalent HIV infections, relative to the general population. While anticipated stigma has been found to be a barrier to HIV/STI testing among gay, bisexual and queer men, little effort has been made to contextualise such stigma within the broader sociocultural milieu. We conducted 35 in-depth interviews with a purposively recruited sample of men in Singapore with a focus on topics such as sexual identity development, formative sexual experiences and HIV/STI testing experience. Interviews were analysed through thematic analysis using techniques borrowed from a grounded theory approach. Participants drew on their past interactions with family, friends, religion, the gay, bisexual and queer men’s community and the wider society to construct meanings of deviance in the context of their sexuality. Participants articulated how anticipated stigma was rooted in such deviance, and how clinics or other HIV/STI-related health services served as physical spaces of costly disclosure by exposing or imposing ‘deviant’ identities on individuals who access these physical spaces, which were otherwise concealed. Findings from the study provide a framework for actions and interventions to address the roots of anticipated stigma in the context of HIV/STI testing among gay, bisexual and queer men.


HIV/AIDS stigma exists in healthcare and is harmful to people living with HIV (PLWH). Few anti-stigma interventions target undergraduate health professions students, although evidence supports reaching providers early in their training. We developed two different arts-based interventions based on Intergroup Contact Theory: a Photovoice intervention in which they viewed photo-stories of PLWH and a fiction writing intervention in which they developed characters with HIV. We present the results of a qualitative analysis of the post-intervention interviews, to elaborate on what and how students learned from both interventions. Via theme analysis, we identified three similar patterns among both sets of intervention participants. Interventions helped students to understand PLWH as “people first,” experience emotional responses to
PLWH, and complicated their understanding of who was living with HIV. All three themes illustrate how Photovoice and fiction writing interrupted stereotypes about PLWH and humanized PLWH to health professions students.


BACKGROUND: Despite existing efforts to provide antiretroviral treatment (ART) for all HIV-diagnosed people, stigma deprives them of the highest attainable health status and challenges the effectiveness of ART program in Vietnam. This study aimed to assess five dimensions of HIV-related stigma and explore its associated factors among ART patients in a multisite survey. Implications of this study support the development of HIV policies to improve patients’ access, utilization, and outcomes of ART program toward the 90-90-90 goal in Vietnam. METHODS: A total of 1133 ART patients who were recruited by convenience sampling method from 8 ART clinics in Hanoi and Nam Dinh in a cross-sectional study from January to August 2013. Multivariate logistic regression was employed to identify factors associated with stigmatization. RESULTS: The majority of participants reported experiencing stigmatization due to shame (36.9%), blame/judge (21.6%), and discrimination (23.4%). Further, 91.5% of participants disclosed their HIV status with others. The likelihood of experiencing stigmatization did not only associate with the patients’ socioeconomic status (e.g., age, occupation, education) and HIV status disclosure, but also their health problems. Those with anxiety or depression and perceived lower quality of life were more likely to experience stigma. CONCLUSIONS: To maximize the efficiency of the ART program, it is essential to develop interventions that reduce stigma involving individuals, families, and communities, and recognize and address complex health problems especially those patients showing depressive symptoms. Increasing quality of life of HIV-positive patients by providing vocational training, financial, family, and peer support will reduce the likelihood of experiencing stigma.


Stigma and discrimination are among the greatest challenges that people living with human immunodeficiency virus (HIV) face, and both are known to negatively affect quality of life as well as treatment outcomes. We analyzed the growing research and current understanding of HIV-related stigma and contextual factors in HIV/AIDS (human Immunodeficiency virus/ acquired immunodeficiency syndrome) bibliography. A total of 5984 publications published from 1991 to 2017 were retrieved from the Web of Science database. The number of papers and their impacts have been considerably grown in recent years. Research landscapes related to stigma and discrimination include clinical, physical and mental health outcomes, risk behaviors of most-at-risk populations, and HIV-related services. We found a lack of empirical studies not only on social, cultural and economic contexts, but also on specific interventions for particular settings and sub-populations. This study highlights certain gaps and provides a basis for future studies and interventions on this critical issue given the changing drivers of HIV epidemics.


BACKGROUND: One mechanism through which social stigma of HIV affects health outcomes for people living with HIV (PLWH) is through internalization of stigma. However, this transformation of social stigma in the community into internalized stigma may not be of the same magnitude for all PLWH. We examined the moderating effects of 3 personality traits-fear of negative social evaluation, attachment-related anxiety, and dispositional resilience-in transforming perceived stigma in the community into internalized stigma. Furthermore, we investigated downstream effects of these moderated associations on depressive symptoms and antiretroviral treatment (ART) adherence. SETTING/METHODS: In study 1, data from 203 PLWH in the Southeast United States were analyzed controlling for age, sex, education, race, and time on ART. In study 2, data from 453 women in a multisite study were analyzed controlling for age, education, race, time on ART, and substance use. RESULTS: In both studies, fear of negative evaluation and attachment-related anxiety moderated the effect of perceived HIV stigma in the community on internalized HIV stigma: People higher on those moderating variables had...
stronger associations between perceived stigma in the community and internalized stigma. In study 2, resilience was assessed and also moderated the effect of perceived HIV stigma in the community on internalized stigma. In moderated mediation models, fear of negative evaluation, attachment-related anxiety, and resilience moderated the indirect effect of perceived HIV stigma in the community on ART adherence and depression through internalized stigma. CONCLUSIONS: Interventions to assuage internalization of HIV stigma should focus on bolstering attachment-related security, social competence, and resilience.


OBJECTIVE: We investigated whether internalized HIV-related stigma predicts adherence to antiretroviral therapy (ART) longitudinally in women living with HIV in the United States, and whether depression symptoms mediate the relationship between internalized stigma and suboptimal ART adherence. DESIGN: Observational longitudinal study utilizing data from the Women’s Interagency HIV Study cohort. METHODS: A measure of internalized HIV-related stigma was added to the battery of Women’s Interagency HIV Study measures in 2013. For current analyses, participants’ first assessment of internalized HIV-related stigma and assessments of other variables at that time were used as baseline measures (Time one or T1, visit occurring in 2013/14), with outcomes measured approximately 2 years later (T3, 2015/16; n = 914). A measure of depression symptoms, assessed approximately 18 months after the baseline (T2, 2014/15), was used in mediation analyses (n = 862). RESULTS: Higher internalized HIV-related stigma at T1 predicted lower odds of optimal ART adherence at T3 (adjusted odds ratio = 0.61, P = 0.001, 95% confidence interval [0.45, 0.82]). Results were similar when ART adherence at T1 was added as a control variable. Mediation analysis revealed a significant indirect effect of internalized HIV stigma at T1 on ART adherence at T3 through depression symptoms at T2 (while controlling for depression symptoms and ART adherence at T1; B = -0.05, SE = 0.03, 95% confidence interval [-0.11, -0.006]). CONCLUSION: These results provide strong longitudinal support for the hypothesis that internalized HIV-related stigma results in suboptimal ART adherence in a large sample of women living with HIV in the United States, working through the pathway of increased depression symptoms.


HIV/AIDS stigma can have detrimental effects on physician/patient interactions when manifested by health professionals. Unfortunately, HIV/AIDS stigma is usually manifested in an intersectional manner with other pre-existing stigmas, including stigma towards men who have sex with men (MSM). Therefore, our study aimed to examine the behavioral manifestations of HIV/AIDS stigma among physicians in training during simulated clinical interactions with MSM, and explore the interrelation between HIV/AIDS stigma attitudes and behaviors. We implemented an experimental design using Standardized Patient simulations with a sample of 100 physicians in training in Puerto Rico. Results show a significant difference in the two groups’ means (p<.001), with a higher number of stigma behaviors in the HIV MSM patient condition (M=6.39) than the common cold control condition (M=5.20). Results evidence that stigma manifestations towards MSM with HIV may continue to be an obstacle for public health in Puerto Rico, and that medical training to prevent stigma is still needed.


HIV/AIDS stigma remains a major global health issue with detrimental consequences for people with HIV/AIDS (PWHA), especially when manifested by health professionals. Research on HIV/AIDS stigma has documented negative attitudes towards PWHA among health professionals. However, fewer studies have examined how HIV/AIDS stigma is manifested behaviourally during clinical interactions and how it interacts with other stigmas (i.e. drug use, sexism, homophobia). This study aimed to: (1) examine behavioural manifestations of HIV/AIDS stigma among medical students during clinical interactions, and (2) explore HIV/AIDS stigma intersectionality with other stigmas. We implemented an experimental design using Standardised Patient (SP) simulations, observational techniques, and quantitative questionnaires. A total of 237 medical students engaged in SP encounters with three experimental scenarios: (1) PWHA infected via illegal drug use, (2) PWHA infected via unprotected heterosexual relations, (3) PWHA infected via unprotected homosexual relations. They also interacted with a person with common cold (control condition). Results evidenced statistically significant differences between the experimental and control simulation, with higher number of stigma behaviours manifested towards
experimental conditions. Results also evidence higher HIV/AIDS stigma towards MSM when compared to the drug user and heterosexual woman SP’s. We discuss the implications of these findings for training of medical students.


BACKGROUND: There are few validated tools to measure stigma, particularly among children living with HIV and their families. METHODS: This study was nested within a larger study that followed 240 child-caregiver dyads (children aged 10-15 years) at 8 clinics in western Kenya. The stigma instrument was administered to all child-caregiver dyads at 2 time points 6 months apart. The primary end point was to construct validity assessed by comparison to criterion constructs using generalized estimating equation models. RESULTS: Mean age of child participants was 12.3 years and 52% were female. Generally, caregivers reported experiencing higher levels of HIV stigma compared to their children. Children (9%) and caregivers (14%) reported that HIV stigma made them feel stressed, anxious, and depressed. Child and caregiver stigma items showed high construct validity by emotional and behavioral outcomes. CONCLUSIONS: The stigma instrument showed high validity when compared to emotional and behavioral outcomes.

Watts, J. and P. O'Byrne (2019). "'I don't care if you think I'm gay ... that won't make me either promiscuous or HIV positive': HIV, stigma, and the paradox of the gay men's sexual health clinic - An exploratory study." Appl Nurs Res 47: 1-3.

Young gay men are affected by HIV. Due to a lack of studies on these males, and that previous research notes youth's minimal healthcare seeking, we recruited young gay men at a gay men's STI testing clinic to explore their perceptions of care. Eight men participated in semi-structured interviews. Our results identified that, while our participants experienced stigma in some interactions, particularly when healthcare workers emphasized the probability of contracting HIV for gay men, overall they reported positive experiences with healthcare providers, particularly at the gay men's STI clinic. The gay men's STI clinic diminishes stigma and promotes HIV testing among a group of gay male youth who are affected by HIV, while its very existence propagates the association between gay males and HIV that most of the participants found stigmatizing. The association between sexuality and HIV was reported as stigmatizing in some situations, while the construction of a clinic on the premise that gay men require such testing was not. This reinforces the idea that stigma is a personal experience independent of action and locale.


The prevalence of hazardous alcohol use among people living with HIV/AIDS (PLHIV) is common and related to numerous health problems among individuals in this group. Stigma is associated with hazardous drinking among stigmatized groups, but this relationship has yet to be examined among PLHIV. Moreover, there is a lack of research in identifying the mechanisms underlying this association. Emotion dysregulation is one potential construct that may explain the association between stigma and hazardous alcohol use among PLHIV. The present study examined the indirect effect of HIV stigma and hazardous alcohol use via emotion dysregulation. The sample included 98 PLHIV (60.2% male, M age = 48.40, SD = 7.75). Results indicated significant and medium-sized indirect effects of HIV stigma and its subfacets (enacted stigma and negative self-image) in terms of hazardous alcohol use via emotion dysregulation. Alternative models did not yield significant indirect effects. The results document an indirect association between HIV stigma and hazardous alcohol use via emotion dysregulation. These findings may provide novel, initial empirical insight into the nature of the stigma-hazardous drinking relation among PLHIV.
The current study aims to explore gender differences in the risk of cigarette smoking among African-American (AA) older adults who live in economically disadvantaged urban areas of southern Los Angeles. This cross-sectional study enrolled 576 older AA adults (age range between 65 and 96 years) who were residing in Service Planning Area 6 (SPA 6), one of the most economically challenged areas in southern Los Angeles. All participants had cardiometabolic disease (CMD). Data were collected using structured face-to-face interviews. Demographic factors (age and gender), socioeconomic status (educational attainment and financial difficulty), health (number of comorbid medical conditions and depressive symptoms), and health behaviors (current alcohol drinking and current smoking) were measured. Logistic regressions were used to analyze the data without and with interaction terms between gender and current drinking, depressive symptoms, and financial difficulty. AA men reported more smoking than AA women (25.3% versus 9.3%; p < 0.05). Smoking showed a stronger association with smoking for AA men than AA women. Depressive symptoms, however, showed stronger effects on smoking for AA women than AA men. Gender did not interact with financial difficulty with regard to current smoking. As AA older men and women differ in psychological and behavioral determinants of cigarette smoking, gender-specific smoking cessation interventions for AA older adults who live in economically deprived urban areas may be more successful than interventions and programs that do not consider gender differences in determinants of smoking. Gender-tailored smoking cessation programs that address drinking for AA men and depression for AA women may help reduce the burden of smoking in AA older adults in economically disadvantaged urban areas. Given the non-random sampling, there is a need for replication of these findings in future studies.


BACKGROUND: There is growing concern about the health impact of heavy alcohol use in people infected with human immunodeficiency virus (HIV+). Mixed findings of past studies regarding the cognitive impact of alcohol use in HIV+ adults have been mixed, with inconsistent evidence that alcohol consumption exacerbates HIV-associated brain dysfunction. This study examined contributions of current heavy drinking, lifetime alcohol use disorder (AUD), and age to cognitive deficits in HIV+ adults, and relative to other HIV-associated clinical factors. METHODS: Cognitive performance of HIV+ adults (n = 104) was assessed, and comparisons were made between heavy current use to nonheavy drinkers (NIAAA criteria), lifetime AUD versus no-AUD, and older (>50 years) versus younger participants. Hierarchical regression analyses were conducted to examine the association between cognitive performance and current heavy drinking, lifetime AUD, and older age, while also correcting for HIV clinical factors and history of other substance use. RESULTS: Individuals reporting current heavy drinking and meeting criteria for lifetime AUD demonstrated the greatest degree of deficits across multiple cognitive domains. Deficits were greatest among HIV+ adults with lifetime AUD, and older age was also associated with weaker cognitive performance. Lifetime AUD and older age independently exhibited stronger associations with cognitive performance than HIV clinical factors (e.g., viral load, current CD4, and nadir CD4) or past opiate and cocaine use. CONCLUSIONS: Current heavy drinking and lifetime AUD adversely affect cognitive function in HIV+ adults. Greatest deficits existed when there was a history of AUD and continued current heavy drinking, indicating that past AUD continues to have an adverse impact and should not be ignored. That alcohol use was more strongly associated with cognitive performance than HIV clinical factors underscore clinical importance of targeting reduction in heavy alcohol consumption in HIV+ adults.
Alcohol is prevalent among people living with HIV and can lead to multiple comorbid conditions (multimorbidity). The purpose of this study was to examine the relationship between alcohol use history and multimorbidity among people living with HIV. A retrospective cohort study design was conducted at an urban, academic infectious disease clinic in Kentucky. Individuals seeking care between 2010 and 2014 were included. Modified Poisson regression was used to examine the relationship between alcohol use history (never, current, and former use) and multimorbidity (/>= 2 conditions). A total of 949 individuals were included in the study, with 5.1 and 17.6% reporting former and current alcohol use, respectively. Sixty-five percent had >/= 1 condition and 82.6% of those had >/= 2 conditions diagnosed. The risk of multimorbidity was 1.70 (95% CI 1.35-2.14) times higher for a current user compared to a never user. Reductions in alcohol use may lead to lower rates of multimorbidity.


INTRODUCTION: With the successes of antiretroviral therapy, patients infected with human immunodeficiency virus (HIV) living longer. Regarding this, the common diseases of HIV population (i.e., opportunistic infections) are now losing ground in front of metabolic alterations. This phenomenon is related to the delay in progression to acquired immune deficiency syndrome (AIDS), making it so that patients live in a chronic inflammatory state which, combined with other mechanisms such infectious ones, cause metabolic diseases. Areas covered: Considering a high prevalence of metabolic alterations, the relationship between metabolic syndrome (MetS) with nonalcoholic fatty liver disease (NAFLD) and nonalcoholic steatohepatitis (NASH), and liver diseases as a major cause of death in the HIV-infected population, this paper aims to overview the mechanisms and prevalence of NAFLD and NASH as they relate to the developed metabolic diseases of HIV patients. Expert opinion: The pathways underlying MetS include the effects of HIV and ART on the liver, adipose tissue, and muscle. These mechanisms result in liver damage, consequently leading to NAFLD and its more severe form NASH. These conditions have increased in HIV-infected population in recent years and since their life expectancy is improving it is important to be ready to attend their new emerging diseases.

Crawford Tn PhD, M. P. H., et al. (2019). "Examining age as a moderating effect on the relationship between alcohol use and viral suppression among women living with HIV." Women Health 59(7): 789-800.

This study sought to examine if age moderated the effect of alcohol on viral suppression among women living with HIV. A secondary data analysis, using data from the 550 Clinic Women’s HIV Cohort Study was completed. Individuals were included if they were HIV positive, sought care in an urban clinic in Kentucky between 2009 and 2012, and had >/=1 year of follow-up. The primary independent variable was current alcohol use; the moderating variable was age (<50 years versus >/=50 years); and the outcome was suppression. Logistic regression models examined the interaction between age and alcohol. Among 360 women (average age 45.8 +/- 10.1 years, 38 percent were >/=50 years), approximately 32.0 percent had consumed alcohol, and 40 percent achieved suppression. Women aged >/=50 years were more likely to achieve suppression than younger women. Age interacted significantly with alcohol (p = .038). Stratified by age, alcohol was associated with poor viral suppression among older women; for older women, alcohol users had lower odds of suppression compared to nonusers (odds ratio = 0.37; 95 percent confidence interval = 0.14-0.99). Alcohol may impede the opportunity for older women to achieve suppression. Further study is needed to examine alcohol use among older women, specifically addressing quantity and frequency and their impact on suppression.


Alcohol is prevalent among people living with HIV and can lead to multiple comorbid conditions (multimorbidity). The purpose of this study was to examine the relationship between alcohol use history and multimorbidity among people living with HIV. A retrospective cohort study design was conducted at an urban, academic infectious disease clinic in Kentucky. Individuals seeking care between 2010 and 2014 were included. Modified Poisson regression was used to examine the relationship between alcohol use history (never, current, and former use) and multimorbidity (/>= 2 conditions). A total of 949 individuals were included in the study, with 5.1 and 17.6% reporting former and current alcohol use, respectively. Sixty-five percent had >/= 1 condition and 82.6% of those had >/= 2 conditions diagnosed. The risk of multimorbidity was 1.70 (95% CI 1.35-2.14) times higher for a current user compared to a never user. Reductions in alcohol use may lead to lower rates of multimorbidity.


Objective: HIV stigma undermines health and well-being of people living with HIV (PLWH). Conceptual work on stigma mechanisms suggests that experiences of stigma or discrimination increase internalised stigma. However, not all PLWH may internalise the HIV discrimination they experience. We aimed to investigate the role of stress associated with events of HIV-related discrimination on internalised HIV stigma, as well as the downstream effects on depressive symptoms and alcohol use severity. Design: 199 participants were recruited from an HIV clinic in the southeastern United States. Main study measures: HIV-related discrimination was assessed using items adapted from measures of enacted HIV stigma and discrimination. Participants rated perceived stress associated with each discrimination item. Internalised HIV stigma was
assessed with the Centre for Epidemiological Studies-Depression Index. Alcohol use severity was assessed with the Alcohol Use Disorders Identification Test. Results: In serial mediation models, HIV-related discrimination was indirectly associated with both depressive symptoms and alcohol use severity through its associations with stress and internalised HIV stigma. Conclusions: Understanding the mechanisms through which PLWH internalise HIV stigma and lead to poor health outcomes can yield clinical foci for intervention.


BACKGROUND: Chronic pain is common in people living with HIV (PLWH). Few studies have evaluated the association between the diagnoses of chronic pain, substance use disorder (SUD), and HIV-related outcomes in clinical settings over a 10-year period. METHODS: Using electronic medical records, the study described psychiatric diagnoses, pain medication, and HIV-related variables in PLWH and examined the factors associated with pain diagnosis and HIV-related outcomes. RESULTS: Among 3528 PLWH, more than one-third exhibited a chronic pain diagnosis and more than one-third a psychiatric disorder. Chronic pain diagnosis has been associated with SUD and mood and anxiety disorders and occurred before SUD or psychiatric disorders about half of the time. Opioids have been commonly prescribed for pain management, more often than nonopioid analgesics, without any change in prescription pattern over the 10-year period. A dual diagnosis of pain and SUD has been associated with more psychiatric disorders and had a negative impact on the pain management by requesting more health care utilization and higher frequency of both opioid and nonopioid medication prescriptions. Chronic pain and SUD had a negative impact on ART adherence. SUD but not chronic pain has been associated with an unsuppressed HIV viral load. CONCLUSIONS: In the current intertwining opioid prescription and opioid epidemic, opioids are still commonly prescribed in PLWH in HIV care. A diagnosis of chronic pain and/or SUD worsened the HIV-related outcomes, emphasizing the potential risk of the HIV epidemic. These findings called for a better coordinated care program in HIV clinics.


Older people living with HIV (OPLWH) have higher rates of substance use (tobacco, alcohol, and other drugs) than their HIV-negative peers. Addressing health care needs of OPLWH who use substances is more challenging than for those who do not: they are highly impacted by comorbid conditions, substance use can interact with other medications (including antiretroviral therapy-ART) and reduce their effectiveness, and substance use has been associated with reduced adherence to ART and increased risky behaviors (including sexual risks). People who use substances also suffer disparities along the HIV continuum of care, resulting in lower viral suppression rates and poorer health outcomes. They are especially impacted by stigma and stress, which have implications for HIV treatment and care. Recommendations for health care providers working with OPLWH who use substances include: (1) the need to screen and refer for multiple associated conditions, and (2) training/continuing education to enhance care management and maximize health outcomes.


Little is known about disparities in depression prevalence, treatment, and remission by psychiatric comorbidities and substance use among persons living with HIV (PLWH). We conducted a cross-sectional analysis in a large cohort of PLWH in routine care and analyzed conditional probabilities of having an indication for depression treatment, receiving treatment, receiving indicated treatment adjustments, and achieving remission, stratified by alcohol use, illicit drug use, and panic symptoms. Overall, 34.7% (95% CI 33.9-35.5%) of participants had an indication for depression treatment and of these, 55.3% (53.8-56.8%) were receiving antidepressants. Among patients receiving antidepressants, 33.0% (31.1-34.9%) had evidence of remitted depression. In a subsample of sites with antidepressant dosage data, only 8.8% (6.7-11.5%) of patients received an indicated treatment adjustment. Current drug users (45.8%, 95% CI 43.6-48.1%) and patients reporting full symptoms of panic disorder (75.0%, 95% CI 72.9-77.1%) were most likely to have an indication for antidepressant treatment, least likely to receive treatment given an indication (current drug use: 47.6%, 95% CI 44.3-51.0%; full panic symptoms: 50.8%, 95% CI 48.0-53.6%), or have evidence of remitted depression when treated (22.3%, 95% CI 18.5-26.6%; and 7.3%, 95% CI 5.5-9.6%, respectively). In a multivariable model, drug use and panic symptoms were independently
associated with poorer outcomes along the depression treatment cascade. Few differences were evident by alcohol use. Current drug users were most likely to have an indication for depression treatment, but were least likely to be receiving treatment or to have remitted depression. These same disparities were even more starkly evident among patients with co-occurring symptoms of panic disorder compared to those without. Achieving improvements in the depression treatment cascade will likely require attention to substance use and psychiatric comorbidities.


Summary Background We examined the effectiveness of integrated stepped alcohol treatment (ISAT) on alcohol use and HIV outcomes among patients living with HIV and alcohol use disorder.

Findings Between Jan 28, 2013, and July 14, 2017, 128 of 351 patients assessed for eligibility were eligible and randomly assigned to receive ISAT (n=63) or treatment as usual (n=65). Mean age was 54 years (range 23–70), 125 (98%) of 128 participants were men, and 101 (79%) were black. 25 (20%) were lost to follow-up. In the ISAT group, of 57 participants who did not die or withdraw, 30 (52%) advanced to step 2, and 17 (57%) of 30 advanced to step 3. 32 (51%) of 63 participants assigned to ISAT versus 17 (26%) of 65 assigned to treatment as usual received at least one alcohol treatment medication (p=0.004). Participants in both groups decreased their alcohol consumption, but at week 24 we did not detect a difference in number of drinks per week between the groups (least squares mean 10.4 drinks per week [SD 16.5] in the ISAT group vs 15.6 drinks per week [SD 17.6] in the treatment as usual group; adjusted mean difference −4.2, 95% CI −9.4 to 0.9; p=0.11). One adverse event occurred that was possibly related to treatment occurred in the ISAT group (headache).

Interpretation ISAT increases the receipt of alcohol treatment medications and counselling without changes in drinking at week 24. Strategies to implement and enhance ISAT are needed. Future efforts should focus on promoting ISAT with attention to enhancing patient engagement and retention in alcohol-related care.

Funding US National Institute on Alcohol Abuse and Alcoholism.


The rate of HIV infection for Latinx men who have sex with men (LMSM) increased by 20% from 2008 to 2014 even as rates stabilized among MSM of other racial and ethnic backgrounds. We hypothesize that this disparity is partially attributable to individual and structural factors associated with HIV testing, including substance use practices, among LMSM. In this retrospective study, we examined data from 502 LMSM to determine whether (a) hypothesized relationships exist between individual factors (perceived HIV susceptibility, experiences with HIV prevention, condom use, sex under the influence, sexual identity development status, heterosexual self-presentation, and traditional Latinx gender norms) and structural factors (access to healthcare resources and social support) and HIV testing for LMSM. We also tested whether (b) substance use practices moderate relations between individual and structural factors and HIV testing. Findings indicate that (a) relationships exist between several individual and structural factors and HIV testing and that (b) substance use moderated these relationships to HIV testing in a number of hypothesized ways. Practice and prevention implications are discussed.


BACKGROUND: Behavioral Interventions are needed to prevent HIV in substance users, which is associated with higher risk for contracting HIV via unprotected sexual intercourse or syringe-based exposure. We reviewed universal HIV prevention interventions targeting intravenous drug users (IDUs) and non-IDUs (NIDUs) to identify which prevention interventions are the most effective at reducing HIV transmission risk among IDU’s and NIDU’s and identify gaps in the literature. METHODS: A PubMed literature review (1998-2017), limiting studies to universal HIV prevention interventions targeting adult HIV-negative substance users. Interventions were compared across sample sizes, sociodemographic, intervention setting, study design, use of theoretical models, and intervention effects. RESULTS: Of 1455 studies identified, 19 targeted IDUs (n = 9) and NIDUs (n = 10). Both IDU and NIDU studies were conducted in substance use treatment centers and included both group (44% vs. 73%) and individual-based (56% vs. 27%) methods; only one NIDU study used a couple-based intervention. All IDU, and 89% of NIDU, studies used explanatory and behavior-change theoretical models to guide selection of
Few studies examine how depression and substance use interact to affect HIV control. In 14,380 persons with HIV (PWH), we used logistic regression and generalized estimating equations to evaluate how symptoms of depression interact with alcohol, cocaine, opioid, and methamphetamine use to affect subsequent retention in care, maintaining an active prescription for ART, and consistent virologic suppression. Among PWH with no or mild depressive symptoms, heavy...
alcohol use had no association with virologic suppression (OR 1.00 [0.95-1.06]); among those with moderate or severe symptoms, it was associated with reduced viral suppression (OR 0.80 [0.74-0.87]). We found no interactions with heavy alcohol use on retention in care or maintaining ART prescription or with other substances for any outcome. These results highlight the importance of treating moderate or severe depression in PWH, especially with comorbid heavy alcohol use, and support multifaceted interventions targeting alcohol use and depression.


BACKGROUND: Alcohol use is risky for patients with hepatitis C virus (HCV) and/or human immunodeficiency virus (HIV) infection, but alcohol use disorder (AUD) treatment is underutilized in these populations. Comorbid drug use disorders (DUD) are common, but their influence on AUD treatment receipt is understudied. We evaluated the association between DUD and AUD treatment receipt in two national samples of patients with AUD, those with HIV and those with HCV, in the U.S. Veterans Health Administration. METHODS: Samples included patients with AUD and HCV and/or HIV among positive alcohol screens (AUDIT-C >/=5) documented 10/01/09-5/30/13 in the national electronic health record. Poisson regression models estimated incidence rate ratios for receiving specialty treatment (stop codes) and pharmacotherapy (filled prescription for naltrexone, disulfiram, acamprosate, or topiramate) within 365 days of positive alcohol screening for patients with DUD versus those without. Models were clustered on patient and adjusted for potential confounders.

RESULTS: Among 22,039 patients with HCV/AUD, 45.2% (N = 9,964) had DUD, which was associated with receiving specialty treatment [adjusted incidence rate ratio: 1.89 (95% confidence interval 1.82-1.96)] and pharmacotherapy [aIRR: 1.50 (1.37-1.65)]. Among 1,834 patients with HIV/AUD, 56.9% (N = 1,043) had DUD, which was associated with receiving specialty treatment [aIRR: 1.94 (1.68-2.24)], but not pharmacotherapy. CONCLUSIONS: Rates of AUD treatment receipt among patients with AUD and HCV and/or HIV were low overall, but likelihood of treatment receipt was generally higher among those with comorbid DUD. Future research should investigate mechanisms underlying these associations, such as enhanced readiness for treatment or differential provider prescribing or referral practices.


Alcohol use disorders (AUDs) are highly comorbid with human immunodeficiency virus (HIV) infection, occurring at nearly twice the rate in HIV positive individuals as in the general population. Individuals with HIV who consume alcohol show worse long-term prognoses and may be at elevated risk for the development of HIV-associated neurocognitive disorders. The direction of this relationship is unclear, and likely multifactorial. Chronic alcohol exposure and HIV infection independently promote cognitive dysfunction and further may interact to exacerbate neurocognitive deficits through effects on common targets, including corticostriatal glutamate and dopamine neurotransmission. Additionally, drug and alcohol use is likely to reduce treatment adherence, potentially resulting in accelerated disease progression and subsequent neurocognitive impairment. The development of neurocognitive impairments may further reduce cognitive control over behavior, resulting in escalating alcohol use. This review will examine the complex relationship between HIV infection and alcohol use, highlighting impacts on dopamine and glutamate systems by which alcohol use and HIV act independently and in tandem to alter corticostriatal circuit structure and function to dysregulate cognitive function.


BACKGROUND: Despite antiretroviral treatment (ART) being an efficacious treatment for HIV, essentially making it a chronic non-terminal illness, two related and frequent concerns for many people living with HIV/AIDS (PLWHA) continue to be HIV-related stigma and life stress. These two variables are frequently associated with depression, substance use, and poorer functional health. Studies to date have not fully examined the degree to which these constructs may be associated within one model, which could reveal a more nuanced understanding of how HIV-related stigma and life stress affect functional health in PLWHA. METHODS: The current study employed hybrid structural equation modeling to examine the interconnectedness and potential indirect relationships of HIV-related stigma and life stress to worse health through substance use and depression, controlling for ART adherence and age. Participants were 240 HIV-infected individuals who completed a biopsychosocial assessment battery upon screening for an RCT on treating depression in those infected with HIV. RESULTS: Both HIV-related stigma and stressful life events were directly related to depression, and depression was
Background: Women are the first victims in most of social damages and corruptions. However, due to some social and cultural reasons, the most of the drug addiction studies in Iran target male population. Hence, this study aimed to investigate the pattern of substance abuse and prevalence of HIV and hepatitis risk factors among addicted women.

Methods: This is a cross-sectional study conducted on women referred to methadone maintenance treatment centers of Western Iran. Int J Prev Med 10: 58.


Hazardous alcohol consumption is a common diagnosis among people living with HIV infection. The relationship between alcohol consumption and poor adherence to antiretroviral therapy has been highlighted in different studies, yet few of them performed a parallel analysis of other substance use. In Spain, alcohol consumption is frequently associated with other substance use, mainly cannabis and cocaine. The aim of this study is to assess the influence of hazardous alcohol consumption both combined with other substances (cocaine, heroin, methadone and/or cannabis) or alone on antiretroviral therapy adherence in our social environment. We performed an observational case-control study including 119 HIV+ individuals. We recruited 40 non-adherent patients, defined by less than 90% compliance according to hospital pharmacy refill data, and corroborated by the Simplified Medication Adherence Questionnaire (SMAQ) and referring professional's opinion. Control cases (n=79) were defined as those patients with similar characteristics but considered adherent according to the same parameters. Data collection took place between May 2013 and September 2015. Statistical analysis was performed using a binary logistic regression model. Our results indicate that alcohol consumption decreases adherence to antiretroviral therapy. The use of methadone represents a statistically significant increased risk of poor adherence. No significant differences were found between adherent and non-adherent groups regarding cocaine, heroin or cannabis use in this study. In summary, the detection of substance use and especially alcohol consumption in HIV+ patients can improve the effectiveness of antiretroviral therapy by identifying and treating at-risk individuals for a poor therapeutic adherence. 


Depression, as well as other psychosocial factors, remains largely unaddressed among people living with HIV (PLHIV) in low and middle-income countries. Depression is a common occurrence among PLHIV and is elevated in those who consume alcohol. This paper will document the presence of depressive symptoms in alcohol-consuming male PLHIV receiving antiretroviral treatment (ART) in India. It examines the correlates of depressive symptoms and uses the data from in-depth interviews to explain the nature of the statistical relationships obtained from an NIH-funded a multilevel, multi-centric intervention study. A cross-sectional, baseline survey was administered to 940 alcohol consuming, male PLHIV in five hospital-based ART Centers in urban Maharashtra, India via face to face interviews from October 2015 to April 2016. An additional 55 men were recruited independently to engage in in-depth interviews on alcohol use and other factors related to adherence. The results of the survey showed that approximately 38% of PLHIV reported having moderate to severe depressive symptoms. Depressive symptoms were positively associated with higher levels of family-related concerns (OR 1.18; 95% CI 1.12-1.23), work difficulties (OR 2.04; 95% CI 1.69-2.69) and HIV-related self-stigma (OR 1.05; 95% CI 1.03-1.07) and a lower level of ART service satisfaction (OR 0.58 95% CI 0.44-0.77). The results of in-depth interviews showed that PLHIV's tenshun (a Hindi term most closely corresponding to depressive symptoms) resulted from feelings of guilt and concerns about how family, friends, and neighbors might react to their HIV status and the potential for loss of a job as a result of disclosure of their HIV status at work. The level of depressive symptoms among male PLHIV involved in ART treatment points to the need to strengthen the psychological component of PLHIV treatment in India.

Purpose of Review: People living with human immunodeficiency virus/AIDS (PLWHA) experience high prevalence of substance use disorders (SUD). HIV care settings represent a unique opportunity to identify possible SUD, to provide SUD interventions, and to improve linkage to SUD treatment. The aims of this paper are to (a) review and critique the extant literature examining substance use screening approaches among PLWHA in HIV care settings and (b) provide recommendations for future clinical practice. Recent Findings: Twenty-one peer-reviewed articles that examined substance screening approaches employed in HIV and other primary care settings were included in the review. There was limited literature reporting on the implementation and evaluation of substance use screening practices within HIV care settings, and methodological rigor varied across studies. Further, the use of validated substance use screening measures or incorporation of other substance use screening approaches (e.g., use of urine drug testing) within routine HIV care practice is limited. Strategies to implement routine substance use screening within HIV care and incorporate additional substance use assessment, brief interventions, and referral to specialty substance use treatment are discussed. Use of self-report substance use screening measures using web- or computer-delivered approaches that can be integrated within electronic health record systems is particularly promising. HIV care practices should consider potential models to optimally screen and treat SUD. Co-location of HIV and SUD treatment services may be optimal; when co-located services are not possible, strategies to consistently provide brief intervention approaches and referrals to specialty SUD treatment are needed.

BACKGROUND: The objective of this study was to examine depressive symptoms overtime and quantify the variance in symptoms attributable to substance use among a cohort of HIV-positive and HIV-negative men. METHODS: Participants were enrolled in an NIH/NIDA funded cohort, with 534 men resulting in 1,888 visits between August 2014 and June 2018. Participants were between 18 and 45 years, and half were HIV-positive. At baseline and semi-annual visits, information was collected on depressive symptoms, sexual behaviors, and substance use. Changes overtime in symptom scores were evaluated using individual growth curve modeling. RESULTS: The average CES-D20 score was 19.5 (SD = 12.7). Depressive symptoms were highest among daily/weekly methamphetamine users (56% vs. 39% occasional users and 27% non-users; p value<0.01). Factors independently associated with depressive symptoms included methamphetamine use (adjusted OR = 1.5; 95% CI 1.1-2.3) and transactional sex (adjusted OR = 1.8; 95% CI 1.4-2.5). Based on growth curve modeling, methamphetamine was the most influential predictor of depressive symptoms, accounting for 10% of individual variance (p value<0.01). Declines in depressive symptoms were noted for heavy users of a number of drugs, except for methamphetamine. For instance, those reporting daily/weekly heroin had a 3.38 point decline in CESD20 scores overtime (p value = 0.01). However, heavy methamphetamine users had much higher CESD20 scores and their scores remained high overtime (p value for change = 0.91). CONCLUSIONS: The prevalence of depressive symptoms among this cohort of HIV-negative and HIV-positive MSM was high, especially among frequent methamphetamine users. These findings suggest that reducing methamphetamine use may have the potential to reduce depressive symptoms.


Background: Pneumonia is common in persons living with the human immunodeficiency virus (HIV) (PLWH). Alcohol, cocaine, and marijuana impact pneumonia pathogenesis. We hypothesized that substance use was independently associated with pneumonia severity in PLWH and modified the effect of alcohol on pneumonia severity. Methods: Retrospective data analysis of PLWH admitted with a diagnosis of pneumonia was conducted. Alcohol use disorder was defined by the Alcohol Use Disorders Identification Test score >/=14. Drug use was quantified by self-report. Pneumonia severity was defined by the pneumonia severity index (PSI). Multivariable linear regression was used to test independent associations with pneumonia severity and effect modification by sex. Results: Of 196 PLWH, the mean age was 44 (SD = 9) years and the majority were men (71%). Ten percent (n = 19) of subjects met criteria for an alcohol use disorder (AUD). In subjects reporting alcohol use, 25% reported concomitant crack/cocaine use and 16% reported marijuana use. PSI scores were higher with lifetime use of crack/cocaine (mean PSI: 63.1 vs. 57.3, P = .06) and/or injection drug use (68.4 vs. 54.9, P = .04). PSI scores were lower with active marijuana use (51.5 vs. 62.2, P = .01). There were no significant difference in clinical
outcomes. Sex modified the effect of drug use on PSI, with greater PSI scores in women with an AUD (beta = 58.1, 95% confidence interval [CI]: 46.7 to 69.5, P < .01), whereas active marijuana use mitigated the effect of AUD on PSI in men (beta = -12.7, 95% CI: -18.8 to -6.6, P < .01). Conclusions: Active alcohol and/or crack/cocaine use was associated with increased pneumonia severity in PLWH, with less severe pneumonia with marijuana use. Alcohol and marijuana effects on pneumonia severity differed by sex, with increased PSI in women and decreased PSI in men with concomitant marijuana and AUD.


Using data from a randomized controlled trial of 319 women mainly recruited from a Municipal Drug Court System in St. Louis, MO, this study evaluates substance use, victimization, and HIV/AIDS risk behaviors over time. The results indicated that, for all participants, the likelihood of victimization, using drugs, and meeting the criteria for HIV/AIDS risk decreased by 46% by the eight-month follow-up; however, results did not differ significantly by intervention group. Women who were sexually abused as a child, had 4+ arrests, or believed they had sexual and drug-using behaviors that need changing at baseline were more likely to experience these issues over time.


BACKGROUND: Substance use disorders (SUDs) are common in healthcare settings and contribute to poor outcomes, particularly in patients living with HIV. We assessed initiation, engagement, and retention in SUD treatment and pharmacotherapy following an index SUD episode in a national sample of HIV-infected and uninfected patients receiving care in the Department of Veterans Affairs (VA) healthcare system. METHODS: We used electronic national VA data (years 2000-2015) from 52,995 HIV-infected and 111,229 age-, race-, gender-, and region-matched uninfected patients. We defined index SUD episodes as outpatient visits or inpatient/residential admissions with associated primary or secondary ICD-9 codes for substance use in patients without SUD-related services or pharmacotherapy in the preceding 5months. RESULTS: Overall, 57,428 (35%) patients had at least 1 index SUD episode. HIV-infected patients were more likely than uninfected controls to have at least one index SUD episode (35.7% vs. 34.6%; p<.001). Rates of initiation, engagement, and retention in SUD treatment after the index SUD episode were <17% for both groups. In adjusted models, HIV-infected patients were more likely than uninfected patients to be retained in SUD treatment at 6months (Odds Ratio 1.10; 95% Confidence Interval 1.04-1.16). SUD pharmacotherapy initiation and engagement was uncommon in both HIV-infected and uninfected patients. CONCLUSIONS: In this national VA sample, initiation of SUD treatment and pharmacotherapy were uncommon for both HIV-infected and uninfected patients. Interventions to improve initiation, engagement, and retention in the full range of services, including SUD pharmacotherapy, are warranted for all patients with SUD in the VA.


BACKGROUND: Adults 50 and older make up approximately 50% of persons living with HIV. Multiple co-morbidities are common among this group, including chronic pain and substance abuse, yet little is known about the daily factors that either enhance or inhibit these experiences or behaviors. This study explored daily drivers of substance use, pain, and relief from pain among older adults living with HIV utilizing ecological momentary assessment (EMA). METHOD: Participants (N = 55), ages 49-71, completed seven consecutive days of daily EMA online surveys prior to treatment initiation within a randomized controlled trial. Multilevel modeling tested predictors of pain, substance use, and relief from pain by examining within- and between-person relationships. RESULTS: Results revealed an associational, reciprocal relationship between daily worst pain and daily drinking, where greater worst pain ratings predicted heavier drinking and heavier drinking predicted greater daily and overall pain. Greater happiness and poorer quality of sleep predicted greater daily worst pain. Exercising and overall confidence to cope with pain without medication were associated with lower levels of daily worst pain. Finally, spending less time with a loved one over time and reporting any coping behavior were associated with relief from pain. CONCLUSION: Investigation of daily factors that drive pain and substance use behaviors among this unique population help
inform which daily factors are most risky to their health and well-being. Alcohol use emerged as the only substance associated with both driving pain and responding to pain. Findings suggest key points for prevention and intervention.


BACKGROUND: Active illicit drug use can present a barrier to the medical management of HIV infection by complicating adherence to antiretroviral therapy (ART). Plasma HIV-1 RNA viral load (VL) rebound, defined as a period of detectable HIV VL following ART and VL suppression, can lead to the generation of viral resistance and potential treatment failure. We sought to investigate the contribution of substance use patterns on rates of VL rebound. METHODS: We used data from the ACCESS study, a long-running community-recruited prospective cohort of HIV-positive people who use illicit drugs in Vancouver, Canada, a setting of universal no-cost HIV treatment. We analysed time to VL rebound (that is, two consecutive observations >/=1,000 copies/ml) after ART initiation and sustained viral suppression (that is, two consecutive observations <50 copies/ml) using extended Cox regression models with a recurrent events framework. RESULTS: Between May 1996 and November 2013, 564 ART-exposed participants achieved at least one instance of VL suppression and contributed 1,893.8 person-years of observation. Over follow-up, 198 (35.1%) participants experienced >/= one instance of VL rebound. In adjusted analyses, VL rebound was associated with younger age (adjusted hazard ratio [AHR] =0.97, 95% CI: 0.95, 0.98), heroin injection >/= daily versus < daily, AHR =1.52, 95% CI: 1.01, 2.30), crack use >/= daily versus < daily, AHR = 1.73, 95% CI: 1.08, 1.92) and heavy alcohol use >/= four versus < four drinks/day, AHR =1.97, 95% CI: 1.17, 3.31). CONCLUSIONS: The present study suggests that in addition to heavy alcohol use, high-intensity illicit drug use, particularly >/= daily heroin injection and >/= daily crack smoking are risk factors for VL rebound. In addition to the impact of high-intensity drug use on health-care engagement and ART adherence, some evidence exists on the direct impact of psychoactive substances on ART metabolism and the natural progression of HIV disease. At-risk individuals should be provided additional supports to preserve virological control and maintain the benefits of ART.


Among persons with human immunodeficiency virus (HIV) infection, illegal drug use and hazardous alcohol use are hypothesized to be strong risk factors for failure to achieve or maintain a suppressed HIV viral load, but accurate quantification of this association is difficult because of challenges involved in measuring substance use as part of routine clinical care. We estimated the associations of recent cocaine use, opioid/heroin use, and hazardous alcohol use with unsuppressed viral load among 1,554 persons receiving care at the John G. Bartlett Specialty Practice (Baltimore, Maryland) between 2013 and 2017. We accounted for measurement error in substance use using Bayesian models and prior estimates of the sensitivity and specificity of 2 imperfect measures of substance use derived from a previous analysis in this cohort. The prevalence difference for unsuppressed viral load associated with recent cocaine use was 11.3% (95% credible interval [Crl]: 6.4, 17.0); that associated with recent opioid/heroin use was 13.2% (95% Crl: 6.6, 20.7); and that associated with recent hazardous alcohol use was 8.5% (95% Crl: 3.2, 14.4). Failure to account for measurement error resulted in clinically meaningful underestimates of the prevalence difference. Time-varying substance use is prevalent and difficult to measure in routine care; here we demonstrate a method that improves the utility of imperfect data by accounting for measurement error.


Latino immigrants with substance use and mental health problems are at risk for undiagnosed HIV and sexually transmitted infections (STIs). Participants in a randomized control trial were recruited in Boston, USA and Madrid and Barcelona, Spain. Eligibility criteria were Latino self-identification, age 18-70, elevated substance use and mental health symptoms, and not currently in substance or mental health care. A multinomial logistic regression examined predictors of HIV/STI testing decline and lost to follow-up (LTFU) prior to testing compared with acceptance. Of 341 participants, 74% accepted testing, 4% declined, and 22% were LTFU. The odds of LTFU were higher in those with high concern for HIV and those whose main partner had done HIV testing. Age >/= 35 years, females, higher education, and higher report of discrimination lowered the
OBJECTIVES: Antiretroviral therapy is affording longer lifespans for people living with HIV (PLWH), yet factors such as substance use play an increasing role in morbidity and mortality in this population. Though previous studies have examined substance use differences between age cohorts of PLWH, no study has examined the influence of birth cohort on current substance use patterns. Thus, this study investigated the prevalence of past 12-month self-reported substance use between four birth cohorts, <1970 (M age = 54.1), 1970s (M age = 41.5), 1980s (M age = 31.3 years old), and 1990s (M age = 23.2 years old) of PLWH in Florida. METHODS: PLWH (N = 934) recruited from community health clinics in Florida completed a questionnaire assessing sociodemographics, health status, and substance use. Multivariate logistic regressions utilizing the <1970 cohort as the referent group examined the relationship between birth cohort and substance use. RESULTS: The 1980s cohort had significantly greater odds of marijuana use compared to the oldest cohort (<1970s), while the three younger cohorts (1970s, 1980s, and 1990s) evidenced a significantly greater odds of ecstasy use compared to the oldest group. Contrastingly, the three younger birth cohorts reported significantly less crack use than the oldest cohort, while the youngest group (1990s) also demonstrated an 80% reduction in injection drug use compared to the oldest group. CONCLUSION: The older cohort evidenced significantly greater crack and injection drug use, while the younger cohorts evidenced greater marijuana and ecstasy use. Therefore, it is important to develop age-specific substance use interventions among PLWH.


OBJECTIVE: Substance use is common among individuals infected with HIV, yet whether neurocognitive effects of HIV can be distinguished from more nonspecific effects of drug dependence and associated comorbidities is not known. DESIGN: Cross-sectional observational study of neurocognitive function among HIV-infected and uninfected individuals with and without substance use disorders (SUDs). METHODS: We compared the performance of 458 (31% HIV-infected) substance-dependent individuals (SDIs) and 90 individuals (23% HIV-infected) with no history of SUDs on measures of delay discounting and probability learning, tasks, which are differentially sensitive to addictive processes and HIV serostatus, respectively. RESULTS: In factorial analyses of covariance adjusted for age, years of education, and sex, we found that SDIs showed significantly higher rates of delay discounting, regardless of HIV serostatus (P < 0.05). Conversely, HIV-infected individuals performed significantly more poorly on probability learning compared with uninfected groups, regardless of SUD history (P < 0.05). CONCLUSION: Theory-driven cognitive neuropsychological tasks may have the capacity to detect neurocognitive effects of HIV not attributable solely to substance use; evidence from functional neuroimaging studies with more selective neurocognitive probes will be critical for hypothesis testing and mapping underlying brain systems more precisely.


The prevalence of tobacco smoking among people with HIV (PWH) ranges from 40% to 70%. Additionally, tobacco smoking is higher among low-income individuals, yet few studies have examined tobacco smoking in low socioeconomic status PWH. Using data from a cohort of PWH receiving care in an urban HIV clinic, we characterized factors associated with current and former smoking and with initiation/re-initiation and cessation of tobacco use. Among a study sample of 1,607 PWH, the prevalence of current smoking was 46.6% among men and 46.0% among women. Current smoking in men and women was associated with Medicaid insurance status, substance use, and panic symptoms. In women, but not men, hazardous alcohol use decreased the likelihood of quitting smoking and increased the risk of initiation/re-initiation. Smoking interventions for low-income, urban PWH may need to be tailored to address mental health and substance use comorbidities.

Older persons living with HIV (PLWH), often defined as age 50 years and older, are a rapidly growing population, with high rates of chronic pain, substance use, and decreased physical functioning. No interventions currently exist that address all three of these health outcomes simultaneously. An 8-week behavioral intervention combining cognitive-behavioral therapy and tai chi reinforced with text messaging (CBT/TC/TXT) was developed and pilot tested in a community-based AIDS service organization with substance using PLWH aged 50 years and older who experienced chronic pain. Fifty-five participants were enrolled in a three-arm randomized controlled trial that compared the CBT/TC/TXT intervention (N=19) to routine Support Group (SG) and Assessment Only (AO) (N=18) to assess the intervention’s feasibility, acceptability and preliminary efficacy to reduce pain and substance use and improve physical performance. Participants were assessed at baseline, treatment-end (week 8) and week 12. Feasibility and acceptability indicators showed moderate levels of participant enrollment (62% of those eligible), excellent 12-week assessment completion (84%) and high attendance at CBT and tai chi sessions (>60% attended at least 6 of 8 sessions). Efficacy indicators showed within-group improvements from baseline to week 12 in the CBT/TC/TXT group, including all four substance use outcomes, percent pain relief in the past 24 h, and in two physical performance measures. Observed between-group changes included greater reductions in days of heavy drinking in the past 30 days for both CBT/TC/TXT (19%) and SG (13%) compared to the AO group. Percent pain relief in the past 24 h improved in the CBT/TC/TXT group relative to SG, and the CBT/TC/TXT’s physical performance score improved relative to both the SG and AO groups. Findings demonstrate that the CBT/TC/TXT intervention is feasible to implement, acceptable and has preliminary efficacy for reducing substance use and pain and improving physical performance among a vulnerable population of older PLWH.


In mental health and substance abuse treatment, individualized assessments provide information on the specific thoughts and cognitive processes influencing a person’s behavior, emotional responses, and psychological functioning. Given the lack of automated assessment procedures or individualized clinical interventions in the growing health disparities in the South Los Angeles of USA, we developed a novel system using idiographic techniques to automatically and quickly generate individualized patient assessment data for use in clinical interventions.


BACKGROUND: Under the Affordable Care Act, hospitals receive reduced reimbursements for excessive 30-day readmissions. However, the Centers for Medicare and Medicaid Services does not consider social and behavioral variables in expected readmission rate calculations, which may unfairly penalize systems caring for socially disadvantaged patients, including patients with HIV. SETTING: Randomized controlled trial of patient navigation with or without financial incentives in HIV-positive substance users recruited from the inpatient setting at 11 US hospitals. METHODS: External validation of an existing 30-day readmission prediction model, using variables available in the electronic health record (EHR-only model), in a new multicenter cohort of HIV-positive substance users was assessed by C-statistic and Hosmer-Lemeshow testing. A second model evaluated sociobehavioral factors in improving the prediction model (EHR-plus model) using multivariable regression and C-statistic with cross-validation. RESULTS: The mean age of the cohort was 44.1 years, and participants were predominantly males (67.4%), non-white (88.0%), and poor (62.8%, <$20,000/year). Overall, 17.5% individuals had a hospital readmission within 30 days of initial hospital discharge. The EHR-only model resulted in a C-statistic of 0.65 (95% confidence interval: 0.60 to 0.70). Inclusion of additional sociobehavioral variables, food insecurity and readiness for substance use treatment, in the EHR-plus model resulted in a C-statistic of 0.74 (0.71 after cross-validation, 95% confidence interval: 0.64 to 0.77). CONCLUSIONS: Incorporation of detailed social and behavioral variables substantially improved the performance of a 30-day readmission prediction model for hospitalized HIV-positive substance users. Our findings highlight the importance of social determinants in readmission risk and the need to ask about, adjust for, and address them.


Background: Retention in care (RIC) and viral suppression (VS) are associated with reduced HIV transmission and mortality. Studies addressing postpartum engagement in HIV care have been limited by small sample size, short follow-up, and a lack...
of data from the Southeast United States. Methods: HIV-positive adult women with >/=1 prenatal visit at the Vanderbilt Obstetrics Comprehensive Care Clinic from 1999 to 2015 were included. Poor RIC was defined as not having >/=2 encounters per year; >/=90 days apart; poor VS was a viral load >200 copies/mL. Modified Poisson regression was used to estimate adjusted relative risks (aRRs) of poor postpartum RIC and VS. Results: Among 248 women over 2070 person-years of follow-up, 37.6% person-years had poor RIC and 50.4% lacked VS. Prenatal substance use was independently associated with poor RIC (aRR, 1.40; 95% confidence interval [CI], 1.08-1.80) and poor VS (aRR, 1.20; 95% CI, 1.04-1.38), and lack of VS at enrollment was associated with poor RIC (aRR, 1.64; 95% CI, 1.15-2.35) and poor VS (aRR, 1.59; 95% CI, 1.30-1.94). Hispanic women were less likely and women with lower educational attainment were more likely to have poor RIC. Women >30 years of age and married women were less likely to have poor VS. Conclusions: In this population of women in prenatal care at an HIV primary medical home in Tennessee, women with prenatal substance use and a lack of VS at enrollment into prenatal care were at greater risk of poor RIC and lack of VS postpartum. Interventions aimed at improving postpartum engagement in HIV care among these high-risk groups are needed.


Homelessness is a challenge to retention in HIV care and adherence to antiretroviral therapy. We describe the sociodemographic and behavioral characteristics of HIV-positive adults who reported recent homelessness. The Medical Monitoring Project is a complex sample survey of HIV-positive adults receiving medical care in the United States. We used weighted interview and medical record data collected from June 2009 to May 2015 to estimate the prevalence of depression, substance use, and HIV risk behaviors among adults experiencing recent homelessness. From 2009 to 2015, 8.3% of HIV-positive adults experienced recent homelessness. Homeless adults were more likely than housed adults to have major depression, to binge drink, use non-injection drugs, use injection drugs, and smoke. Over 60% of homeless adults were sexually active during the past year, with homeless adults reporting more condomless sex with an HIV-negative or unknown status sex partner than housed adults. Programs attempting to improve the health outcomes of HIV-positive homeless persons and reduce ongoing HIV transmission can focus on providing basic needs, such as housing, and ancillary services, such as mental health counseling or substance abuse treatment and counseling.

Paolillo, E. W., et al. (2019). "Age of Last Alcohol Use Disorder Relates to Processing Speed Among Older Adults Living with HIV." Alcohol Alcohol 54(2): 139-147.

AIMS: Older persons living with HIV (PLWH) and past alcohol use disorder (AUD) are at higher risk for neurocognitive deficits compared to those with either condition alone; however, factors underlying this relationship are unknown. Given that aging potentiates multi-system damage from alcohol misuse, the current study examined whether neurocognitive functioning among older adults relates to the age at which they last met criteria for AUD (i.e. 'age of last AUD'), and whether this relationship differed by HIV serostatus. METHODS: All participants (aged between 50 and 75 years) were grouped by HIV/AUD status: 345 HIV+/AUD+, 148 HIV-/AUD+, 273 HIV+/AUD-, and 206 HIV-/AUD-. Neurocognitive functioning was assessed globally and within seven domains. Among only the two AUD+ groups, multivariable linear regressions examined the interaction between age of last AUD and HIV status on neurocognitive functioning, controlling for demographics and clinical characteristics. RESULTS: Older age of last AUD related to worse processing speed among PLWH (b = -0.03; P = 0.006); however, this relationship was not significant among persons without HIV (b = 0.01; P = 0.455). The interaction between age of last AUD and HIV status did not predict neurocognitive functioning in other domains. Processing speed appeared clinically important, as slower speed related to worse everyday functioning, including more reported cognitive difficulties (r = -0.26, P < 0.001) and higher rates of functional dependence (OR = 0.87, 95%CI = 0.80-0.95, P = 0.002). CONCLUSIONS: Our novel findings, demonstrating slower processing speed when a past AUD occurred at an older age in PLWH, highlight the value in assessing older PLWH for processing speed deficits, even if other cognitive domains appear to be intact.


This study examines self-reported 30-day antiretroviral therapy (ART) adherence among 101 people living with HIV and substance use disorders (SUD) in New York City in terms of Diagnostic and Statistical Manual - 5th Edition (DSM-5) SUD
BACKGROUND: Given the close connection between human immunodeficiency virus (HIV) infection and substance use disorder (SUD), access to integrated HIV and SUD services is critical for individuals experiencing both challenges and their biopsychosocial conditions. METHOD: Adopting an integrative method, this systematic review included 23 empirical studies published between 2000 and 2018. Articles investigated providers' and clients' perspectives on barriers to accessing integrated HIV and SUD services in various service settings (e.g., HIV primary care, SUD treatment, pharmacy). RESULTS: Using a client-centered relational framework, we identified barriers in three relational domains with "the client" as the focus of each: client-provider, client-organization, and client-system. The review shows that (1) barriers to HIV and SUD services do not exist in isolation, but in the dynamics within and across three relational domains; (2) service providers and clients often have different perceptions about what constitutes a barrier and the origin of such barriers; and (3) interprofessional and interorganizational collaborations are crucial for integrating HIV and SUD services. CONCLUSION: This review points out the limitations of the conventional paradigm grouping barriers to service integration into isolated domains.
BACKGROUND: HIV, hepatitis C virus (HCV), and alcohol-related diagnoses (ARD) independently contribute increased risk of all-cause hospitalization. We sought to determine annual medical intensive care unit (MICU) admission rates and relative risk of MICU admission between 1997 and 2014 among people with and without HIV, HCV, and ARD, using data from the largest HIV and HCV care provider in the United States. SETTING: Veterans Health Administration. METHODS: Annual MICU admission rates were calculated among 155,550 patients in the Veterans Aging Cohort Study by HIV, HCV, and ARD status. Adjusted rate ratios and 95% confidence intervals (CIs) were estimated with Poisson regression. Significance of trends in age-adjusted admission rates were tested with generalized linear regression. Models were stratified by calendar period to identify shifts in MICU admission risk over time. RESULTS: Compared to HIV-/HCV-/ARD- patients, relative risk of MICU admission decreased among HIV-mono-infected patients from 61% (95% CI: 1.56 to 1.65) in 1997-2009% to 13% (95% CI: 1.16 to 1.27) in 2010-2014, increased among HCV-mono-infected patients from 22% (95% CI: 1.16 to 1.29) in 1997-2009% to 54% (95% CI: 1.43 to 1.67) in 2010-2014, and remained consistent among patients with ARD only at 46% (95% CI: 1.42 to 1.50). MICU admission rates decreased by 48% among HCV-uninfected patients (P-trend <0.0001) but did not change.


OBJECTIVES: To examine the same-day associations between substance use and objectively measured antiretroviral therapy (ART) nonadherence among persons living with HIV (PLWH). Methods: PLWH (N = 53) were given an electronic pill box (EPB), and their ART adherence was monitored for 14 days. During a follow-up interview, participants were asked about any alcohol or drug use that occurred during those same 14 days. Results: Daily heavy drinking (5 drinks for males and 4 drinks for females) was associated with a nearly five times greater likelihood of same-day ART nonadherence (OR = 4.90, 95% CI = 1.79-13.36, P = .002). Further, drug use was associated with a nearly two times greater likelihood of ART nonadherence on the same day (OR = 1.80, 95% CI = 1.14-2.85, P = .012). Conclusions: These results highlight the importance of continuing to pursue interventions to effectively address heavy drinking and drug use among PLWH in order to improve ART adherence.


People with and at risk for HIV have high rates of smoking, increasing their morbidity and mortality. Effective cessation interventions are needed for this group. Transtheoretical model (TTM)-tailored interventions have demonstrated efficacy, but measures need cross-validation in this population. TTM cessation measures were evaluated in women smokers with and at risk for HIV (N = 111) from Chicago Women's Intergeneracy HIV Study (WIHS). Confirmatory factor analyses evaluated measurement models. MANOVAs examined relationships between constructs and stage subgroups. For decisional balance, the two-factor uncorrelated model was best (chi2(20) = 13.96; comparative fit index [CFI], 1.0; root mean square error of approximation [RMSEA] = .00), with good (pros alpha = .78) and fair (cons alpha = .55) four-item alphas. The one-factor temptations model (alpha = .90) showed reasonable fit (chi2(18) = 80.22; CFI = .89; RMSEA = .177). Processes of change subscales had fair to good two-item alphas (alpha = .49-.77) and fit a 10-factor fully correlated model (chi2(125) = 222.72; CFI = .88; RMSEA = .084). MANOVAs by stage of change replicated expected patterns for the pros, overall temptations, and two process subscales with medium-sized effects (eta2 = .06-.18). Contrary to expectations, no differences by stage were found for cons or temptation negative affect subscales. The structures of these TTM measures replicated with good internal and external validity, except for the cons, which needs refinement. Negative affect temptations was structurally sound, but did not vary by stage group potentially reflecting this sample's moderate depression levels and/or their reliance on smoking to deal with negative affect. Results support the use of most TTM measures in research and tailored interventions to increase smoking cessation among women smokers with and at risk for HIV and highlight the importance of managing negative affect in cessation materials targeting this group.


BACKGROUND: HIV, hepatitis C virus (HCV), and alcohol-related diagnoses (ARD) independently contribute increased risk of all-cause hospitalization. We sought to determine annual medical intensive care unit (MICU) admission rates and relative risk of MICU admission between 1997 and 2014 among people with and without HIV, HCV, and ARD, using data from the largest HIV and HCV care provider in the United States. SETTING: Veterans Health Administration. METHODS: Annual MICU admission rates were calculated among 155,550 patients in the Veterans Aging Cohort Study by HIV, HCV, and ARD status. Adjusted rate ratios and 95% confidence intervals (CIs) were estimated with Poisson regression. Significance of trends in age-adjusted admission rates were tested with generalized linear regression. Models were stratified by calendar period to identify shifts in MICU admission risk over time. RESULTS: Compared to HIV-/HCV-/ARD- patients, relative risk of MICU admission decreased among HIV-mono-infected patients from 61% (95% CI: 1.56 to 1.65) in 1997-2009% to 13% (95% CI: 1.16 to 1.27) in 2010-2014, increased among HCV-mono-infected patients from 22% (95% CI: 1.16 to 1.29) in 1997-2009% to 54% (95% CI: 1.43 to 1.67) in 2010-2014, and remained consistent among patients with ARD only at 46% (95% CI: 1.42 to 1.50). MICU admission rates decreased by 48% among HCV-uninfected patients (P-trend <0.0001) but did not change.
among HCV+ patients (P-trend = 0.34). CONCLUSION: HCV infection and ARD remain key contributors to MICU admission risk. The impact of each of these conditions could be mitigated with combination of treatment of HIV, HCV, and interventions targeting unhealthy alcohol use.


BACKGROUND: Substance use disorders (SUDs) and psychiatric disorders are common among people with HIV (PWH) and lead to poor outcomes. Yet these conditions often go unrecognized and untreated in primary care. METHODS: The Promoting Access to Care Engagement (PACE) trial currently in process examines the impact of self-administered electronic screening for SUD risk, depression and anxiety in three large Kaiser Permanente Northern California primary care clinics serving over 5000 PWH. Screening uses validated measures (Tobacco, Alcohol, Prescription medication, and other Substance use [TAPS]; and the Adult Outcomes Questionnaire [AOQ], which includes the Patient Health Questionnaire [PHQ-9] and Generalized Anxiety Disorder [GAD-2]) delivered via three modalities (secure messaging, tablets in waiting rooms, and desktop computers in exam rooms). Results are integrated automatically into the electronic health record.

Based on screening results and physician referrals, behavioral health specialists embedded in primary care initiate motivational interviewing- and cognitive behavioral therapy-based brief treatment and link patients to addiction and psychiatry clinics as needed. Analyses examine implementation (screening and treatment rates) and effectiveness (SUD, depression and anxiety symptoms; HIV viral control) outcomes using a stepped-wedge design, with a 12-month intervention phase implemented sequentially in the clinics, and a 24-month usual care period prior to implementation in each clinic functioning as sequential observational phases for comparison. We also evaluate screening and treatment costs and implementation barriers and facilitators. DISCUSSION: The study examines innovative, technology-facilitated strategies for improving assessment and treatment in primary care. Results may help to inform substance use, mental health, and HIV services. TRIAL REGISTRATION: NCT03217058.


The disparity in viral suppression rates between Latino and non-Latino White patients in HIV care appears to be narrowing, but it is unclear if depression and substance use perpetuate this disparity. We analyzed electronic medical records from the CFAR network of integrated clinical systems cohort. First observations/enrollment data collected between 2007 and 2013 were analyzed, which included survey (race/ethnicity, depression, substance use, adherence) and clinical data (viral suppression). We estimated indirect effects with a regression-based bootstrapping method. In 3129 observations, Latinos and non-Latino Whites did not differ in depression or alcohol use (ORs 1.11, 0.99, ns), but did in drug use (OR 1.13, p < .001). For all patients, depression and substance use were indirectly associated with small increases (ORs 1.02-1.66) in the odds for a detectable viral load, via worse adherence. We conclude that variables not captured in EMR systems (e.g., health literacy, structural factors) may better explain viral suppression disparities that persist.


We used longitudinal data from the 2013-2017 Canadian HIV Women's Sexual and Reproductive Health Cohort Study (N = 1422) to assess the clustered impact of social determinants of health (SDoH) on hazardous drinking. Two measures of alcohol use were defined: (i) weekly alcohol use, with > 7 drinks/week as heavy drinking, and (ii) monthly binge drinking (>= 6 drinks at one sitting), with >= 1/month as frequent binging. Twelve SDoH indicators were classified using latent class analysis: no/least adversities, discrimination/stigma, economic hardship, and most SDoH adversities. Inverse-probability weighted multinomial logistic regression was used to report relative-risk ratio (RRR). Women living with HIV (WLWH) in no/least adversity class had a substantially lower likelihood of both heavy weekly alcohol use and frequent binging than

Substance use can interfere with HIV treatment. A previous multisite clinical trial (Metsch et al., 2016) tested 2 behavioral interventions designed to improve treatment engagement in people with comorbid HIV and drug or heavy alcohol use. Clinical trial participants were randomized to treatment as usual (N = 264), patient navigation (PN; N = 266), or PN with contingency management (PN + CM; N = 271) for 6 months. PN + CM patients could earn financial incentives both for entering substance use disorder (SUD) treatment and for submitting urine and breath samples negative for opioids, stimulants, and alcohol. This secondary analysis compared frequencies of treatment entry and sample submission in the PN versus PN + CM groups and examined associations with viral suppression (defined as $\leq$200 copies/mL). Incentives were associated with a higher percentage of patients entering SUD treatment (PN = 25.5%; PN + CM = 47.6%; p < .001), a higher percentage submitting samples for drug testing (PN median = 2, interquartile range [IQR] = 0.5; PN + CM median = 8, IQR = 5.1; p < .0001) and a higher percentage submitting samples negative for targeted drugs and alcohol (PN median = 1, IQR = 0.3; PN + CM median = 6, IQR = 2.9; p < .0001). Within the PN + CM group, up to 58% of those with high rates of engagement in activities were virally suppressed at 6 months versus 24-29% in subgroups with lowest engagement. In conclusion, CM was feasibly incorporated into PN for persons with HIV and SUD and was associated with higher rates of engagement in targeted substance use abatement activities. CM has the potential to improve health outcomes in this population. (PsycINFO Database Record (c) 2019 APA, all rights reserved).


Among people living with HIV (PLWH), HIV-related stigma predicts nonadherence to antiretroviral therapy (ART); however, the role of stigma associated with drug use is largely unknown. We examined the association between substance use (SU) stigma and optimal ART adherence in a sample of 172 self-reported HIV-infected drug users. Participants completed surveys on SU, stigma, and ART adherence. The three substance classes with the greatest number of participants exhibiting moderate/high-risk scores were for cocaine/crack cocaine (66.28%), cannabis (64.53%), and hazardous alcohol consumption (65.7%). Multivariable logistic regression was conducted to investigate associations between levels of SU stigma and optimal ART adherence, adjusting for sociodemographic characteristics, severity of illicit drug use (alcohol, smoking and substance involvement screening test) and alcohol use severity (Alcohol Use Disorders Identification Test-C), HIV-related stigma, and social support. The odds of optimal adherence among participants experiencing moderate [Adjusted Odds Ratio (AOR) = 0.36, p = 0.039] and very high (AOR = 0.25, p = 0.010) levels of anticipated SU stigma were significantly lower than participants experiencing low levels of anticipated SU stigma. No other stigma subscales were significant predictors of ART adherence. Interventions aiming to improve ART adherence among drug-using PLWH need to address anticipated SU stigma.


People living with HIV (PLWH) face difficult decisions about disclosing their HIV status to new sexual partners. Alcohol and other drug use could impact these decision-making processes and subsequent sexual risk behavior. We sought to examine the event-level relationships between substance use, HIV disclosure, and condom use in PLWH and their first-time HIV-negative or unknown status sexual partners. Adult PLWH were recruited from care settings in a southeastern U.S. city. Participants reported their sexual behavior for 28 consecutive days via text message prompts. We employed multilevel covariation in a causal system to examine the event-level relations between substance use and condom use. We proposed that this relationship would be mediated by HIV disclosure and moderated by viral suppression status. A total of 243 participants (83% male, 93% Black) reported 509 sexual events with first-time HIV-negative/unknown status sexual partners. Substance use at the time of sex was negatively associated with disclosure in PLWH with suppressed viral load (OR 0.29, beta = -1.22, 95% CI [-2.42, -0.03], p = .045), but differentially associated with condom use in PLWH with detectable versus undetectable viral load. In PLWH with viral suppression, participants who always disclosed versus who never disclosed their HIV status were more likely to use condoms (beta = 1.84, 95% CI [0.35, 3.53], p = .017), but inconsistent...
disclosers were less likely to use a condom after disclosing (OR 0.22, 95% CI [0.07, 0.68], p = .008). Event-level analysis offers a more nuanced understanding of the proximal (substance use, HIV disclosure) and person-level (substance use, viral load) determinants of HIV transmission risk behavior in PLWH.


The purpose of this study is to examine racial/ethnic and gender variations and intersectionality in the knowledge, attitudes, intentions, and behaviors pertaining to substance abuse (SA) and human immunodeficiency virus (HIV)/sexually transmitted disease (STD) prevention among racial/ethnic minority college students (ages 18-24) in South Texas. A total of 535 minority students completed a baseline survey between 2014 and 2016 (N = 535). Results revealed statistically significant (ranging from p < .05 to p < .001) racial/ethnic and gender variations in SA and HIV/STD prevention-related knowledge, attitudes, intentions, and behaviors. However, the significant interaction effects (i.e., intersectionality) were observed only for two of the nine composite variables. That is, although male minority students exhibited lower levels of awareness of sexual risks and safe sex negotiation skills than female minority students, Hispanic male students appeared to fare better in both awareness of sexual risks (p < .01) and safe sex negotiation skills (p < .05) compared to students of other racial/ethnic origin. Implications for prevention and intervention work involving minority college students are discussed.


Medication for addiction treatment (MAT) could reduce acute care utilization in HIV-positive individuals with substance use disorders. The study objective was to determine if HIV-positive people with substance use disorders treated with MAT report less acute care utilization than those not receiving MAT. We assessed the association between MAT and acute care utilization among HIV-positive individuals with alcohol or opioid use disorder. Acute care utilization 6 months later was defined as any past 3-month self-reported (1) emergency department (ED) visit and (2) hospitalization. Of 153 participants, 88% had alcohol use disorder, 41% had opioid use disorder, and 48 (31%) were treated with MAT. Fifty-five (36%) participants had an ED visit and 38 (25%) participants had a hospitalization. MAT was not associated with an ED visit (AOR 1.12, 95% CI 0.46-2.75) or hospitalization (AOR 1.09, 95% CI 0.39-3.04). MAT was not associated with acute care utilization. These results highlight the need to increase MAT prescribing in HIV-positive individuals with substance use disorders, and to address the many factors that influence acute care utilization.


We examined technology use patterns (e.g., mobile phone and computer ownership, text messaging, internet access) and preferences for adopting health information technologies to optimize office-based treatment for substance use disorders, HIV, and Hepatitis C virus (HCV) infection. Surveys were administered to patients enrolled in an outpatient detoxification program in a publicly-funded tertiary referral center. Most reported mobile phone ownership (86%) and described high rates of mobile phone (3.3) and phone number (2.6) turnover in the preceding year. Internet access was reported on a daily (52%) or weekly basis (22%). Most participants were amenable to receiving text message-based informational content (i.e., medications, support groups, treatment programs) pertaining to substance use disorders (79%), HIV (50%), and HCV care (58%). Respondents reporting less than high school education and past year incarcerated elicited higher favorability in adopting smartphone apps to facilitate peer sharing of HIV-HCV related content. Results suggest high favorability for adopting health information technologies to enhance office-based treatment for substance use disorders, HIV, and HCV, particularly among vulnerable patient sub-groups.


The effect of non-injection substance use on HIV viral load (VL) is understudied in international settings. Data are from HPTN063, a longitudinal observational study of HIV-infected individuals in Brazil, Thailand, and Zambia, with focus on men
with VL data (Brazil = 146; Thailand = 159). Generalized linear mixed models (GLMM) assessed whether non-injection substance use (stimulants, cannabis, alcohol, polysubstance) was associated with VL undetectability. ART adherence and depressive symptoms were examined as mediators of the association. In Thailand, substance use was not significantly associated with VL undetectability or ART adherence, but alcohol misuse among MSM was associated with increased odds of depression (AOR = 2.75; 95% CI 1.20, 6.32, p = 0.02). In Brazil, alcohol misuse by MSM was associated with decreased odds of undetectable VL (AOR = 0.34; 95% CI 0.13, 0.92, p = 0.03). Polysubstance use by heterosexual men in Brazil was associated with decreased odds of ART adherence (AOR = 0.25; 95% CI 0.08, 0.78, p = 0.02). VL suppression appears attainable among non-injection substance users. Substance use interventions among HIV-positive men should address depression, adherence, and VL undetectability.


BACKGROUND: HIV infection is now largely a chronic condition as a result of the success of antiretroviral therapy. However, several comorbidities have emerged in people living with HIV (PLWH), including alcohol use disorders and musculoskeletal disorders. Alcohol use has been associated with lower bone mineral density, alterations to circulating bone turnover markers, and hypocalcemia. The pathophysiological basis of bone loss in the PLWH population is unclear but has been suggested to be linked to oxidative stress and inflammation. To test the hypothesis that PLWH consuming excessive alcohol have altered markers of bone turnover and/or calcium homeostasis in association with oxidative stress, we correlated measurements of alcohol consumption with markers of oxidative stress and inflammation, serum calcium concentrations, and measurements of bone turnover, including c-terminal telopeptide cross-links (CTX-1) and osteocalcin. METHODS: Data were drawn from cross-sectional baseline data from the ongoing New Orleans Alcohol Use in HIV (NOAH) study, comprised of 365 in care PLWH. Alcohol consumption measures (Alcohol Use Disorders Test, 30-day timeline follow-back calendar, and phosphatidylethanol [PEth]) were measured in a subcohort of 40 subjects selected based on highest and lowest PEth measurements. Multivariate linear regression was performed to test the relationships between alcohol consumption and systemic oxidative stress (4-hydroxynonenal; 4-HNE) and inflammation (c-reactive protein; CRP). RESULTS: Serum calcium and CTX-1 did not differ significantly between the high and low-PEth groups. Individuals in the high-PEth group had significantly lower serum osteocalcin (median low-PEth group: 13.42 ng/ml, inter-quartile range [IQR] 9.26 to 14.99 ng/ml; median high-PEth group 7.39 ng/ml, IQR 5.02 to 11.25 ng/ml; p = 0.0005, Wilcoxon rank-sum test). Osteocalcin negatively correlated with PEth (Spearman r = -0.45, p = 0.05) and self-reported measures after adjusting for covariates. Alcohol consumption showed mild, but significant, positive associations with serum 4-HNE, but not with CRP. Osteocalcin did not correlate with either 4-HNE or CRP. CONCLUSIONS: In this subcohort of PLWH, we detected significant associations between at-risk alcohol use and osteocalcin, and at-risk alcohol use and serum 4-HNE, suggesting suppression of bone formation independent of increased systemic oxidative stress with increasing alcohol consumption.

Background: Alcohol use disorders (AUDs) are highly prevalent in people living with HIV (PLWH) and are associated with increased HIV risk behaviors, suboptimal treatment adherence, potential interaction with medication pharmacodynamics, and greater risk for disease progression. Preclinical studies show that chronic binge alcohol administration accelerates disease progression and aggravates pathogenesis in the simian immunodeficiency virus (SIV)-infected rhesus macaque model despite viral suppression by antiretroviral therapy. Methods: To translate preclinical findings in the rhesus macaque model of chronic binge alcohol administration and SIV infection and to address areas of uncertainty surrounding the biological mechanisms and socioenvironmental modifiers that contribute to the relationship between alcohol use and HIV-associated comorbidities, precocious aging, and disease progression, we designed a translational multiproject, longitudinal, cohort study, and the New Orleans Alcohol Use in HIV (NOAH) Study. The NOAH Study is led by a multidisciplinary team of scientists, with a research focus on the interaction of AUD and HIV. The overarching hypothesis is that alcohol use will lead to adverse health outcomes in PLWH. In this report, we describe the study design and baseline descriptive characteristics of our cohort. Results: Three-hundred and sixty-five participants completed the baseline testing. The cohort is predominantly male (69%) and African American (83.5%). The majority of participants report incomes below 200% of the federal poverty level. CD4 counts <200 cells/μl were found in 12.8% and viral loads <50 copies/ml were found in 73.6%. These HIV status variables did not differ based upon alcohol use. Conclusions: The NOAH Study facilitates bidirectional translational investigation of alcohol’s impact on PLWH. Translation of preclinical findings to PLWH permits confirmation of basic biological mechanisms in humans and also allows incorporation of sociobehavioral factors that may affect biology but are challenging to replicate in preclinical models. The NOAH Study is led by a multidisciplinary team of scientists at LSUHSC, with a research focus on the interaction of AUD, HIV, and cART. This clinical study translates preclinical findings in the rhesus macaque model of chronic binge alcohol administration and SIV infection and facilitates bidirectional translational investigation of alcohol’s impact on PLWH. Studies address areas of uncertainty surrounding the biological mechanisms and socioenvironmental modifiers that contribute to the relationship between alcohol use and HIV-associated comorbidities, precocious aging, and disease progression. [ABSTRACT FROM AUTHOR]
While persons with HIV (PWH) have benefited from significant advances in treatment and resulting longevity, mental health problems remain elevated in this population. Adverse childhood experiences (ACEs) are common among PWH and may negatively affect mental health and HIV-related outcomes. We examined the association between ACEs, depression and anxiety symptoms, substance use, antiretroviral therapy (ART) adherence, and HIV-clinical indicators in a sample of 584 PWH at risk for unhealthy alcohol use enrolled in a primary care-based alcohol intervention study. The sample was 96.9% male, 63.0% non-Hispanic white, with an average age of 49.0 years. ACEs were highly prevalent: 82.5% reported >/=1 ACE, including 34.2% reporting 1-2 ACEs, 25.0% reporting 3-4 ACEs, and 23.3% reporting >5 ACEs. Adjusting for demographics, having 1-2, 3-4 or >5 ACEs was significantly associated with anxiety (ORs (95%CI): 3.41 (1.13-10.33), 4.36 (1.42-3.36), and 3.96 (1.28-12.19), respectively) and poorer mental health quality of life (Betas (SE): -3.21 (1.40), -6.23 (1.51), and -7.09.  


The gradual accumulation of mitochondrial DNA (mtDNA) mutations is implicated in aging and may contribute to the accelerated aging phenotype seen with tobacco smoking and HIV infection. mtDNA mutations are thought to arise from oxidative damage; however, recent reports implicate polymerase gamma errors during mtDNA replication. Investigations of somatic mtDNA mutations have been hampered by technical challenges in measuring low-frequency mutations. We use primer ID-based next-generation sequencing to quantify both somatic and heteroplasmic blood mtDNA point mutations within the D-loop, in 164 women and girls aged 2-72 years, of whom 35% were smokers and 56% were HIV-positive.

Somatic mutations and the occurrence of heteroplasmic mutations increased with age. While transitions are theorized to result from polymerase gamma errors, transversions are believed to arise from DNA oxidative damage. In our study, both transition and transversion mutations were associated with age. However, transition somatic mutations were more prevalent than transversions, and no heteroplasmic transversions were observed. We also measured elevated somatic mutations, but not heteroplasmic, in association with high peak HIV viremia. Conversely, heteroplasmic was higher among smokers, but somatic mutations were not, suggesting that smoking promotes the expansion of preexisting mutations rather than de novo mutations. Taken together, our results are consistent with blood mtDNA mutations increasing with age, inferring a greater contribution of polymerase gamma errors in mtDNA mutagenesis. We further suggest that smoking and HIV infection both contribute to the accumulation of mtDNA mutations, though in different ways.
WOMEN


OBJECTIVE: This study aimed at investigating the relationship between self-efficacy, depression, and adherence to antiretroviral therapy (ART) in Indonesian women with HIV. METHOD: This study employed a cross-sectional research design. The participants were 120 women with HIV aged 18-60 years on self-administered ART regimens. RESULTS: This study shows a significant relationship between self-efficacy and adherence to ART (p-value=0.004; OR 2.330). Women are living with HIV with high self-efficacy adherence to following their ART 2.33 times more often than those with low self-efficacy. It is shown that a significant relationship exists between depression and adherence to ART (p-value=0.001; OR 3.647). Depressed HIV women took ART medication 3.64 times less often than who did not have depression. CONCLUSION: It is recommended to increase the level adherence rate by improving self-efficacy and reduce depression.


Background: The disparities faced by women living with HIV was highlighted by a 2018 Terrence Higgins Trust and Sophia Forum report. The report called for women to be more visible in research and data collection. The nursing team of a moderately sized HIV service used this report as the impetus to initiate an audit into the care given to their female patients with HIV. Methods: A 2018 SOPHID report was used to randomly select 50 female patients' notes for auditing. As this was seen to be a service evaluation, audit approval was not required. Results: PMH Condition Patients Depression 14 (28%) Anaemia 6 (12%) Hypertension 5 (10%) Fibroids 5 (10%) Asthma 5 (10%) Appointments: The amount of appointments per patient between 2016-19 ranged from 4 - 22, the mode was 13 (26%). Lifestyle: Smoking was reported by 12% of patients, 82% were non-smokers. 50% of patients reported no alcohol intake, 42% of patients stated social alcohol intake. Contraception: Contraception was discussed with 82% of patients. The most popular form of contraception was the IUS (20%). Contraception was not discussed in 18% of patients, the age range for these patients was 37 - 67, average age of 54. Cytology: Cytology was up to date in 62% of patients, cytology was not appropriate in 12% of patients. A further breakdown of results is available. ARVs: The most commonly prescribed STR is Triumeq (16%), closely followed by Eviplera (14%). Truvada is most prescribed NRTI backbone (26%). The most popular third agent was Rezolsta (18%). A switch in medication occurred in 66% of patients. The most common switch was to Symtuza (18%). 15% of switches were to a Descovy based regime. Menopause: Evidence of early menopause in patients living with HIV is conflicting (Imai et al 2013). NICE recommend menopause discussions with all women >45 yrs. When using an arbitrary cut off of 40 years, 74% of patients had no documented discussion on menopause symptoms. Conclusion: Depression rates were slightly higher in this sample than the national average of 22.5% (Mental Health Foundation, 2016). The amount of patients who smoke was similar to the national average of 13% (ONS, 2017) The national BHIVA targets for cytology, contraception and menopause were not met. To help reach BHIVA targets the Nursing role will be reviewed. It is unsurprising that conception friendly STRs are the most popular. Rezolsta switches were largely undertaken as a cost reduction exercise.

Bockting, W., et al. (2019). "Engagement and Retention in HIV Care for Transgender Women: Perspectives of Medical and Social Service Providers in New York City." AIDS Patient Care STDS.

Transgender women are less likely to engage in HIV care and adhere to antiretroviral medications than other at-risk populations. Health care and social service providers, in addition to consumers, have experiences that can elucidate barriers and facilitators to care and inform interventions. Guided by the social/ecological model, we conducted interviews with 19
BACKGROUND: The relationship between alcohol consumption and atherosclerosis has not been sufficiently examined among people living with HIV (PLWH). METHODS: We analyzed data from PLWH in the Women's Interagency HIV Study (WIHS; n = 1,164) and the Multicenter AIDS Cohort Study (MACS; n = 387) with no history of cardiovascular disease (CVD). Repeated measures of intima-media thickness of the right common carotid artery (CCA-IMT) were assessed using B-mode ultrasound from 2004 to 2013. Current alcohol consumption was collected at time of CCA-IMT measurement and was categorized according to gender-specific weekly limits. Group-based trajectory models categorized participants into past 10-year consumption patterns (1994 to 2004). Multivariate generalized estimating equations were conducted to assess the association of past and current alcohol use patterns on change in CCA-IMT by cohort, controlling for age, race, cigarette and illicit drug use, probable depression, HIV RNA viral load, antiretroviral therapy exposure, and hepatitis C coinfection.


RESULTS: Among the WIHS, past heavy alcohol consumption was associated with increased CCA-IMT level over time (beta = 8.08, CI 0.35, 15.8, p = 0.04), compared to abstinence. Among the MACS, compared to abstinence, all past consumption patterns were associated with increased CCA-IMT over time (past low: beta = 15.3, 95% CI 6.46, 24.2, p < 0.001; past moderate: beta = 14.3, CI 1.36, 27.2, p = 0.03; past heavy: beta = 21.8, CI 4.63, 38.9, p = 0.01). Current heavy consumption was associated with decreased CCA-IMT among the WIHS (beta = -11.4, 95% CI -20.2, -2.63, p = 0.01) and MACS (beta = -15.4, 95% CI -30.7, -0.13, p = 0.04). No statistically significant time by consumption pattern effects were found.

CONCLUSIONS: In both cohorts, 10-year heavy consumption was associated with statistically significant increases in carotid artery thickness, compared to abstinence. Long-term patterns of drinking at any level above abstinence were particularly significant for increases in IMT among men, with heavy consumption presenting with the greatest increase. Our results suggest a potentially different window of risk among past and current heavy drinkers. Further studies are needed to determine whether alcohol consumption level is associated with intermediate measures of atherosclerosis. Alcohol screening and interventions to reduce heavy consumption may benefit PLWH who are at risk of CVD.


BACKGROUND: Cardiovascular comorbidities are risk factors for human immunodeficiency virus (HIV)-associated cognitive impairment. Given differences in cardiometabolic risk profiles between women and men with HIV, we investigated whether associations between cardiometabolic risk factors and prevalent cognitive impairment differ by sex. Methods: Separate logistic regression models were constructed for women and men at entry into a prospective study of older persons with HIV (PWH) to assess the association of cardiometabolic and other risk factors with cognitive impairment. Results: Of 988 participants, 20% were women. Women had higher total cholesterol (194 vs 186 mg/dL; P = .027), hemoglobin A1c (5.9% vs 5.7%; P = .003), and body mass index (30.8 vs 27.4 kg/m2; P < .001) compared with men, and were less physically active (43% vs 55%; P = .005). In a multivariable model, physical activity was associated with lower odds of cognitive impairment in women (odds ratio, 0.35 [95% confidence interval, 15-.80]; P = .013) but not men. Conclusions: Physical activity may have a greater positive impact on cognitive health in women than in men with HIV. This finding should be confirmed in studies examining the longitudinal association between physical activity and incident cognitive impairment in PWH and the effect of interventions that increase physical activity on cognitive impairment in women with HIV.


BACKGROUND: Food insecurity and violence are two major public health issues facing U.S. women. The link between food insecurity and violence has received little attention, particularly regarding the temporal ordering of events. The present study used data from the Women's Intergency Human Immunodeficiency Virus Study to investigate the longitudinal association of food insecurity and violence in a cohort of women at risk for or living with HIV. METHODS: Study participants completed six assessments from 2013-16 on food insecurity (operationalized as marginal, low, and very low food security) and violence (sexual or physical, and psychological). We used multi-level logistic regression, controlling for visits (level 1) nested within individuals (level 2), to estimate the association of experiencing violence. RESULTS: Among 2,343 women (8,528 visits), we found that victims of sexual or physical violence (odds ratio = 3.10; 95% confidence interval: 1.88, 5.19) and psychological violence (odds ratio = 3.00; 95% confidence interval: 1.67, 5.50) were more likely to report very low food security. The odds of experiencing violence were higher for women with very low food security at both the current and previous visit as compared to only the current visit. HIV status did not modify these associations. CONCLUSIONS: Food insecurity was strongly associated with violence, and women exposed to persistent food insecurity were even more likely to experience violence. Food programs and policy must consider persistent exposure to food insecurity, and interpersonal harms faced by food insecure women, such as violence.


Over one million individuals live with HIV/AIDS in the United States; African American populations have been the most adversely impacted by the epidemic (Kaiser Family Foundation, 2017). Not readily captured are the unique experiences and cultural distinctions for subpopulations of Afro-Caribbean immigrants in the United States. While research has been
previously undertaken to explore various aspects of life for Caribbean immigrants in the United States, (Chatters, Taylor, Bullard & Jackson, 2008; Chatters, Taylor, Jackson & Lincoln, 2008; Taylor, Chatters, Woodward & Brown, 2013; Aranda, Chae, Lincoln, Taylor, Woodward & Chatters, 2012 Woodward, Taylor, Abelsohn & Matusko, 2013; Foner, 2001; Matthews, 2013), social workers and other mental health and health professionals need to understand more about the impact of culture, immigration status, gender, access to resources, stigma and shame experiences of this population in order to advocate for their unique needs (Wheeler & Mahoney, 2008). While a growing body of literature has focused on HIV risk and Caribbean immigrants living with HIV (Hoffman, Ransome, Adams-Skinner, Leu & Terzian, 2012; Jones, 2005; Nije-Carr, Sharps, Campbell, Callwood, 2012; Thomas, Clarke & Krollczak, 2008), research that details the lived experiences of under-researched populations such as Afro-Caribbean immigrant populations living with HIV in the United States may provide an increased understanding of the unique impact of factors such as culture, immigration status, gender, and access to resources. This article describes research with Afro-Caribbean immigrant women on the East Coast living with HIV in an effort to capture their unique life experiences. The National Association of Social Workers (2017) urges social workers to uphold the core values of social work and to provide culturally competent practice. The research addresses culturally competent practice with this population. [ABSTRACT FROM AUTHOR]
lessen HIV stigma processes at the individual level and that HIV stigma-reduction interventions may be most needed in communities that lack racial diversity.


BACKGROUND: Trauma is increasingly recognized as a near-universal experience among women living with HIV (WLHIV) and a key contributor to HIV acquisition, morbidity, and mortality. METHODS: We present data from the baseline analysis of a planned intervention trial of the impact of trauma-informed health care on physical, behavioral, and social health outcomes of WLHIV in one clinic, with a particular focus on quality of life and viral suppression. Data were collected through interviewer-administered surveys and electronic health record data abstraction. RESULTS: Among 104 WLHIV, 97.1% of participants reported having experienced lifetime trauma, and participants had experienced on average 4.2 out of 10 Adverse Childhood Experiences. WLHIV with more lifetime trauma were significantly more likely to report post-traumatic stress disorder, depression, and anxiety symptoms; significantly more likely to report potentially harmful alcohol and drug use; and had a significantly poorer quality of life. In addition, women who had experienced more lifetime trauma were significantly less likely to report being on and adhering to HIV medications, although trauma was not significantly associated with having an undetectable HIV viral load. CONCLUSIONS: These data suggest that trauma is associated with much of the morbidity and mortality experienced by WLHIV. The results of this study support the implementation and study of trauma-informed approaches to health care for WLHIV.


With the introduction of HAART, the life expectancy of the patients infected with HIV almost approached that of the general population. The incidence of certain HIV-Associated cancers as Kaposi Sarcoma (KS) and Non-Hodgkin Lymphoma (NHL) decreased, while an increase in Non-AIDS-Defining cancers (NADCs) has been documented. HIV infection is a risk factor for numerous cancers in PLWH. Breast cancer is the most common cancer worldwide among all women. The association between HIV infection and breast cancer has not been thoroughly investigated: when compared to the general population, people living with HIV/AIDS (PLWHA) have a similar or slightly lower risk of breast cancer. Screening tests are essential weapons to fight cancer burden and more effective therapeutic and preventive strategies are needed, especially among PLWHA. Further and more comprehensive studies are needed to better characterize breast cancer among PLWH.


OBJECTIVE: The influence of sex on gut mucosal T-cell response in HIV-1 infection remains largely unknown. We explored whether the frequencies of interferon-gamma and/or IL-17 producing naive, T central memory and T effector memory (TEM) CD4+ (Th1, Th17) and CD8+ T (Tc1, Tc17) cells measured in gut and peripheral districts differed between female and male HIV-1-infected patients. METHODS: Thirty long-term-treated HIV-1-infected individuals were enrolled. The frequencies of Th1, Th17, Tc1, Tc17-cell subsets (single and double) were evaluated by multiparametric flow cytometry in lamina propria lymphocytes and peripheral blood mononuclear cells (PBMC). RESULTS: A sex-based pattern was recorded in the differences of Th1, Th17, Tc1, Tc17-cell subset (single and double) frequencies between gut and peripheral blood. Female patients had stronger alterations in the gut mucosal T-cell repertoire, especially increased Th1, Th17, and Th1/Th17-cell subset frequencies, compared with the blood district than their male counterparts. Higher naive Tc1, Tc17, Tc1/Tc17, TEM Tc17, and TEM Tc1/Tc17 levels were also recorded in the gut mucosa than in the PBMC of HIV-1-infected women. Males and females also differed in their gut T-cell response, with women being characterized by higher Th1, Th17, Tc1, Tc17, and Th1/Th17 cells subset levels than men. By contrast, only TEM Th1/Th17 and TEM Tc17 in PBMC differed between males and females. CONCLUSION: Sex-based differences observed in the gut T-cell response of HIV-1-infected patients might contribute to the disease dimorphism.

BACKGROUND: The prevalence of depression spans age-groups, but it can be particularly destructive for older people with chronic illness. Among older Black women living with HIV (OBWLH), multiple social determinants have been associated with the prevalence and severity of depression. A greater understanding of the impact of the social determinants at the individual, interpersonal, and community levels is needed. AIMS: To explore social determinants of depression among OBWLH at the intrapersonal, interpersonal, and community levels. METHOD: Cross-sectional descriptive design. RESULTS: A total of 118 OBWLH were analyzed in the study. Depression was prevalent among the participants. Approximately 89.8% of the participants had moderate to severe depressive symptoms. Health status, exercise, and social support were significant predictors of depression in the sample. CONCLUSION: Social determinants at multiple levels play a significant role in the occurrence and management of depression among OBWLH. Implications for practice, education, and research can be drawn from these findings.


BACKGROUND: Screening and treating premalignant cervical lesions (cervical intraepithelial neoplasia 2+ [CIN2+]) is an effective way to prevent cervical cancer, and recommendations exist for the monitoring of treatment success. Yet, there is no specific recommendation for human immunodeficiency virus (HIV)-infected women, who are at a known, increased risk of cervical cancer. METHODS: A systematic review was performed by searching MEDLINE, EMBASE, and Web of Science for studies published from January 1980 through May 2018. Eligible studies described the prevalence of histologically- and/or cytologically-defined lesions in HIV-infected women at least 6 months post-treatment. The primary endpoint was treatment failure, defined as the presence of residual and/or recurrent high-grade CIN2+/high-grade squamous intraepithelial lesions post-treatment. The pooled prevalence in HIV-infected women and the odds ratios (ORs) for HIV-infected compared to HIV-uninfected women were estimated using random-effects models. RESULTS: Among 40 eligible studies, the pooled prevalence of treatment failure in HIV-infected women was 21.4% (95% confidence interval [CI] 15.8-27.0). There was no significant difference in the treatment failure prevalence for cryotherapy (13.9%, 95% CI 6.1-21.6) versus loop electrosurgical excision procedure (13.8%, 95% CI 8.9-18.7; P = .9), but the treatment failure prevalence was significantly higher in women with positive (47.2%, 95% CI 22.0-74.0) than with negative (19.4%, 95% CI 11.8-30.2) excision margin (OR 3.4, 95% CI 1.5-7.7). Treatment failure was significantly increased in HIV-infected versus HIV-uninfected women, both overall (OR 2.7, 95% CI 2.0-3.5) and in all sub-group analyses. CONCLUSIONS: There is strong evidence for an increased risk of treatment failure in HIV-infected women, in comparison to their HIV-negative counterparts. The only significant predictor of treatment failure in HIV-infected women was a positive margin status, but further data is needed on long-term outcomes after ablative treatment in HIV-infected women.


Human papillomavirus (HPV) is the first identified necessary cause of human cancers and is associated with nearly 100% of all cervical cancers. Compared to the general female populations, HIV+ women have higher prevalence and incidence of cervical HPV infections, higher risks of persistent HPV infections and subsequent cervical intraepithelial lesions, and a higher incidence of cervical cancer. Although the wide use of combined antiretroviral therapy (cART) has improved the immune function and the longevity of HIV+ women, the incidence of cervical cancer in HIV+ women has not declined. For HIV+ women who follow routine cervical cancer screenings, their incidence of cervical cancer is comparable to that in HIV-negative women. Thus, adherence to the recommended cervical cancer screening is still critical for HIV+ women to prevent cervical cancer. Prophylactic HPV vaccines may also benefit HIV+ women, but prospective studies are needed to determine the effectiveness of HPV vaccination on reducing cervical cancer incidence in HIV+ women.


Objectives: To investigate the differences between bone mineral density (BMD), lean and fat mass of human immunodeficiency virus (HIV-) positive and HIV-negative black women and to investigate factors associated with low BMD. METHODS: Case-control study of black women (n = 565) aged 29–65 years from Potchefstroom, North West province, South
OBJECTIVES: African-American women suffer disproportionately from HIV, breast cancer, and other illnesses. Little is known about the relationship between internalized HIV-related stigma and health beliefs related to other illnesses, including breast cancer. Our study examined (1) the relationship between internalized HIV-related stigma and breast health beliefs over time and (2) the moderating effects of participating in a stigma reduction intervention and/or social support.

METHODS: Data from 239 African-American women receiving care for HIV in Chicago, IL, or Birmingham, AL, enrolled in the Unity randomized controlled trial, were used in this secondary analysis. Threat of breast cancer was measured in terms of perceived susceptibility, fear, and adverse consequences as well as an overall perceived threat of breast cancer. We used multivariate models with generalized estimating equations to examine the relationship between internalized HIV-related stigma and breast health beliefs across three time points (baseline, immediately post-workshop, and at 12-month follow-up) and to examine if the study arm (HIV stigma reduction vs. breast cancer education) or social support moderated the relationship. RESULTS: Internalized HIV-related stigma was associated with greater overall perceived threat (p < 0.001), susceptibility (p = 0.03), fear (p < 0.001), and perceived adverse consequences (p < 0.001) of breast cancer. These associations remained consistent across study arms and across all levels of social support. CONCLUSIONS: Future studies that examine co-morbid health conditions among African-American women living with HIV should consider the impact of HIV-related stigma on attitudes and beliefs related to co-morbid conditions.
African American women experience higher rates of HIV than other women in the United States, and stigma has been identified as an important determinant of engagement in HIV care. Our study examined whether key variables moderated the effect of an anti-stigma intervention on outcomes among African American women receiving treatment for HIV. Twelve potential moderators included: age, years lived with HIV, marital status, employment status, education level, PTSD diagnosis, alcohol use, social support, baseline CD4 count, baseline viral load, and number of children. Outcomes included changes in: HIV-related stigma, social support, depressive symptoms, PTSD symptoms, alcohol use, viral load, and engagement in HIV care. Results suggest that the intervention is associated with greater improvement in engagement in care among participants with PTSD or depression at baseline, and may help maintain engagement in care among participants experiencing certain mental health conditions. This provides opportunities to address discriminatory structural barriers that lead to stigma and drop-offs in HIV care.


Source: The Conversation - USA (https://theconversation.com/us/) - By Thurka Sangaramoorthy, Associate Professor of Anthropology, University of Maryland

Sophia Harrison, 51, is a single mother of two, with an extended family to support.

She has lived with epilepsy her entire life; she suffers from hypertension; and she is a breast cancer survivor...


Purpose: In 2017, among all women in the United States, Hispanic women and Latinas (Hispanics/Latinas) accounted for 16% of women with HIV. Populations with high HIV disparities, including Hispanics/Latinas, experience treatment and care outcomes that are well below the national goals. The objective of this qualitative review was to identify social and structural barriers to HIV care from the perspective of Hispanics/Latinas. Methods: Our qualitative review was conducted in
A rise in new HIV diagnoses among older adults is characterized by poor prognosis and reduced survival times. Although heterosexual transmission remains the main route of infection in women, little is known regarding immune functions in the genital tract of postmenopausal women, especially those who are HIV positive. Furthermore, effects of hormone replacement therapy (HRT) on the genital tract immune system are unclear. Using the Women's Interagency HIV Study Replacement (WIHS) cohort, we evaluated the impact of hormone therapy on genital tract immune functions in postmenopausal women, with a focus on those infected with HIV.

Methods: Women with HIV and postmenopausal women without HIV were enrolled in the WIHS study. Genital tract immune function was assessed using ex vivo cytokine production by genital tract mononuclear cells (GTMNCs) in response to HIV antigens and mitogens. Hormone therapy status was assessed using HRT compliance and hormone levels.

Results: We enrolled 108 women with HIV and 123 postmenopausal women without HIV. HRT was more common in women with HIV than in those without HIV (42% vs. 18%). Women with HIV on HRT had higher cytokine production in response to HIV antigens compared to those not on HRT. There was no significant difference in cytokine production between postmenopausal women on and off HRT.

Conclusion: Hormone therapy may have an impact on genital tract immune function in women with HIV, but further research is needed to understand the specific effects on immune function in this population. Understanding these effects is critical for developing effective interventions to improve immune function in women with HIV.
OBJECTIVES: We examined trends in the incidence rates of invasive cervical cancer (ICC) and in the rate of survival after ICC in women living with HIV (WLWH) in France and compared them to those of the general population. METHODS: Histologically validated incident cases of ICC in the period 1992-2009 from the French Hospital Database on HIV (FHDH-ANRS CO4) were included in the study. Age-standardized incidence rates were estimated for FHDH and the general population in France for 1992-1996 (pre-combination antiretroviral therapy (cART) period), 1997-2000 (early cART period), 2001-2004 (intermediate cART period), and 2005-2009 (late cART period). Age-standardized incidence ratios (SIRs) were estimated to have been linked into care within 28 days of diagnosis. For women who were not linked into care for more than 28 days, the most commonly reason cited was fear of disclosure to others, followed by fear of disclosure to their partner. The main reasons given for non-retention in care were related to transport, carer responsibilities, financial pressure, health beliefs and concern about stigma or disclosure.

Women comprise a minority population of individuals living with HIV in Australia, and are often poorly represented in research and clinical trials so their needs remain largely unknown. Data suggests that they are diagnosed later than men and start antiretroviral therapy at a lower CD4 cell count. This raises the question whether there are sex specific barriers to linkage and retention in care. This study analyzed 484 surveys received from clinicians collecting demographic, virological, and reproductive health data along with perceived barriers to linkage and retention in care. Most women (67%) were estimated to be incarcerated at some point after diagnosis, 25% had incarceration during the past year, 22% had recent (within past year) or ever (before past year) incarceration experience. Lifetime incarceration prevalence was 36.9% (6.5% recent; 30.4% ever), with significant differences by province of residence (British Columbia: 10% recent; 52% ever; Ontario: 5%; 24%; Quebec: 6%; 22%; p < 0.001). In adjusted multinomial logistic regression analyses, compared with never incarcerated, recent incarceration was associated with Indigenous ancestry, lower annual income (< $20,000 CAD), unstable housing, current sex work, injection drug use (IDU), and sub-optimal antiretroviral therapy (ART) adherence, while ever incarceration was associated with current sex work, IDU, and experiencing adulthood violence. Our findings have implications regarding supports needed by WLWH post-release. We used CHIWOS cross-sectional data from WLWH to estimate associations between social determinants of health and HIV-related care outcomes among WLWH with recent (within past year) or ever (before past year) incarceration experience. Lifetime incarceration prevalence was 36.9% (6.5% recent; 30.4% ever), with significant differences by province of residence (British Columbia: 10% recent; 52% ever; Ontario: 5%; 24%; Quebec: 6%; 22%; p < 0.001). In adjusted multinomial logistic regression analyses, compared with never incarcerated, recent incarceration was associated with Indigenous ancestry, lower annual income (< $20,000 CAD), unstable housing, current sex work, injection drug use (IDU), and sub-optimal antiretroviral therapy (ART) adherence, while ever incarceration was associated with current sex work, IDU, and experiencing adulthood violence. Our findings have implications regarding supports needed by WLWH post-release, including ART adherence and achieving health and social goals.


OBJECTIVES: The aim of this work was to study the spectrum of epithelial abnormalities on Pap smears of HIV-positive women categorized as per the Bethesda System of Reporting Cervical Cytology, to correlate them with CD4 lymphocyte counts, and to compare them with the spectrum of abnormalities seen in a HIV-negative control group. Study Design and Methodology: The present study was a 6-year retrospective study conducted in the Department of Pathology at Kasturba Medical College, Mangalore, which included 150 Pap smears from HIV-positive and HIV-negative women, respectively. The survival was similar for WLHIV and the general population for women diagnosed with ICC in 2005-2009, after standardization (P = 0.45). CONCLUSIONS: ICC risk is still more than three times higher in WLHIV than in the general population. Survival after ICC did not improve over time and was similar to that of the general population during the most recent period. Such results call for promotion of the uptake of screening in WLHIV.

Greene, S., et al. (2019). "How women living with HIV react and respond to learning about Canadian law that criminalises HIV non-disclosure: 'how do you prove that you told?'." Cult Health Sex 21(10): 1087-1102.

The Women, ART and the Criminalization of HIV Study is a qualitative, arts-based research study focusing on the impact of the HIV non-disclosure law on women living with HIV in Canada. The federal law requires people living with HIV to disclose their HIV-positive status to sexual partners before engaging in sexual activities that pose what the Supreme Court of Canada called a 'realistic possibility of transmission'. Drawing on findings from seven education and discussion sessions with 48 women living with HIV regarding HIV non-disclosure laws in Canada, this paper highlights the ways in which women living with HIV respond to learning about the criminalisation of HIV non-disclosure. The most common emergent themes included: the way the law reproduces social and legal injustices; gendered experiences of intimate injustice; and the relationship between disclosure and violence against women living with HIV. These discussions illuminate the troubling consequences inherent in a law that is antithetical to the science of HIV transmission risk, and that fails to acknowledge the multiple barriers to HIV disclosure that women living with HIV experience. Women's experiences also highlight the various ways the law contributes to their experiences of sexism, racism and other forms of marginalisation in society.


BACKGROUND: Cervical cancer is the leading cause of cancer death in Sub-Saharan Africa. The risk of developing cancer is increased for women living with human immunodeficiency virus (HIV) infection. It is unknown which factors predict the initiation of curative chemoradiotherapy (CRT) in resource-limited settings and whether HIV is associated with initiating curative CRT in settings with a high HIV burden. METHODS: All women living with and without HIV infection who were initiating curative and noncurative CRT for locally advanced cervical cancer in Botswana were prospectively enrolled in an observational study. The factors associated with receiving CRT were evaluated in all patients and the subgroup of women living with HIV. RESULTS: Of 519 enrolled women, 284 (55%) initiated CRT with curative intent. The curative cohort included 200 women (70.4%) who were living with HIV and had a median CD4 count of 484.0 cells/μL (interquartile range, 342.0-611.0 cells/μL). In the noncurative cohort, 157 of 235 women (66.8%) were living with HIV and had a median CD4 count of 476.5 cells/μL (interquartile range, 308.0-649.5 cells/μL). HIV status was not associated with initiating curative CRT (odds ratio [OR], 0.95; 95% confidence interval [CI], 0.58-1.56). The factors associated with receiving curative CRT treatment on multivariable analysis in all patients included baseline hemoglobin levels >/=10 g/dL (OR, 1.80; 95% CI, 1.18-2.74) and stage I or II versus stage III or IV disease (OR, 3.16; 95% CI, 2.10-4.75). Women aged >61 years were less likely to receive curative treatment (OR, 0.43; 95% CI, 0.24-0.75). Among women who were living with HIV, higher CD4 cell counts were associated with higher rates of CRT initiation. CONCLUSIONS: The initiation of CRT with curative intent does not depend on HIV status. Significant predictors of CRT initiation include baseline hemoglobin level, disease stage, and age.


OBJECTIVES: The aim of this work was to study the spectrum of epithelial abnormalities on Pap smears of HIV-positive women categorized as per the Bethesda System of Reporting Cervical Cytology, to correlate them with CD4 lymphocyte counts, and to compare them with the spectrum of abnormalities seen in a HIV-negative control group. Study Design and Methodology: The present study was a 6-year retrospective study conducted in the Department of Pathology at Kasturba Medical College, Mangalore, which included 150 Pap smears from HIV-positive and HIV-negative women, respectively.
BACKGROUND: In 2017, 19% of new HIV diagnoses in the United States were in women. HIV acquisition can be prevented through interventions that support linkage to HIV care and antiretroviral medication adherence to increase viral suppression.

METHODS: This is a cross-sectional study conducted on women referred to methadone maintenance treatment centers of Western Iran (Kermanshah province). Data were collected through interview by a psychologist who is working full time in the centers. Results: A total of 138 addicted women were studied. Among whom, 50 individuals were aged >45 years old (36.2%), 135 individuals (97.8%) had a history of substance abuse in their family, and 66 individuals (40.5%) initiated drug use before age 20. The most common substances were opium and crack with a proportion of 76.8% and 9.4%, respectively. Prevalence of positive HIV and hepatitis B among addicted women were 18.8% (26 persons) and 5.0% (7 persons), respectively. Three (2.1%) of addicted women with HIV also had HBV. The most commonly HIV transmission were drug injections (30.7%) and unprotected sex (11.5%). Conclusions: Although women do not constitute a significant part of substance abuse, increasing trend of women addiction, on one hand, and high prevalence of risk factors related to HIV or hepatitis in women, on the other hand; show that officials and experts are required to seriously consider prevention and harm reduction programs for women.

RESULTS: Pap smear abnormalities were twice as high in HIV-infected women (12%) as compared with HIV-negative women (6%; p = 0.006, RR = 2). Negative for intraepithelial lesion/malignancy was the most common finding (88%), which was further subdivided into inflammatory, atrophic smear, non-specific, candidiasis, and bacterial vaginitis groups. The percentage of epithelial abnormalities was 12%, including: atypical squamous cells of undetermined significance, 5.55%; atypical squamous cells, cannot exclude HSIL, 16.66%; low-grade squamous intraepithelial lesion, 5.55%; high-grade squamous intraepithelial lesion (HSIL), 61.11%, and squamous cell carcinoma, 11.11%. The highest incidence of intraepithelial lesions in HIV-positive females was in the age group of 34-49 years. CD4 cell counts fell in the range of 200-500 cells/mm3 in most of the HIV-positive patients (68.75%), but was not found to be statistically significant.

CONCLUSION: Routine Pap smear examination is advocated in women with HIV as the prevalence of epithelial cell abnormalities was found to be 12%, which was twice as high as compared to the HIV-negative control group. Although there was no correlation of epithelial cell abnormalities with CD4 counts, a higher rate of the cases with epithelial abnormalities were observed to have CD4 cell counts of 200-500 cells/mm3.


OBJECTIVE: This study aims to identify factors that influence HIV testing motivation among women at the Dr. H. Abdul Moeloek General Hospital in Lampung, Indonesia. METHOD: A cross-sectional method was used in this study that employed a consecutive sampling technique involving 120 women with HIV. The participants were outpatients at the Voluntary Counseling and Testing (VCT) Dr. H. Abdul Moeloek General Hospital. This study utilized three instruments: the Berger HIV Stigma Scale, HIV Knowledge Questionnaire (HIV-KQ-18) and Safe Sex Behavior Questionnaire (SSBQ). RESULTS: The study examined factors that influence HIV testing motivation among women: HIV-related stigma, knowledge about HIV and HIV risk behavior. The results of the analysis showed that there is a significant relationship among the HIV-related stigma variable (p=0.019, OR=2.727), knowledge about HIV variable (p=0.011, OR=3.750) and HIV risk behavior variable (p=0.041, OR=2.381). The most dominant factor influencing HIV testing motivation is HIV risk behavior (p=0.016, alpha=0.05 at 95% CI and OR=3.217). This indicates that Women Living With HIV (WLWH) who engage in risk HIV behavior demonstrate 3.2 times to HIV testing motivation. CONCLUSION: HIV-related stigma, knowledge about HIV and HIV risk behavior influence HIV testing motivation for women. RECOMMENDATION: Our findings have implications for nursing and healthcare practice as well as research, especially in supporting HIV testing for women who are at risk for HIV. Nurses should focus their attention on motivating women with a high risk of HIV to undergo early HIV testing.

Using data from a randomized controlled trial of 319 women mainly recruited from a Municipal Drug Court System in St. Louis, MO, this study evaluates substance use, victimization, and HIV/AIDS risk behaviors over time. The results indicated that, for all participants, the likelihood of victimization, using drugs, and meeting the criteria for HIV/AIDS risk decreased by 46% by the eight-month follow-up; however, results did not differ significantly by intervention group. Women who were sexually abused as a child, had 4+ arrests, or believed they had sexual and drug-using behaviors that need changing at baseline were more likely to experience these issues over time.

We report the incidence of cervical intraepithelial neoplasia (CIN) among HIV-infected women who did not have any colposcopic or histopathological evidence of CIN at baseline. Of the 1,023 women without any CIN at baseline, 855 (83.6%) have been followed up to a maximum of 6.4 years contributing 2,875 person years of observation (PYO). Among these 855 women, 54 cases of any CIN were observed resulting in incidence rate of any CIN of 1.9 per 100 PYO. The median time for follow-up for women with any CIN was 3.0 (IQR 1.6-3.7) years. The cumulative incidence rate per 100 PYO of CIN 2 or worse lesion in women with HPV-18 infection at baseline was 13.3% (95% CI 5.1-26.8); in women with HPV-16 infection was 10.8% (95% CI 4.4-20.9); in women with HPV-31 infection was 4.2% (95% CI 0.9-11.7); and in women with other high-risk HPV infections was 5.4% (95% CI 2.6-9.7). HPV-18 infection at baseline contributed highest frequency of incident CIN 2 or worse lesions followed by HPV-16 infection; however, other high-risk HPV types were also responsible for substantial number of incident CIN. The elevated risk of CIN+ disease in the study cohort was non-significant in women with CD4 count <200, possibly because of the small number of cases. Our results emphasize the need for regular cervical cancer screening of HIV-infected women and urgent implementation of cervical cancer screening services in HIV programs in India and other low and middle-income countries.

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Center for Epidemiological Studies-Depression Scale: Evaluation of a New Cutoff Score for Women Living with HIV. "AIDS Patient Care STDS 33(8): 343-345.

BACKGROUND: High attrition and irregular testing for HIV in cohort studies for high-risk populations can bias incidence estimates. We compare incidence trends for high-risk women attending a dedicated HIV prevention and treatment clinic, using common methods for assigning when seroconversion occurs and whether seroconversion occurs among those with attrition. METHODS: Between April 2008-May 2009 women were enrolled into cohort-1 and from January 2013 into cohort-2, then scheduled for follow-up once every three months. Incidence trends based on assuming a mid-point in the seroconversion interval were compared to those of assigning a random-point. We also compared estimates based on the random-point with and without multiple imputation (MI) of sero-status for participants with attrition. RESULTS: By May 2017, 3084 HIV-negative women had been enrolled with 18,364 clinic visits. Before attrition, 27.6% (6,990/25,354) were missed visits. By August 2017, 65.8% (426/647) of those enrolled in cohort-1 and 49.0% (1194/2437) in cohort-2 were defined with attrition. Among women with >/=1 follow-up visit, 93/605 in cohort-1 and 77/1601 in cohort-2 seroconverted. Periods with longer seroconversion intervals appeared to have noticeable differences in incidences when comparing the mid-point and random-point values. MI for attrition is likely to have overestimated incidence following escalated attrition of participants. Based on random-point without MI for attrition, incidence at end of observation was 3.8/100 person-years in cohort-1 and 1.8/100 in cohort-2. CONCLUSION: The random-point approach attenuated variation in incidence observed using mid-point. The high incidence after years of ongoing prevention efforts in this vulnerable population should be investigated to further reduce incidence.


OBJECTIVE: African-American women are more likely than other women in the United States to experience poor HIV-related health; HIV stigma may contribute to these outcomes. This study assessed the relationship between HIV stigma and viral load, over time, among a sample of African-American women receiving treatment for HIV, and explored social support and depressive symptoms as mediators. DESIGN: Secondary analysis of longitudinal data. METHODS: Data came from a randomized trial of an intervention to reduce HIV stigma among African-American women in HIV care in Chicago, Illinois and Birmingham, Alabama. Sociodemographic and psychosocial data were collected at up to six study visits over 14 months. Viral loads were extracted from medical records during the study period. Generalized linear mixed effects models were used to estimate associations among overall, internalized, and enacted HIV stigma and viral load over time. Mediation analyses were used to estimate indirect effects via social support and depressive symptoms. RESULTS: Data from 234 women were analyzed. Overall HIV stigma was significantly associated with subsequent viral load (adjusted beta = 0.24, \( P = 0.005 \)). Both between-subject (adjusted beta = 0.74, \( P < 0.001 \)) and within-subject (adjusted beta = 0.34, \( P = 0.005 \)) differences in enacted stigma were associated with viral load. Neither social support nor depressive symptoms were statistically significant mediators. CONCLUSION: Ongoing experiences of HIV stigmatization may contribute to increased viral load among African-American women in primary HIV care. Interventions should aim to alleviate the consequences of stigma experienced by patients and prevent future stigmatization.


Objective: This study assessed and compared physical and mental health components of quality of life (QoL) for older and younger women living with HIV (WLWH). Method: Using survey data from the Canadian HIV Women's Sexual and Reproductive Health Cohort Study, demographic, well-being, and physical and mental health-related QoL (HR-QoL) variables were compared between older (>/=50 years) and younger (<50 years) WLWH. As the only significantly different QoL component, bivariate analyses and linear regression were used to assess factors associated with physical HR-QoL of older women. Results: The sample frame comprised 1,422 women (28.0% older women). Younger WLWH's mean age was 37.8 years (SD = 7.4) compared to older WLWH (55.8 years, SD = 5.3). Compared to younger WLWH, older WLWH had
poorer physical HR-QoL (40.0 vs. 50.7; p < 0.001) but similar mental HR-QoL (42.7 vs. 42.1; p > 0.001). Older WLWH had lower social support (p < 0.001) with no significant differences in depressive symptoms or resilience. Resilience was associated with improved physical HR-QOL. Food insecurity, poorer mental HR-QoL and depressive symptoms were associated with poorer physical health. Discussion: Compared to younger WLWH, older WLWH had poorer physical HR-QoL, which was associated with resilience, food insecurity and mental health factors, highlighting the complex interactions of health-related social-ecological factors impacting aging WLWH.


South Asian immigrant women in Canada face unique structural barriers that influence their HIV vulnerability. Using an intersectional and anti-oppressive lens, we explored the role of immigration in bringing about changes in gender roles and the structure of gender relations and their effect on HIV risk among immigrant women as they experienced crisis tendencies in the face of hegemonic masculinity. Informed by Connell's theory of gender, the study entailed in-depth interviews with 12 self-identified South Asian immigrant women living in the Greater Toronto Area, in Ontario, Canada. A thematic analysis yielded four themes: power relations, emotional relations, gendered division of labour and social norms. Our findings revealed interdependencies between immigration and each of structural, individual and normative factors (the themes) as they pertain to crisis tendencies when patriarchy is disrupted. Given the rapid increase in global immigration, the connections between transnationalism and hegemony, and the established link between immigration and HIV, future research should extend this work to other immigrant communities.


The TransLife Care (TLC) project was developed to address the structural factors that act as barriers to HIV care among transgender women of color. The purpose of this study was to evaluate the feasibility and initial efficacy of the TLC project; primary HIV care outcomes included linkage to HIV care, engagement in care, retention in care, use of ART and viral suppression among N = 120 participants. In multivariable analysis, receipt of the intervention (versus none), was associated with any HIV care visit (aOR 2.05; 95% CI 1.25-3.37; p = 0.005), more total HIV care visits (aRR 1.45; 95% CI 1.09-1.94; p = 0.011), being retained in care (aOR 1.58; 95% CI 1.03-2.44; p = 0.038), and having a viral load test done (aOR 1.95; 95% CI 1.23-3.09; p = 0.004). We conclude that a structural intervention, designed and delivered by the focus population, that directly addresses social determinants, is feasible and efficacious to promote HIV care engagement among transgender women of color.


INTRODUCTION: Now that HIV infection has become a chronic disease, optimizing health status is an important goal of care for HIV-infected patients. Testosterone insufficiency (TI) can compromise health status, but little is known about the prevalence of TI and possible related factors in HIV-infected women. AIM: To investigate the prevalence of TI among HIV-infected women attending our HIV outpatient clinic, and to study the relationship between TI and sexual function, fatigue, health status, and depression. METHODS: 56 HIV-infected women aged >/=18 years who attended the HIV outpatient clinic of the Amsterdam University Medical Center, The Netherlands, were included. Blood samples were taken for endocrinologic testing and patients filled out 6 validated questionnaires measuring sexual function, fatigue, health, and depression. MAIN OUTCOME MEASURE: TI, the Female Sexual Function Index, the Female Sexual Distress Scale-Revised, the Multidimensional Fatigue Inventory, the Medical Outcomes Studies Short Form 36-item health survey, and the Beck Depression Inventory were assessed. RESULTS: A relatively high prevalence of TI, 37%, was found. Plasma viral load and CD4 cell count did not differ between women with or without TI. Clinical fatigue, physical fatigue, and impaired cognitive function were significantly more prevalent in women with TI. Women with TI also tended to report decreased sexual desire, reduced physical activity, increased mental fatigue, reduced physical function, increased health distress, and clinical depression. CONCLUSION: We recommend that in all HIV-positive women with complaints typical for TI, testosterone is measured, and that in women with TI, testosterone replacement be considered as a treatment option. However, given that complaints are also prevalent in HIV-positive women without TI, the approach to women with these complaints should...
OBJECTIVE: To examine whether experienced poverty stigma is associated with worse HIV care and treatment outcomes.

BACKGROUND: Chronic inflammation is associated with AIDS-defining and non-AIDS-defining conditions. Limited research has considered how food insecurity influences chronic inflammation among people living with human immunodeficiency virus (HIV). We examined whether food insecurity was associated with higher levels of inflammation among women living with HIV (WWH) in the United States. METHODS: We analyzed cross-sectional data collected in 2015 from 421 participants on antiretroviral therapy from the Women's Interagency HIV Study. The exposure was any food insecurity. The outcome was inflammation, measured by proinflammatory cytokine interleukin-6 (IL-6) and tumor necrosis factor receptor 1 (TNFR1) levels. We conducted multivariable linear regressions, adjusting for sociodemographic, clinical, and nutritional factors.

RESULTS: Nearly one-third of participants (31%) were food insecure and 79% were virally suppressed (<20 copies/mL). In adjusted analyses, food insecurity was associated with 1.23 times the level of IL-6 (95% confidence interval [CI], 1.06-1.44) and 1.13 times the level of TNFR1 (95% CI, 1.05-1.21). Findings did not differ by HIV control (virally suppressed with CD4 counts >/=500 cells/mm3 or not) in adjusted stratified analyses. Conclusion: Food insecurity was associated with elevated inflammation among WWH regardless of HIV control. Findings support the need for programs that address food insecurity among WWH.


OBJECTIVE: To examine whether experienced poverty stigma is associated with worse HIV care and treatment outcomes.

DESIGN: We analyzed cross-sectional data from 433 women living with HIV enrolled in the Women’s Adherence and Visit Engagement substudy of the Women’s Interagency HIV Study. METHODS: Exposure was experienced poverty stigma, measured using the Perceived Stigma of Poverty Scale. Outcomes were viral suppression, CD4 cell count at least 350 cells/mul, and attending all HIV care visits in the past 6 months. Multivariable logistic regression models adjusted for income, age, race/ethnicity, education, substance use, months taking antiretroviral therapy (ART), number of antiretroviral pills in ART regimen, unstable housing, relationship status, and exchanging sex for money, drugs, or shelter. We also explored whether self-reported at least 95% ART adherence mediated the relationship between poverty stigma and viral suppression and CD4 cell count at least 350 cells/mul. RESULTS: Experienced poverty stigma was associated with lower adjusted odds of viral suppression [adjusted odds ratio (aOR) 0.76; 95% confidence interval (CI) 0.61-0.96], CD4 cell count at least 350 cells/mul (aOR 0.69; 95% CI 0.52-0.91), and attending all HIV care visits (aOR 0.73; 95% CI: 0.54-0.98). Exploratory
BACKGROUND: Expression of tissue factor (TF) on the surface of activated monocytes may trigger thrombosis, leading to clotting risk, inflammation, and atherosclerosis. TF-positive microparticles (MP-TF) represent a functionally active form of TF that may be promulgated by long-term HIV infection. We hypothesized that greater MP-TF activity is associated with carotid artery plaque in HIV+ women. SETTING: In a case-control study nested within the Women's Interagency HIV Study (WIHS), eligible HIV+ participants underwent B-mode carotid artery ultrasound at 2 study visits occurring 7 years apart. Cases were defined by the presence of at least 1 carotid artery plaque assessed at either visit. Cases were matched 1:2 to controls who were found not to have carotid artery plaques. METHODS: Conditional logistic regression estimated the association of MP-TF activity with the presence of carotid artery plaque, adjusting for demographic and behavioral characteristics, HIV-related factors, cardiometabolic risk factors, and serum inflammation biomarkers (high-sensitivity C-reactive protein, IL-6, sCD14, sCD163, Gal-3, and Gal-3BP). RESULTS: Elevated MP-TF activity (>0.537 pg/mL) was found to be significantly associated with greater odds of plaque (adjusted odds ratio 3.86, 95% confidence interval: 1.06 to 14.07, P = 0.04). The association was attenuated after further adjustment for IL-6 but was unaffected by adjustment for other factors. CONCLUSION: Longitudinal research should assess these relationships over time. Findings support interventions and policies that seek to reduce poverty stigma among people living with HIV.


Human immunodeficiency virus (HIV)-associated nonacquired immunodeficiency syndrome (AIDS) conditions, such as cardiovascular disease, diabetes, osteoporosis, and dementia are more prevalent in older than in young adult HIV-infected subjects. Although the oral microbiome has been studied as a window into pathogenesis in aging populations, its relationship to HIV disease progression, opportunistic infections, and HIV-associated non-AIDS conditions is not well understood. We utilized 16S rDNA-based pyrosequencing to compare the salivary microbiome in three groups: (1) Chronically HIV-infected women >50 years of age (aging); (2) HIV-infected women <35 years of age (young adult); and (3) HIV-uninfected age-matched women. We also examined correlations between salivary dysbiosis, plasma HIV RNA, CD4+ T cell depletion, and opportunistic oral infections. In both aging and young adult women, HIV infection was associated with salivary dysbiosis characterized by increased abundance of Prevotella melaninogenica and Rothia mucilaginosa. Aging was associated with increased bacterial diversity in both uninfected and HIV-infected women. In HIV-infected women with oral coinfections, aging was also associated with reduced abundance of the common commensal Veillonella parvula. Patients taking antiretroviral therapy showed increased numbers of Neisseria and Haemophilus. High plasma HIV RNA levels correlated positively with the presence of Prevotella and Veillonella, and negatively with the abundance of potentially beneficial Streptococcus and Lactobacillus. Circulating CD4+ T cell numbers correlated positively with the abundance of Streptococcus and Lactobacillus. Our findings extend previous studies of the role of the microbiome in HIV pathogenesis, providing new evidence that HIV infection is associated with a shift toward an increased pathogenic footprint of the salivary microbiome. Taken together, the data suggest a complex relationship, worthy of additional study, between chronic dysbiosis in the oral cavity, aging, viral burden, CD4+ T cell depletion, and long-term antiretroviral therapy.


Despite established links between food insecurity and HIV outcomes, no studies have examined the role of food insecurity among female sex workers (FSW) in the United States (US). The aim of this exploratory study was to identify correlates (structural vulnerability and health factors) of severe food insecurity among street-based FSW in Baltimore, Maryland using multivariable logistic regression. In adjusted models, FSW with severe food insecurity were at greater odds of recent homelessness, physical intimate partner violence, client condom refusal, and HIV infection. Multi-sectoral approaches must take into consideration the co-occurrence of structural and health vulnerabilities to food insecurity among FSW in the US, including those that address violence, housing, and HIV.


BACKGROUND: Expression of tissue factor (TF) on the surface of activated monocytes may trigger thrombosis, leading to poverty stigma and viral suppression and CD4 cell count at least 350 cells/mul. CONCLUSION: Longitudinal research should assess these relationships over time. Findings support interventions and policies that seek to reduce poverty stigma among people living with HIV.
biomarkers including those denoting monocyte activation. CONCLUSIONS: Our findings suggest a link among HIV infection, innate immune system perturbation, coagulation, and atherosclerosis.


We used baseline data from a sample of African-American women living with HIV who were recruited to participate in a stigma-reduction intervention in Chicago and Birmingham (2013-2015) to (1) evaluate the relationship between HIV-related stigma and viral suppression, and (2) assess the role of depression and nonadherence to antiretroviral therapy (ART) as mediators. Data from women were included in this secondary analysis if they were on ART, had viral load data collected within 8-weeks of study entry and had complete covariate data. We used logistic regression to estimate the total effect of HIV-related stigma (14-item Stigma Scale for Chronic Illness) on viral suppression (< 200 copies/mL), and serial mediation analysis to estimate indirect effects mediated by depressive symptoms (8-item Patient Health Questionnaire) and ART nonadherence (number of days with missed doses). Among 100 women who met study inclusion criteria, 95% reported some level of HIV-related stigma. In adjusted models, higher levels of HIV-related stigma were associated with lower odds of being virally suppressed (AOR = 0.93, 95% CI = 0.89-0.98). In mediation analysis, indirect effects through depression and ART nonadherence were not significant. Findings suggest that HIV-related stigma is common among African-American women living with HIV, and those who experience higher levels of stigma are less likely to be virally suppressed. However, the mechanisms remain unclear.


INTRODUCTION: African-American women living with HIV report substantial HIV-related stigma and depression. Resilience resources are strength-based resources that may moderate the effects of HIV-related stigma on poor psychosocial outcomes such as depression. OBJECTIVE: To evaluate whether religiosity, social support, and ethnic identity moderate the effects of HIV-related stigma on depression among African-American women living with HIV. METHODS: We used baseline data (May 2013-October 2015) from a randomized controlled trial testing the efficacy of an HIV-related stigma-reduction intervention among African-American women living with HIV in Chicago, IL, and Birmingham, AL, who were older than 18 years and currently receiving HIV services. To assess whether religiosity (7-item Religious Beliefs and Behaviors survey), social support (select subscales from the Medical Outcomes Study Social Support Survey), and ethnic identity (Commitment subscale from the Multigroup Ethnic Identity Measure) modified the relationship between HIV-related stigma (Stigma Scale for Chronic Illness) and depression (8-item Patient Health Questionnaire), we conducted 3 separate moderation analyses using linear regression with interactions between HIV-related stigma and each moderator of interest, adjusted for study site, age, time since diagnosis, and education. RESULTS: Among 226 African-American women living with HIV, greater levels of HIV-related stigma were associated with greater depression in all 3 models (P < 0.05). Only religiosity modified this association (P = 0.04), with a weaker association among women reporting higher levels of religiosity. CONCLUSIONS: The protective effects of religiosity may be leveraged in interventions for African-American women living with HIV struggling with HIV-related stigma.


INTRODUCTION: Women living with HIV (WLHIV) experience stigma and elevated exposure to violence in comparison with HIV-negative women. We examined the mediating role of experiencing recent violence in the relationship between stigma and depression among WLHIV in Canada. METHODS: We conducted a cohort study with WLHIV in three Canadian provinces. Recent violence was assessed through self-reported experiences of control, physical, sexual or verbal abuse in the past three months. At Time 1 (2013-2015) three forms of stigma were assessed (HIV-related, racial, gender) and at Time 2 (2015-2017) only HIV-related stigma was assessed. We conducted structural equation modelling (SEM) using the maximum likelihood estimation method with Time 1 data to identify direct and indirect effects of gender discrimination, racial discrimination and HIV-related stigma on depression via recent violence. We then conducted mixed effects regression and SEM using Time 1 and Time 2 data to examine associations between HIV-related stigma, recent violence and depression. RESULTS: At Time 1 (n = 1296), the direct path from HIV-related stigma (direct effect: beta = 0.200, p < 0.001; indirect effect: beta = 0.014, p < 0.05) to depression was significant; recent violence accounted for 6.5% of the total effect.
This paper calls for a critical reframing of masculinity as an intersectional construct in the HIV epidemic and in public health. In-depth qualitative interviews were conducted with a sample of 56 Black men who have sex with men and women in the San Francisco Bay Area. Men described their sexual identities and practices via complex narratives of masculinity that drew on subordinated and resourceful adaptations to the structural effects of racism, economic marginalisation and homophobia. By focusing on men whose experience of masculinity operates outside fixed identity categories, the paper draws attention to the intersectionality that is, by necessity, constitutive of men’s lived experiences. Findings suggest the value of an integrative framework for understanding Black masculinities as processes and practices simultaneously informed by structural inequalities (racism, economic marginalisation and/or homophobia, in particular) and cultural meanings of gender. By utilising an intersectional approach, public health and sociology can better understand the concurrent resilience and vulnerability of masculinities, while building an interdisciplinary understanding of the symbolic role of Black masculinities in the USA, as well as a means by which to promote health and well-being in and through these gendered contexts.


BACKGROUND: It is recommended that HIV-infected individuals receive annual influenza vaccination due to their high susceptibility to influenza infection, especially among women. However, there have been few studies investigating sex-related responses to influenza vaccine in antiretroviral therapy (ART)-treated HIV-infected individuals. METHOD: In this study, 26 aviremic ART-treated HIV-infected individuals and 16 healthy controls were enrolled in the current study. Blood was collected prior to vaccination (D0), on days 7-10 (D7) and on days 14-21 (D14) following administration of the 2013-2014 seasonal influenza vaccine. A series of analyses evaluated the serological and cellular responses following influenza vaccination. RESULTS: Female HIV-infected individuals had increased influenza-specific antibody avidity relative to male HIV-infected individuals, but similar plasma levels of influenza-specific binding antibodies and neutralizing antibodies. Increased cycling B cells and follicular helper CD4 T (Tfh) cells were observed in female HIV-infected individuals pre and postvaccination compared with male HIV-infected individuals, and cycling Tfh cells were directly correlated with influenza-specific antibody avidity. Moreover, plasma testosterone levels were inversely correlated with antibody avidity index. The magnitude of microbial translocation [plasma lipopolysaccharide (LPS)] level was directly correlated with influenza-specific antibody avidity. Circulating 16S rDNA microbiome showed that enrichment of specific species within Proteobacteria was associated with influenza-specific antibody avidity. These results, including differences based on sex and correlations, were only observed in HIV-infected individuals but not in the healthy controls. CONCLUSION: This study demonstrated sex differences in influenza-specific antibody avidity in ART-treated HIV disease, and provides valuable information on vaccination strategy in the ART-treated HIV-infected population.


Gender discrimination had a significant direct and indirect effect on depression (direct effect: beta = 0.167, p < 0.001; indirect effect: beta = 0.050, p < 0.001); recent violence explained 23.15% of the total effect. Including Time 1 and Time 2 data (n = 1161), mixed-effects regression results indicate a positive relationship over time between HIV-related stigma and depression (Acoef: 0.04, 95% CI: 0.03, 0.06, p < 0.001), and recent violence and depression (Acoef: 1.95, 95% CI: 0.29, 4.42, p < 0.05), controlling for socio-demographics. There was a significant interaction between HIV-related stigma and recent violence with depression (Acoef: 0.04, 95% CI: 0.01, 0.07, p < 0.05). SEM analyses reveal that HIV-related stigma had a significant direct and indirect effect on depression over time (direct effect: beta = 0.178, p < 0.001; indirect effect: beta = 0.040, p < 0.001); recent violence experiences accounted for 51% of the total effect. CONCLUSIONS: Our findings suggest that HIV-related stigma is associated with increased experiences of recent violence, and both stigma and violence are associated with increased depression among WLHIV in Canada. There is an urgent need for trauma-informed stigma interventions to address stigma, discrimination and violence.
HIV continues to disproportionately impact bisexual Black men, as well as their female partners, in the U.S. There is a need to better understand how stigma and disclosure affect sexual risk for men and their female partners. This article describes the relationship between sexual stigma and HIV risk with primary female partners among a sample of 121 behaviorally bisexual Black men of mixed HIV status in the San Francisco Bay Area. Multivariate analyses tested to see if each of three stigma measures (bilingual stigma, internalized homophobia, difficulty with bisexual identity) would have any effect on participants' condom use. Quantitative analyses found that sexual stigma increased men's sexual risk through inhibiting disclosure of their sexual activity with men to their female partners. Men who reported higher levels of bisexual stigma and internalized homophobia reported that it was harder to disclose having sex with men to their primary partner, which was significantly related to lower levels of condom use. Stigma reduction HIV prevention interventions are needed that address bisexual stigma experienced by Black men. HIV prevention interventions, including stigma reduction programs, must target both men and women to effectively reduce bisexual stigma and address the structural and relationship contexts of HIV.


HIV prevalence among transgender women is disproportional when compared to the general population in various countries. Stigma and discrimination based on gender identity have frequently been associated with vulnerability to HIV/AIDS. The objective was to conduct a systematic literature review to analyze the relationship between stigma and discrimination related to gender identity in transgender women and vulnerability to HIV/AIDS. This systematic literature review involved the stages of identification, compilation, analysis, and interpretation of results of studies found in five databases: PubMed, Scopus, Web of Science, Science Direct, and LILACS. No publication time period was determined in advance for this review. The studies were assessed according to the inclusion and exclusion criteria. The review included articles in English, Portuguese, or Spanish that related stigma and discrimination to transgender women's vulnerability to HIV. We found 41 studies, mostly qualitative, published from 2004 to 2018, and categorized in three dimensions of stigma: individual, interpersonal, and structural. The data highlighted that the effects of stigma related to gender identity, such as violence, discrimination, and transphobia, are structuring elements in transgender women's vulnerability to HIV/AIDS. The studies showed a relationship between stigma and discrimination and transgender women's vulnerability to HIV/AIDS and indicated the need for public policies to fight discrimination in society.


Women at high risk of HIV infection, including sex workers and those with active genital inflammation, have molecular signatures of immune activation and epithelial barrier remodeling in samples of their genital mucosa. These alterations in the local immunological milieu are likely to impact HIV susceptibility. We here analyze host genital protein signatures in HIV-uninfected women, with high frequency of condom use, living in HIV-serodiscordant relationships. Cervicovaginal secretions from women living in HIV-serodiscordant relationships (n = 62) were collected at three time points over 12 months. Women living in HIV-negative seroconcordant relationships (controls, n = 25) were sampled at one time point. All study subjects were examined for demographic parameters associated with susceptibility to HIV infection. The cervicovaginal samples were analyzed using a high-throughput bead-based affinity assay. Proteins involved in epithelial barrier function and inflammation were increased in HIV-serodiscordant women. By combining several methods of analysis, a total of five proteins (CAPG, KLK10, SPRR3, elafin/PI3, CSTB) were consistently associated with this study group. Proteins analyzed using the affinity set-up were further validated by label-free tandem mass spectrometry in a partially overlapping cohort with concordant results. Women living in HIV-serodiscordant relationships thus had elevated levels of proteins involved in epithelial barrier function and inflammation despite low prevalence of sexually transmitted infections and a high frequency of safe sex practices. The identified proteins are important markers to follow during assessment of mucosal HIV susceptibility factors and a high-throughput bead-based affinity set-up could be a suitable method for such evaluation.
Engagement in HIV care reduces HIV-related health disparities that persist across racial/ethnic and gender lines; yet, African American (AA) women face multiple challenges to remaining engaged in care, including HIV-related stigma. We analyzed longitudinal data from 239 participants in the Unity Health Study to estimate associations between HIV-related stigma and engagement in care among AA women linked to HIV care. In adjusted Poisson regression analyses, engagement in care was not associated with HIV-related stigma but was associated with older age (incidence rate ratio [IRR] = 1.01, 95% confidence interval [CI] = [1.00-1.01], p = .01), higher levels of education (IRR = 1.18, 95% CI = [1.02-1.35], p = .03), and higher levels of social support (IRR = 1.05, 95% CI = [1.01-1.09], p = .04). Our findings suggest the need for targeted interventions to enhance engagement in care and to incorporate social support into health promotion programming for AA women living with HIV.


Introduction: While increased healthcare engagement and antiretroviral therapy (ART) adherence occurs during pregnancy, women living with HIV (WLWH) are often lost to follow-up after delivery. We sought to evaluate postpartum retention in care and viral suppression and to identify associated factors among WLWH in a large public hospital in Atlanta, Georgia. Methods: Data from the time of entry into prenatal care until 24 months postpartum were collected by chart review from WLWH who delivered with >/=20 weeks gestational age from 2011 to 2016. Primary outcomes were retention in HIV care (two HIV care visits or viral load measurements >90 days apart) and viral suppression (<200 copies/mL) at 12 and 24 months postpartum. Obstetric and contraception data were also collected. Results: Among 207 women, 80% attended an HIV primary care visit in a mean 124 days after delivery. At 12 and 24 months, respectively, 47% and 34% of women were retained in care and 41% and 30% of women were virally suppressed. Attending an HIV care visit within 90 days postpartum was associated with retention in care at 12 months (aOR 3.66, 95%CI 1.72-7.77) and 24 months (aOR 4.71, 95%CI 2.00-11.10) postpartum. Receiving ART at pregnancy diagnosis (aOR 2.29, 95%CI 1.11-4.74), viral suppression at delivery (aOR 3.44, 95%CI 1.39-8.50), and attending an HIV care visit within 90 days postpartum (aOR 2.40, 95%CI 1.12-5.16) were associated with 12-month viral suppression, and older age (aOR 1.09, 95% CI 1.01-1.18) was associated with 24-month viral suppression. Conclusions: Long-term retention in HIV care and viral suppression are low in this population of postpartum WLWH. Prompt transition to HIV care in the postpartum period was the strongest predictor of optimal HIV outcomes. Efforts supporting women during the postpartum transition from obstetric to HIV primary care may improve long-term HIV outcomes in women.


This systematic literature review identified factors associated with sexual risks related to sexually transmitted infections (STI), HIV and other blood-borne viruses (BBV) among women using heroin and other drugs. The search strategy included five databases (PubMed, EMBASE, PsycNET, Web of Science, Scopus), and PsycEXTRA for grey literature. Out of the 12,135 publications screened, 30 peer-reviewed articles were included. Most publications were cross-sectional (n = 25), quantitative (n = 23) and included 11,305 women. Factors identified were: (1) socio-demographics; (2) gender roles and violence against women; (3) substance use; (4) transactional sex; (5) partner characteristics, partner's drug use, and context of sex; (6) preferences, negotiation and availability of condoms; (7) HIV status and STIs; (8) number of sexual partners; (9) love and trust; (10) reproductive health and motherhood; and (11) risk awareness and perception of control. Overall, this review highlights important implications for future research and practice, and provides evidence for developing STI/BBV preventive strategies.

To date, no study has looked at the prevalence of HIV and the high-risk behaviors among transgender women in Iran. 

Between May 2013 and February 2014, 104 transgender women were recruited for participation in this study. Inclusion criteria consisted of having an official letter from the Tehran Psychiatric Institute, or a well-known psychiatrist, that showed a diagnosis of gender dysphoria and/or completed Gender-Affirming Surgery at least 6 months prior to this study. Of the 104 participants, 2 were diagnosed with HIV, which translates to a HIV prevalence of 1.9%. Condom use with a non-paying partner, casual partner, and paying partner was respectively 39.7%, 34.6%, and 53.3%. A high percentage of transgender women in Tehran engage in high-risk sexual behaviors including condomless receptive anal sex, which is of particular concern given the low rates of HIV testing. Targeted public intervention programs and research are desperately needed for this high-risk group.
INTRODUCTION: Globally, sexually transmitted infections (STI) affect >300 million people annually, and are a major cause of
sexual and reproductive health complications in women. In this commentary, we describe how STIs interact with the
immune and non-immune cells, both within and below the cervicovaginal mucosal barrier, to cause inflammation, which in
turn has been associated with increased HIV acquisition risk. DISCUSSION: STIs have a major impact on the female genital
health and reduce risk for shedding of HIV and potential for HIV transmission in HIV+ menopausal women.

BACKGROUND: Reproductive aging may impact the vaginal microbiome and genital tract mucosal immune environment and
contribute to genital tract health in women with and at-risk for HIV infection. METHODS: A cross-sectional study of
102 HIV+ (51 premenopausal, 51 postmenopausal) and 39 HIV-uninfected (HIV-) (20 premenopausal, 19 postmenopausal)
women was performed in Bronx and Brooklyn, NY. Cervicovaginal lavage (CVL) was collected for quantification of innate
antimicrobial activity against E. coli, HSV-2 and HIV and immune mediators by Luminex and ELISA. Microbiome studies by
targeted qPCR and 16S rRNA sequencing were performed on vaginal swabs. RESULTS: HIV+ postmenopausal compared to
premenopausal participants had lower median E. coli bactericidal activity (41% vs. 62%, p = 0.001), lower median gene
copies of Lactobacillus crispatus (p = 0.005) and Lactobacillus iners (p = 0.019), lower proportions of Lactobacillus iners,
higher proportions of Gardnerella and Atopobium vaginae and lower levels of human beta defensins (HBD-2, HBD-3) and
secretory leukocyte protease inhibitor (SLPI), p<0.001. HSV-2 inhibitory activity was higher in HIV+ postmenopausal
compared to premenopausal participants (37% vs. 17%, p = 0.001) and correlated with the proinflammatory molecules
interleukin (IL) 6, IL-8, human neutrophil peptide (HNP) 1-3, lactoferrin and fibronectin. Similar trends were observed in
HIV- postmenopausal compared to premenopausal participants. HIV inhibitory activity did not differ by reproductive status
in the HIV+ participants but was significantly higher in HIV- postmenopausal compared to premenopausal participants and
in participants with suppressed plasma viral load, and inversely correlated with gene copies of G. vaginalis and BVAB2. A
significant proportion of HIV+ participants on ART exhibited HIV enhancing activity. CONCLUSIONS: HIV+ postmenopausal
compared to premenopausal participants have less CVL E. coli bactericidal activity, reflecting a reduction in Lactobacilli and
and a greater proportion of Gardnerella and A. vaginae, and more HSV-2 inhibitory activity, reflecting increased mucosal
inflammation. The effect of menopause on mucosal immunity was greater in HIV+ participants, suggesting a synergistic
impact. Promotion of a lactobacillus dominant vaginal microbiome and reduced mucosal inflammation may improve vaginal
health and reduce risk for shedding of HIV and potential for HIV transmission in HIV+ menopausal women.

OBJECTIVES: Assessment of safety is an integral part of real-time monitoring in clinical trials. In HIV prevention research,
safety of investigational products and trial participation has been expanded to include monitoring for 'social harms',
generally defined as negative consequences of trial participation that may manifest in social, psychological, or physical
ways. Further research on social harms within HIV prevention research is needed to understand the potential safety risks
for women and advance the implementation of prevention methods in real-world contexts. METHODS: Secondary analysis
of quantitative data from three randomized, double-blind, placebo-controlled trials of microbicide candidates in sub-
Saharan Africa was conducted. Additionally, we assessed data from two prospective cohort studies that included
participants who became HIV-positive or pregnant during parent trials. RESULTS: Social harms reporting was low across the
largest and most recent microbicide studies. Social harm incidence per 100 person-years ranged from 1.10 (95% CI 0.78-
1.52) to 3.25 (95% CI 2.83-3.74) in the phased trials. Reporting differed by dosing mechanism (e.g. vaginal gel, oral tablet,
ring) and study, most likely as a function of measurement differences. Social harms were most frequently associated with
male partners, rather than, for example, experiences of stigma in the community. CONCLUSION: Measurement and
screening for social harms is an important component of conducting ethical research of novel HIV prevention methods. To
date, social harm incidence reported in microbicide trials has been relatively low (<4% per 100 person-years), and the
majority have been partner-related events. However, any incidence of social harm within the context of HIV prevention is
important to capture and understand for the safety of individuals, and for the successful impact of prevention methods in a
real-world context.

METHODS: A cross-sectional study of

OBJECTIVES: Assessment of safety is an integral part of real-time monitoring in clinical trials. In HIV prevention research,
safety of investigational products and trial participation has been expanded to include monitoring for 'social harms',
generally defined as negative consequences of trial participation that may manifest in social, psychological, or physical
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BACKGROUND: Reproductive aging may impact the vaginal microbiome and genital tract mucosal immune environment and
contribute to genital tract health in women with and at-risk for HIV infection. METHODS: A cross-sectional study of
102 HIV+ (51 premenopausal, 51 postmenopausal) and 39 HIV-uninfected (HIV-) (20 premenopausal, 19 postmenopausal)
women was performed in Bronx and Brooklyn, NY. Cervicovaginal lavage (CVL) was collected for quantification of innate
antimicrobial activity against E. coli, HSV-2 and HIV and immune mediators by Luminex and ELISA. Microbiome studies by
targeted qPCR and 16S rRNA sequencing were performed on vaginal swabs. RESULTS: HIV+ postmenopausal compared to
premenopausal participants had lower median E. coli bactericidal activity (41% vs. 62%, p = 0.001), lower median gene
copies of Lactobacillus crispatus (p = 0.005) and Lactobacillus iners (p = 0.019), lower proportions of Lactobacillus iners,
higher proportions of Gardnerella and Atopobium vaginae and lower levels of human beta defensins (HBD-2, HBD-3) and
secretory leukocyte protease inhibitor (SLPI), p<0.001. HSV-2 inhibitory activity was higher in HIV+ postmenopausal
compared to premenopausal participants (37% vs. 17%, p = 0.001) and correlated with the proinflammatory molecules
interleukin (IL) 6, IL-8, human neutrophil peptide (HNP) 1-3, lactoferrin and fibronectin. Similar trends were observed in
HIV- postmenopausal compared to premenopausal participants. HIV inhibitory activity did not differ by reproductive status
in the HIV+ participants but was significantly higher in HIV- postmenopausal compared to premenopausal participants and
in participants with suppressed plasma viral load, and inversely correlated with gene copies of G. vaginalis and BVAB2. A
significant proportion of HIV+ participants on ART exhibited HIV enhancing activity. CONCLUSIONS: HIV+ postmenopausal
compared to premenopausal participants have less CVL E. coli bactericidal activity, reflecting a reduction in Lactobacilli and
and a greater proportion of Gardnerella and A. vaginae, and more HSV-2 inhibitory activity, reflecting increased mucosal
inflammation. The effect of menopause on mucosal immunity was greater in HIV+ participants, suggesting a synergistic
impact. Promotion of a lactobacillus dominant vaginal microbiome and reduced mucosal inflammation may improve vaginal
health and reduce risk for shedding of HIV and potential for HIV transmission in HIV+ menopausal women.

INTRODUCTION: Globally, sexually transmitted infections (STI) affect >300 million people annually, and are a major cause of
sexual and reproductive health complications in women. In this commentary, we describe how STIs interact with the
immune and non-immune cells, both within and below the cervicovaginal mucosal barrier, to cause inflammation, which in
turn has been associated with increased HIV acquisition risk. DISCUSSION: STIs have a major impact on the female genital

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mucosa, which is an important biological and physical barrier that forms the first line of defence against invading microorganisms such as HIV. Pattern recognition of STI pathogens, by receptors expressed either on the cell surface or inside the cell, typically triggers inflammation at the mucosal barrier. The types of mucosal responses vary by STI, and can be asymptomatic or culminate in the formation of discharge, ulcers and/or warts. While the aim of this response is to clear the invading microbes, in many cases these responses are either evaded or cause pathology that impairs barrier integrity and increases HIV access to target cells in the sub-mucosa. In addition, innate responses to STIs can result in an increased number of immune cells, including those that are the primary targets of HIV, and may contribute to the association between STIs and increased susceptibility to HIV acquisition. Many of these cells are mediators of adaptive immunity, including tissue-resident cells that may also display innate-like functions. Bacterial vaginosis (BV) is another common cause of inflammation, and evidence for multiple interactions between BV, STIs and HIV suggest that susceptibility to these conditions should be considered in concert. CONCLUSIONS: STIs and other microbes can induce inflammation in the genital tract, perturbing the normal robust function of the mucosal barrier against HIV. While the impact of STIs on the mucosal immune system and HIV acquisition is often under-appreciated, understanding their interactions of the infections with the immune responses play an important role in improving treatment and reducing the risk of HIV acquisition. The frequent sub-clinical inflammation associated with STIs underscores the need for better STI diagnostics to reverse the immunological consequences of infection.


BACKGROUND AND AIM: Protein supplementation and resistance training (RT) are interventions that may counteract decline in muscle mass and increase in fat mass, thus reducing the risk of developing chronic diseases during the aging process. The objective of this study was to investigate the effect of whey protein (WP) pre- or post-RT on metabolic and inflammatory profile in pre-conditioned older women. METHODS AND RESULTS: Seventy older women participated in this investigation and were randomly assigned to one of three groups: WP pre-RT and placebo post-RT (WP-PLA, n = 24), placebo pre-RT and WP post-RT (PLA-WP, n = 23) and placebo pre and post-RT (PLA-PLA, n = 23). Each group ingested 35 g of PLA or WP pre- and post-RT. RT was carried out over 12 weeks (three times/week; 3 x 8-12 repetition maximum). Body composition, blood pressure, blood samples and dietary intake were assessed pre- and post-intervention. After the intervention, WP groups showed greater improvements in appendicular lean soft tissue (ALST: WP-PLA, 3.1%; PLA-WP, 3.9%; PLA-PLA, 1.8%) and total cholesterol/high density lipoprotein cholesterol ratio (TC/HDL-C: WP-PLA, -12.11%; PLA-WP, -13.2%; PLA-PLA, -0.7) when compared with PLA-PLA. WP post-RT also showed improvements (P < 0.05) in ALST/appendicular fat mass ratio (PLA-WP, 5.8%; PLA-PLA, 1.3%), total body fat (PLA-WP, -3.8%; PLA-PLA: -0.1) and trunk fat mass (WP-PLA, -3.1%; PLA-PLA, -0.3%) when compared with PLA-PLA. CONCLUSION: WP pre- or post- RT promotes improvements in ALST and TC/HDL-C ratio in pre-conditioned older women. WP administered after RT was more effective in improving metabolic health z-score and in reducing body fat compared to placebo group.


OBJECTIVE: The aim of our study was to examine the relationship between HIV stigma and adherence to antiretroviral (ARV) therapy among women with HIV. METHOD: 120 women with HIV involved in this cross-sectional study. The participant were outpatients at the Voluntary Counseling and Testing (VCT) Abdul Moeloek Hospital in Lampung, Indonesia. RESULTS: We examined data from 120 patients. Through chi-squared tests, a statistically significant correlation between HIV stigma and adherence to ARV therapy was revealed (p-value=0.045; OR 2.274) women with low levels of stigma toward HIV demonstrated adherence to ARV treatment that was 2.27 times greater than that of women with high levels of stigma toward HIV. CONCLUSIONS: One way to increase adherence to ARV therapy in women with HIV is by minimizing its stigma. This can be done by increasing their self-confidence and not differentiating between people living with HIV and others in the provision of health services.

BACKGROUND: The feminization and ethnic diversification of HIV infection, has resulted in a call for gender- and culture-specific prevention strategies for at-risk groups including Latinos in the United States. The steadily changing demographic profile of the AIDS epidemic challenges prevention strategies to remain relevant and up-to-date, particularly in populations of women midlife and older where an understanding of risk remains under explored. As the CDC requests country-specific HIV risk profiles for Latino communities in the US, understanding the socio-economic, behavioral and personal risk reasons of HIV risk for older Dominican women is critical for prevention. METHODS: We conducted focus group discussions informed by the Theory of Gender and Power (TGP). The three constructs of the TGP: 1) Affective influences/social norms; 2) Gender-specific norms and. 3) Power and Authority guided the thematic analysis and identified themes that described the socio-cultural and contextual reasons that that contribute to perceptions of HIV risk. RESULTS: Sixty Dominican American women ages 57-73 participated in our focus group discussions. Sexual Division of Labour: 1) Economic Dependence; 2) Financial Need and 3) Education and Empowerment. Sexual Division of Power: 4) HIV Risk and 5) Relationship Dynamics. Cathexis: Affective Influences/Social Norms: 6) HIV/AIDS Knowledge and 7) Prevention and Testing. Importantly, participants were concerned about partner fidelity when visiting the Dominican Republic, as the country accounts for the second highest HIV rates in the Caribbean. CONCLUSIONS: Our results confirm previous findings about perceptions of HIV risk and provide additional insight into aging-related aspects of HIV risk for Latino women midlife and older.


This prospective cohort study of 622 women living with human immunodeficiency virus (HIV) from Johannesburg (2012) detected Mycoplasma genitalium in 7.4% (95% confidence interval [CI]: 5.5-9.7, 46/622), with detection more likely with lower CD4 counts(adj usted odds ratio [AOR] 1.02 per 10 cells/mul decrease, 95% CI: 1.00-1.03) and higher plasma HIV-1 RNA (AOR 1.15 per log copies/mL increase, 95% CI: 1.03-1.27). No mutations for macrolide/quinolone resistance was detected.


PURPOSE: Depression is the most common mental disorder among subjects with HIV. The present study was conducted to determine the relationship between dietary intake and depression among male and female with HIV/AIDS. METHODS: 335 HIV/AIDS subjects were evaluated who referred to Behavioral Disorders Counseling Center in Kermanshah, province in Iran. Depression was assessed using Beck questionnaire. Food frequency questionnaire was used to assess dietary intake. RESULTS: Our findings indicated that 76.1% of the studied subjects had varying degrees of depression. The rate of depression in the men was significantly higher than in the women (P = 0.007). The mean of weight in the men with depression was significantly lower than of the men without depression (P = 0.01). Higher adhere to legume and vegetables in the men (OR 0.049, CI 95% 0.003-0.713 and OR 0.534, CI 95% 0.334-0.855, respectively) and dairy products in the women (OR 0.493, CI 95% 0.265-0.917) were associated with decrease risk of depression. CONCLUSION: The results of this study shown that the high prevalence of depression among these subjects. Higher intake of legume and vegetables and dairy products had a protective effect on the risk of depression. LEVEL OF EVIDENCE: Level V, descriptive cross-sectional study.


An overlooked sequela of HIV risk is trauma exposure, yet few HIV interventions address trauma exposure, mental health, and substance misuse. In a two-arm randomized controlled trial 73 Native American women were randomized to a culturally-adapted Cognitive Processing Therapy (CPT) or 6-weeks waitlist. Outcomes assessed: PTSD symptom severity, alcohol use frequency, substance abuse or dependence diagnosis, and high-risk sexual behavior defined as vaginal/anal intercourse (a) under the influence of alcohol and/or illicit substances, (b) with a partner who was concurrently sexually active with someone else, and/or (c) with more than one partner in the past 6 weeks. Among immediate intervention participants, compared to waitlist participants, there were large reductions in PTSD symptom severity, high-risk sexual behavior, and a medium-to-large reduction in the frequency of alcohol use. CPT appears to improve mental health and risk behaviors, suggesting that addressing PTSD may be one way of improving HIV-risk related outcomes.
OBJECTIVES: To describe our partnership and research infrastructure development strategies and discuss steps in developing a culturally grounded framework to obtain data and identify a trauma-informed evidence-based intervention.

METHOD: We present funding strategies that develop and maintain the partnership and tools that guided research development. We share how a community research committee was formed and the steps taken to clarify the health concern and develop a culturally tailored framework. We present results from our needs/assets assessment that led to the selection of a trauma-informed intervention. Finally, we describe the agreements and protocols developed. RESULTS: We produced a strong sustainable research team that brought program and research funding to the community. We created a framework and matrix of program objectives grounded in community knowledge. We produced preliminary data and research and publication guidelines that have facilitated program and research funding to address community-driven concerns. CONCLUSIONS: This study highlights the importance of bidirectional collaboration with American Indian communities, as well as the time and funding needed to maintain these relationships. A long-term approach is necessary to build a sustainable research infrastructure. Developing effective and efficient ways to build culturally based community research portfolios provides a critical step toward improving individual and community health outcomes.

One in five transgender women (TW) are living with HIV, yet little has been published about their health outcomes. We analyzed data from TW (n = 37), cisgender women (CW, n = 165), and cisgender men who have sex with men (MSM, n = 151) in Thailand and Brazil. We hypothesized: (1) TW will have higher odds of depressive symptoms, lower odds of condom use and greater odds of a detectable viral load compared to MSM and CW; and (2) TW will have lower odds of condom use and higher odds of detectable viral load. We found that TW had higher odds of depression (OR 2.2, 95%CI: 1.0, 4.8, p = 0.04) and were less likely than MSM (22% v. 42%, p = 0.01) to use condoms with partners of unknown serostatus. In multivariable models, TW had lower odds than MSM of using condoms with partners with known serostatus (OR 0.38, 95%CI: 0.15, 0.90) and CW had lower odds than MSM of using condoms with HIV-negative partners (0.60 [0.38, 0.95], p = 0.029). We found no significant differences in detectable viral load. Disaggregating data by gender is important to understand factors that contribute to viral suppression and HIV transmission risk among people living with HIV.

Body image disturbance is increasingly relevant as women living with HIV (WLWH) live longer. We explored body image disturbance and changes in fat distribution (lipodystrophy) in 63 WLWH (mean age = 51 years) and evaluated associations among lipodystrophy, body image, and psychosocial variables. Eighty-one percent of participants reported one or more body parts (of six assessed) demonstrating lipodystrophy, and more than one third reported three or more affected body parts. Increased belt/waist (58%) and increased chest/breast (39%) sizes were most common. More diffuse lipodystrophy was significantly associated with poorer body image (F[2,54] = 11.86, p < .001, partial eta = .313) and anxiety (F[2,52] = 3.82, p = .029, partial eta = .133) after controlling for age and duration of infection. Lipodystrophy was prevalent in our sample; more diffuse lipodystrophy was associated with anxiety and poor body image. Providers should assess lipodystrophy in older WLWH and provide referrals for mental health services.

BACKGROUND: Transgender women are among the groups at highest risk for HIV infection, with a prevalence of 27.7% in the USA; and despite this known high risk, undiagnosed infection is common in this population. We set out to identify transgender women and their partners in a molecular transmission network to prioritise public health activities. METHODS: Since 2006, HIV protease and reverse transcriptase gene (pol) sequences from drug resistance testing have been reported to the Los Angeles County Department of Public Health and linked to demographic data, gender, and HIV transmission risk factor data for each case in the enhanced HIV/AIDS Reporting System. We reconstructed a molecular transmission network.
by use of HIV-TRAnsmission Cluster Engine (with a pairwise genetic distance threshold of 0.015 substitutions per site) from
the earliest pol sequences from 22 398 unique individuals, including 412 (2%) self-identified transgender women. We
examined the possible predictors of clustering with multivariate logistic regression. We characterised the genetically linked
partners of transgender women and calculated assortativity (the tendency for people to link to other people with the same
attributes) for each transmission risk group. FINDINGS: 8133 (36.3%) of 22 398 individuals clustered in the network across
1722 molecular transmission clusters. Transgender women who indicated a sexual risk factor clustered at the highest
frequency in the network, with 147 (43%) of 345 being linked to at least one other person (adjusted odds ratio [aOR] 2.0,
p=0.0002). Transgender women were assortative in the network (assortativity 0.06, p<0.001), indicating that they tended to
link to other transgender women. Transgender women were more than expected to link to other transgender women
(OR 4.65, p<0.001) and cisgender men who did not identify as men who have sex with men (MSM; OR 1.53, p<0.001).
Transgender women were less likely than expected to link to MSM (OR 0.75, p<0.001), despite the high prevalence of HIV
among MSM. Transgender women were distributed across 126 clusters, and cisgender individuals linked to one transgender
woman were 9.2 times more likely to link to a second transgender woman than other individuals in the surveillance
database. Reconstruction of the transmission network is limited by sample availability, but sequences were available for
more than 40% of diagnoses. INTERPRETATION: Clustering of transgender women and the observed tendency for linkage
with cisgender men who did not identify as MSM, shows the potential to use molecular epidemiology both to identify
clusters that are likely to include undiagnosed transgender women with HIV and to improve the targeting of public health
prevention and treatment services to transgender women. FUNDING: California HIV and AIDS Research Program and
National Institutes of Health-National Institute of Allergy and Infectious Diseases.


BACKGROUND: Women experiencing incarceration (WEI) engage in high rates of sex- and drug-related behavior that places
them at risk for HIV. Pre-exposure prophylaxis (PrEP) is an efficacious means of reducing HIV acquisition. There is a general
lack of knowledge regarding PrEP among women at elevated risk, and only a small percentage of at-risk women are
currently engaged in PrEP care. The period of incarceration represents an opportunity to identify at-risk women, initiate
PrEP during incarceration, and establish linkage to community-based PrEP care upon release from incarceration. Further,
post-release is a time period that is particularly risky, and there are numerous barriers, including substance use, that may
impede linkage to community-based care in the absence of intervention. The current protocol describes plans for the
development and pilot randomized controlled trial (RCT) of an intervention to promote PrEP uptake during incarceration
and facilitate linkage to community-based PrEP care post-release. METHODS/DESIGN: The motivational interviewing-
navigation (MI-NAV) study intervention is being developed, refined, and tested over three phases within the framework of
the social ecological model. All phases of the study are being conducted at a women's correctional facility and community-
based PrEP provider located in the Northeastern region of the United States. Phase 1 consists of individual qualitative
interviews to be conducted with key stakeholders (n = 6-10) from the community-based PrEP care site and (n = 6-10) from
the women's correctional facility, as well as with (n = 18-30) WEI. Recruitment for Phase 1 was initiated in November 2017.
In Phase 2, MI-NAV will be piloted with a small cohort (n = 8-12) of WEI and will be refined based upon participant
feedback. During Phase 3, a pilot RCT of MI-NAV and a standard of care condition will be conducted with 80 WEI. RCT
participants will complete baseline and follow-up assessments 1, 3, and 6 months post-release. The primary study outcome
is linkage to community-based PrEP care, verified via medical records. DISCUSSION: This study will develop and evaluate a
psychosocial intervention (MI-NAV) to promote PrEP uptake and facilitate linkage to community-based PrEP care among
women at-risk for HIV. It is expected that, as a result of this project, the feasibility, acceptability, and preliminary efficacy of
MI-NAV will be determined. If found to be efficacious, this intervention has the potential to reduce HIV acquisition in a
high-need, underserved community. Clinical trial registration NCT03281343.


BACKGROUND: Studies have documented high human immunodeficiency virus (HIV) prevalence among transwomen in the
United States; however, to our knowledge, no studies have documented trends in HIV prevalence in this population.
METHODS: We used respondent-driven sampling to sample transwomen in San Francisco for 3 HIV prevalence and
behavioral surveys in 2010, 2013, and 2016. Our analysis of point estimates and trends were weighted for the sampling
method. RESULTS: Human immunodeficiency virus prevalence by serological testing in the survey was 38.8% (95% confidence interval [CI], 32.4-45.2), 33.7% (95% CI, 25.9-41.5), and 31.6% (95% CI, 12.2-38.1) in 2010, 2013, and 2016,
respectively. Disparities in higher HIV prevalence by black, Latino, and Asian race/ethnicity and lower education level persisted through 2016. CONCLUSIONS: Based on a statistical test for trend, HIV prevalence among transwomen has remained high and stable from 2010 to 2016. Human immunodeficiency virus infection is still highest at 31.6% compared to any other group in San Francisco. We also observed that older transwomen had significantly higher odds of living with HIV than younger women over the last 2 waves of data collection. Taken together, these trends suggest that there is declining incidence of new HIV infections among low-income transwomen in San Francisco. Moreover, among transwomen, HIV disproportionately affects transwomen of color.


This study examined the empirical structure (i.e., size, density, duration) of transgender women’s social networks and estimated how network alters’ perceived HIV risk/protective behaviors influenced transgender women’s own HIV risk/protective behaviors. From July 2015 to September 2016, 271 transgender women completed surveys on sociodemographic characteristics, HIV risk/protective behaviors, and social networks. Hierarchical generalized linear models examined the associations of social network alter member data ‘nested’ within participant data. Analyses revealed that social network factors were associated with HIV risk/protective behaviors, and that the gender identity of the alters (cisgender vs. transgender), and social network sites and technology use patterns ("SNS/tech") moderated these associations. Among network alters with whom the participant communicated via SNS/tech, participants' HIV risk behavior was positively associated with alters' HIV risk behavior (cisgender alters aOR 4.10; transgender alters aOR 5.87). Among cisgender alters (but not transgender alters) with whom the participant communicated via SNS/tech, participants' HIV protective behavior was positively associated with alters' HIV protective behavior (aOR 8.94).


People with and at risk for HIV have high rates of smoking, increasing their morbidity and mortality. Effective cessation interventions are needed for this group. Transtheoretical model (TTM)-tailored interventions have demonstrated efficacy, but measures need cross-validation in this population. TTM cessation measures were evaluated in women smokers with and at risk for HIV (N = 111) from Chicago Women’s Interagency HIV Study (WIHS). Confirmatory factor analyses evaluated measurement models. MANOVAs examined relationships between constructs and stage subgroups. For decisional balance, the two-factor uncorrelated model was best (chi2(20) = 13.96; comparative fit index [CFI], 1.0; root mean square error of approximation [RMSEA] = .00), with good (pros alpha = .78) and fair (cons alpha = .55) four-item alphas. The one-factor temptations model (alpha = .90) showed reasonable fit (chi2(18) = 80.22; CFI = .89; RMSEA = .177). Processes of change subscales had fair to good two-item alphas (alpha = .49-.77) and fit a 10-factor fully correlated model (chi2(125) = 222.72; CFI = .88; RMSEA = .084). MANOVAs by stage of change replicated expected patterns for the pros, overall temptations, and two process subscales with medium-sized effects (eta2 = .06-.18). Contrary to expectations, no differences by stage were found for cons or temptation negative affect subscales. The structures of these TTM measures replicated with good internal and external validity, except for the cons, which needs refinement. Negative affect temptations was structurally sound, but did not vary by stage group potentially reflecting this sample's moderate depression levels and/or their reliance on smoking to deal with negative affect. Results support the use of most TTM measures in research and tailored interventions to increase smoking cessation among women smokers with and at risk for HIV and highlight the importance of managing negative affect in cessation materials targeting this group.


Transgender women (TW) are one of the highest risk groups for HIV infection globally; however, the HIV testing needs of their cisgender (non-transgender) male partners remain largely unknown. This study sought to examine the perceived acceptability of couples HIV testing and counseling (CHTC) for TW-male dyads from the perspective of cisgender men who partner with TW. Between September 2016 and June 2017, 19 cisgender men (mean age = 40.1, SD = 12.8) who currently have, or have ever had a TW partner completed an in-depth semi-structured phone interview and brief survey to gather data on acceptability of CHTC, as well as perceived barriers and facilitators to CHTC for TW-male couples. Qualitative data were thematically analyzed and integrated with survey data. Acceptability of CHTC was high in the sample (89.5%) but was
BACKGROUND: Women represent 23% of all Americans living with HIV. By 2020, more than 70% of Americans living with HIV are expected to be 50 years and older. SETTING: This study was conducted in the Southern United States—a geographic region with the highest number of new HIV infections and deaths. OBJECTIVE: To explore the moderating effect of age on everyday discrimination (EVD); group-based medical (GBM) distrust; enacted, anticipated, internalized HIV stigma; depressive symptoms; HIV disclosure; engagement in care; antiretroviral medication adherence; and quality of life (QOL) among women living with HIV. METHODS: We used multigroup structural equation modeling to analyze baseline data from 123 participants enrolled at the University of North Carolina at Chapel Hill site of the Women’s Interagency HIV Study during October 2013-May 2015. RESULTS: Although age did not moderate the pathways hypothesized, age had a direct effect on internalized stigma and QOL. EVD had a direct effect on anticipated stigma and depressive symptoms. GBM distrust had a direct effect on depressive symptoms and a mediated effect through internalized stigma. Internalized stigma was the only form of stigma directly related to disclosure. Depressive symptoms were a significant mediator between GBM, EVD, and internalized stigma reducing antiretroviral therapy medication adherence, engagement in care, and QOL. CONCLUSIONS: EVD, GBM, and internalized stigma adversely affect depressive symptoms, antiretroviral therapy medication adherence, and engagement in care, which collectively influence the QOL of women living with HIV.
Hot flashes (HFs) are a prominent symptom of menopause known to unfavorably influence mood, sleep, and quality of life. More women living with HIV are entering menopause and may experience a greater prevalence of HFs and more severe HFs compared with uninfected women. This integrative review evaluated existing evidence on potential health characteristics associated with HFs in women living with HIV during menopause. A search strategy was conducted within 6 databases. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guided the review, and the Johns Hopkins Nursing Evidence-Based Practice model was used to evaluate methodological quality and appraisal of the evidence. Five articles met the review eligibility criteria. Three content categories emerged from the key findings of the 5 articles: HIV-specific characteristics, mental health and cognitive characteristics, and quality of life and social characteristics. Implications for research and clinical care were identified.


We explored the association of international migration with substance use and HIV/STI risk factors among female sex workers (FSW). Using modified time-location sampling, we recruited 266 FSW at the Mexico-Guatemala border. Crude and adjusted logistic regression models were used to evaluate the relationships. HIV risks, such as frequent hard drug use and drug use in another country, were greater for migrant compared to nonmigrant FSW. However, more migrant versus nonmigrant FSW reported consistent condom use with clients and having a health card. Our study highlights regional patterns of substance use among FSW and risk or protective behaviors related to migration status.


BACKGROUND: Despite marked gains in longevity attributable to antiretroviral therapy (ART), older women living with HIV (OWLH) experience substantial health challenges, and few studies addressed whether they can achieve successful aging (SA). This is among the first studies examining prevalence and psychosocial correlates of self-rated SA (SRSA) among OWLH and women at risk of HIV. METHODS: The sample included 386 OWLH and 137 HIV-seronegative women enrolled in the Women's Interagency HIV Study (WIHS) who were aged 50 years and older and participated in the "From Surviving to Thriving" (FROST) substudy. The FROST survey included measures of SRSA and positive psychosocial constructs. RESULTS: Participants were on average 57 years (SD = 5.3), 74% African American and 30% unemployed. Among OWLH, 94% were on ART and 73% were virally suppressed. Compared with OWLH, a higher proportion of HIV-seronegative women had an annual income</= $6000, no health insurance, and reported lower optimism and health-related quality of life. We found no differences in SRSA prevalence by HIV status: 84% of OWLH and 83% of HIV-seronegative women reported SRSA >/=7 (range = 2-10, higher scores signify better SRSA). Having SRSA >/=7 was associated with higher levels of positive psychosocial characteristics (eg, resilience and optimism) among both OWLH and HIV-seronegative women. CONCLUSIONS: SRSA is achievable among older women with and at risk of HIV despite health complications. Among disadvantaged women, factors other than HIV may be primary drivers of SRSA. Future research is needed to examine determinants of SRSA and to design public health interventions enhancing SA within this population.

Saleem, H. T., et al. (2019). ""If I don't have children, they will know that I'm sick": fertility desires of women and men living with HIV in Iringa, Tanzania." AIDS Care 31(7): 908-911.

As safer conception services are expanded and integrated into HIV care systems, these services will need to address cultural, social, economic and medical concerns of women and men living with HIV. We conducted interviews with 30 HIV-positive women, 30 HIV-positive men, and 30 healthcare providers that examined factors specific to the experience of living with HIV that influence fertility desires in Iringa, Tanzania. HIV-related factors fell under five themes: knowing one could prevent mother-to-child transmission; reaching an ideal family size in the context of HIV-related infant mortality; concealing one's HIV status; being able to provide for children; and managing HIV disease progression. Integration of safer conception counseling that includes locally-tailored messaging around desired family size, health risks, stigma and financial considerations into safer conception services will help people living with HIV reach their reproductive goals, while reducing the risks of HIV transmission.


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BACKGROUND: Frailty and falls occur commonly and prematurely in HIV-infected populations. Whether frailty in middle-age predicts future falls among HIV-infected women is unknown. METHODS: We evaluated associations of frailty with single and recurrent falls 10 years later among 729 HIV-infected and 326 uninfected women in the Women's Interagency HIV Study (WIHS) with frailty measured in 2005 and self-reported falls in 2014-2016. Frailty was defined as >/=3 of 5 Fried Frailty Index components: slow gait, reduced grip strength, exhaustion, unintentional weight loss and low physical activity. Stepwise logistic regression models determined odds of single (versus 0) or recurrent falls (>/=2 versus 0) during the 2-year period; separate models evaluated frailty components. RESULTS: HIV-infected women were older (median 42 versus 39 years; P<0.0001) and more often frail (14% versus 9%; P=0.04) than uninfected women. Over 2 years, 40% of HIV-infected versus 39% of uninfected women reported a fall (single fall in 15% HIV+ versus 18% HIV- women; recurrent falls in 25% HIV+ versus 20% HIV- women [overall P=0.20]). In multivariate models, frailty independently predicted recurrent falls [adjusted odds ratio [aOR] 1.84, 95% CI: 1.13, 2.97; P=0.01], but not a single fall. Among frailty components, unintentional weight loss independently predicted single fall [aOR 2.31, 95% CI: 1.28, 4.17; P=0.005]; unintentional weight loss [aOR 2.26, 95% CI: 1.32, 3.86; P=0.003] and exhaustion [aOR 1.66, 95% CI: 1.10, 2.50; P=0.02] independently predicted recurrent falls. CONCLUSIONS: Early frailty measurement among middle-aged women with or at-risk for HIV may be a useful tool to assess future fall risk.


OBJECTIVE: To determine associations between frailty and fracture in women with and without HIV infection. DESIGN: Prospective longitudinal cohort study evaluating associations between baseline frailty status and frailty components, with first and second incident fractures. METHODS: We evaluated associations of frailty with fracture among 1332 women with HIV and 532 uninfected women without HIV. Frailty was defined as at least three of five Fried Frailty Index components: slow gait, reduced grip strength, exhaustion, unintentional weight loss, and low physical activity. Cox proportional hazards models determined predictors of time to first and second fracture; similar models evaluated Fried Frailty Index components. RESULTS: Women with HIV were older (median 42 vs. 39 years, P < 0.0001) and more often frail (14 vs. 8%, P = 0.04) than women without HIV; median follow-up was 10.6 years. Frailty was independently associated with time to first fracture in women with and without HIV combined [adjusted hazard ratio (aHR) 1.71, 95% confidence interval (CI): 1.30-2.26; P = 0.0001], and among women with HIV only (aHR 1.91, 95% CI: 1.41-2.58; P < 0.0001), as well as with time from first to second fracture among women with HIV (aHR 1.86, 95% CI: 1.15-3.01; P = 0.01). CONCLUSION: In this cohort of middle-aged racial and ethnic minority women with or at-risk for HIV, frailty was a strong and independent predictor of fracture risk. As women with HIV continue to age, early frailty screening may be a useful clinical tool to help identify those at greatest risk of fracture.


Objectives: Aging populations in the United States (US) exhibit high rates of both food insecurity and chronic illness. Few studies have explored in depth how food insecurity arises among such populations, and how it interacts with experiences of aging. We qualitatively explored how aging, low-income women experience food insecurity at multiple sites across the US, focusing on the neighborhood-level factors that influence these experiences. Methods: Study participants were drawn from the San Francisco, CA, Atlanta, GA, and Chapel Hill, NC sites of the Women’s Interagency HIV Study (WIHS), a cohort study of women with or at risk for HIV. Using purposive sampling, we recruited 38 women who were food-insecure, 50 years of age or older, either with or at risk for HIV, and from different neighborhoods within each site. Semi-structured interviews explored participants’ perceptions of how their neighborhood influenced their experiences with food security and aging. An inductive-deductive approach was used to thematically analyze the data. Results: Participants across the three sites explained that food insecurity was related to limited access to food stores. In San Francisco, this limited access primarily resulted from high food prices, whereas in Atlanta and Chapel Hill long distances to food stores and poor public transport systems were prominent. Most participants also described being dependent on food aid programs, but often found this difficult due to poor quality food and long wait times. Aging-related issues emerged as a cross-cutting theme. Both HIV + and HIV- women explained how fatigue, poor strength, and joint pains all amplified their barriers to accessing food. Women with chronic illness, regardless of HIV status, also found it difficult to afford healthy and nutritious food, which in turn further aggravated their poor health. Conclusions: Findings from this study suggest that older women across different settings in the US experience multiple barriers to navigating the food system, with key similarities and differences in barriers and systems of institutional support. While future programs should address common neighborhood-level barriers...
such as the availability and affordability of healthy foods and transportation, they should also be tailored to aging women, and to the unique local context. Funding Sources: NIAID.


BACKGROUND: Women living with HIV (WLWH) continue to experience poorer outcomes across the HIV care cascade and overall health, an appreciable proportion of which may not be disease-related but due to socio-structural barriers that impact health. We compared socio-structural determinants of health and self-rated health between WLWH and expected general population values. METHODS: Prevalences of socio-structural determinants and self-rated health were estimated from 1,422 WLWH aged 16+ in the 2013-2015 Canadian HIV Women’s Sexual and Reproductive Health Cohort Study (CHIWOS). Prevalences were also estimated from 46,831 general population women (assumed HIV-negative) in the 2013-2014 Canadian Community Health Survey (CCHS), standardized to the age/ethnoracial group distribution of WLWH. Standardized prevalence differences (SPDs) and 95% confidence intervals (CI) were reported. RESULTS: Compared to general population women, a higher proportion of WLWH reported annual personal income <$20,000 (SPD 42.2%; 95% CI: 39.1, 45.2), indicating that 42.2% of WLWH experienced this low income, in excess of what would be expected of Canadian women of similar ages/ethnoracial backgrounds. A higher proportion of WLWH reported severe food insecurity (SPD 43.9%; 40.2, 47.5), poor perceived social support (SPD 27.4%; 22.2, 33.0), frequent racial (SPD 36.8%; 31.9, 41.8) and gender (SPD 46.0%; 42.6, 51.6) discrimination, and poor/fair self-rated health (SPD 12.2%; 9.4, 15.0). CONCLUSIONS: Significant socio-structural inequalities and lower self-rated health were found among WLWH compared to general population women. Such inequities support the integration of a social-determinants approach, social service delivery, and programming into HIV care, with additional resource allocation tailored to the particular needs of WLWH.


We used longitudinal data from the 2013-2017 Canadian HIV Women’s Sexual and Reproductive Health Cohort Study (N = 1422) to assess the clustered impact of social determinants of health (SDoH) on hazardous drinking. Two measures of alcohol use were defined: (i) weekly alcohol use, with > 7 drinks/week as heavy drinking, and (ii) monthly binge drinking (>= 6 drinks at one sitting), with >= 1/month as frequent binging. Twelve SDoH indicators were classified using latent class analysis: no/least adversities, discrimination/stigma, economic hardship, and most SDoH adversities. Inverse-probability weighted multinomial logistic regression was used to report relative-risk ratio (RRR). Women living with HIV (WLWH) in no/least adversity class had a substantially lower likelihood of both heavy weekly alcohol use and frequent binging than those in discrimination/stigma, economic hardship, and most SDoH adversities classes, with RRR estimates ranging from 0.02 to 0.18. Findings indicate the need to address SDoH to reduce hazardous drinking among WLWH.


BACKGROUND AND AIMS: Identifying typologies of social determinants of health (SDoH) vulnerability influencing drug use practices among women living with HIV (WLWH) can help to address associated harms. This research aimed to explore the association of SDoH clusters with drug use among WLWH. DESIGN: Latent class analysis (LCA) was used to identify the distinct clusters of SDoH. Inverse probability weighting (IPW) was employed to account for confounding and potential selection bias. Associations were analyzed using generalized linear model with log link and Poisson distribution, and then weighted risk ratio (RR) and 95% confidence intervals (CI) were reported. SETTING AND PARTICIPANTS: Data from 1422 WLWH recruited at time-point 1 of the Canadian HIV Women’s Sexual and Reproductive Health Cohort Study (CHIWOS, 2013-15), with 1252 participants at 18 months follow-up (time-point 2). MEASUREMENTS: Drug use was defined as use of illicit/non-prescribed opioids/stimulants in the past 6 months. SDoH indicators included: race discrimination, gender discrimination, HIV stigma, social support, access to care, food security, income level, employment status, education, housing status and histories of recent sex work and incarceration. FINDINGS: LCA identified four SDoH classes: no/least SDoH adversities (6.6%), discrimination/stigma (17.7%), economic hardship (30.8%) and most SDoH adversities (45.0%). Drug use was reported by 17.5% and 17.2% at time-points 1 and 2, respectively. WLWH with no/least SDoH adversities were less likely to report drug use than those in economic hardship class (weighted RR = 0.13; 95% CIs = 0.03, 0.63).
Women who inject drugs are disproportionately affected by co-occurring intimate partner violence (IPV), poor mental health, and substance use. Less is known about the potentially synergistic effects of these factors on women's HIV risk behavior, and no known studies in Asia examine these relationships. This study assessed the additive and interactive effects of exposure to syndemic IPV, depressive symptoms and non-injection crystal methamphetamine (crystal meth) on HIV sexual risk behaviors in the largest cross-sectional sample of women who inject drugs in Indonesia. Seven hundred thirty-one women aged >/= 18 years, injecting drugs in the preceding 12 months, and residing in Greater Jakarta or Bandung, West Java, were recruited using respondent-driven sampling (RDS). Twenty-six percent of women experienced concurrent IPV, crystal meth use and depressive symptoms. In multivariate logistic regressions controlling for sociodemographic confounders, all three factors were significantly positively associated with sexual risk outcomes. In adjusted marginal effects models, concurrent experience of IPV, crystal meth use and depressive symptoms was associated with increases in the prevalence of HIV risk outcomes: STI symptomatology (from 12% to 60%), inconsistent condom use (from 3% to 22%), and engagement in survival sex work (from 6% to 25%). Statistically significant interaction was detected on both multiplicative and additive scales. Specifically, an interaction was observed on the multiplicative scale between depressive symptoms and crystal meth on STI symptomatology (OR = 2.61; 95% CI = 1.24, 5.48; p = 0.011). There was also evidence of additive interaction, with most observed joint effects being greater than additive. Specifically, significant positive interaction was observed between IPV and crystal meth on inconsistent condom use (AP = 0.38, p < 0.05); depressive symptoms and crystal meth on STI symptomatology (RERI = 2.04, p < 0.001; AP = 0.61, p < 0.001) and survival sex (RERI = 2.04, p < 0.001; AP = 0.61, p < 0.001).
INTRODUCTION: Advances in antiretroviral therapy have transformed HIV into a long-term condition with near-normal life expectancy for those in whom viral replication is well controlled on treatment. This means that age-related events, including menopause, is of increasing importance in the care of people living with HIV. The PRIME (Positive Transitions Through the Menopause) Study aims to explore the impact of the menopause on the health and well-being of women living with HIV (WLHIV). METHODS AND ANALYSIS: The PRIME Study is a multicentre, mixed-methods observational study deploying a multiphase sequential design with explanatory and exploratory phases. Phase 1 comprised three focus group discussions with WLHIV. In phase 2 we aimed to administer questionnaires comprising detailed assessment of menopausal status and symptoms to 1500 WLHIV aged 45-60 attending HIV clinics in England. Phase 3 comprised semistructured interviews with a subsample of phase 2 participants. Ongoing quantitative follow-up of 100 participants is planned between October 2018 and September 2019. Qualitative and quantitative data will be kept analytically distinct and analysed using appropriate methods. We will integrate quantitative and qualitative findings using coding matrices. ETHICS AND DISSEMINATION: The PRIME Study has ethical approval from the South East Coast-Surrey Research Ethics Committee on behalf of all National Health Service (NHS) sites, and approval from University College London Research Ethics Committee for qualitative work conducted in non-NHS sites. In conjunction with the study Expert Advisory Group (which includes WLHIV), we have drafted a dissemination strategy that takes into account a wide range of stakeholders, including patients, policy makers and healthcare providers. This includes at least five empirical research papers to be submitted to peer-reviewed journals, as well as an accessible report aimed primarily at a non-technical audience (published in May 2018 and launched at a live-streamed event). Both quantitative and qualitative data are held by the PRIME Study team and are available by request.

Pre-exposure prophylaxis (PrEP) is an effective biomedical HIV prevention method. PrEP uptake has been persistently low among US women, particularly Black women, who account for 61% of new HIV diagnoses among women. Further understanding of barriers to Black women accessing PrEP is needed. This 2017 cross-sectional survey study explored race-based differences in PrEP interest and intention among women and the indirect association between race and comfort discussing PrEP with a healthcare provider through medical mistrust. The sample consisted of 501 adult women (241 Black; 260 White) who were HIV-negative, PrEP-inexperienced, and heterosexually active. Black women reported greater PrEP interest and intention than White women. However, Black women expressed higher levels of medical mistrust, which, in turn, was associated with lower comfort discussing PrEP with a provider. Medical mistrust may operate as a unique barrier to PrEP access among Black women who are interested in and could benefit from PrEP.

OBJECTIVES: Logistical and economic issues make traditional cytology-based cervical cancer screening challenging in developing countries. Alternative, cost-effective, screening strategies must be developed to screen millions of women in...
resource-poor countries such as Cambodia. DESIGN: A prospective cohort study during which all women underwent four cervical cancer screening methods: (1) self-sampled human papilloma virus (HPV) testing (careHPV system), (2) clinician-collected HPV testing, (3) visualization with acetic acid (VIA) and (4) digital colposcopy (DC) with the Enhanced Visual Assessment System (EVA). SETTING: A referral hospital in Phnom Penh, Cambodia. PARTICIPANTS: Two hundred and fifty Cambodian women (129 HIV+, 121 HIV-). Subjects were recruited from the National Center for HIV/AIDS Dermatology and sexually transmitted disease (STD) cohort, the Sihanouk Hospital Center of Hope's Rural Outreach Teams and the Pochentong Medical Center. RESULTS: Fifty-six of the 250 (22.4%) patients tested positive for high-risk HPV (hrHPV+). Thirty-seven of the 129 HIV+ women were hrHPV+ (28.6%) whereas 19/121 HIV- women were hrHPV+ (15.7%) p=0.0154. Self-sampling HPV specimens identified 50/56 (89%) whereas physician-collected specimens identified 45/56 (80%) p=0.174. 95.2% of the patients felt comfortable obtaining HPV self-samples. Thirty seven of 250 women were VIA+. Thirty of 37 VIA+ women underwent confirmatory biopsies for cervical intraepithelial neoplasia (CIN) (26 CIN1, 4 CIN2+). The rate of confirmed dysplasia in the HIV+ group was 20/129 (15.5%) compared with 10/121 (8.26%) in HIV- women p=0.0291. The contemporaneous physician impressions of the DC images accurately differentiated between CIN1 and CIN2+ lesions in all 30 women having confirmatory biopsies. CONCLUSIONS: The results of this study suggest potential modifications of the current cervical screening strategy that is currently being employed in Cambodia. The first step in this new strategy would be self-swabbing for hrHPV. Subsequently, hrHPV+ patients would have DC and immediate treatment based on colposcopic findings: cryotherapy for suspected CIN1 and loop electrosurgical excision procedure (LEEP) for suspected CIN2+.


Concerns have been raised that risk perceptions after human papillomavirus (HPV) vaccination may lead to riskier sexual behaviors or sexually transmitted infection (STI) diagnosis. The aims of this study were to determine whether risk perceptions immediately after HPV vaccination (perceived risk of HPV, perceived risk of STIs other than HPV, and perceived need for safer sexual behaviors, measured using 5-item scales) were associated with number of sexual partners, condom use at last sexual intercourse, or STI diagnosis over the subsequent 48 weeks in HIV-infected young women (N = 99, 17-24 years of age) participating in an HPV vaccine clinical trial. Generalized estimating equation models demonstrated that lower perceived need for safer sexual behaviors was associated subsequently with lower total number of sexual partners (adjusted odds ratio (AOR) = 1.05, 95% confidence interval (CI) = 1.01-1.09) and lower perceived risk of HPV was associated with subsequent report of having used condoms at last sex (AOR = 0.36, AOR = 0.14-0.92). Lower perceived risk of other STIs was not associated with subsequent sexual behaviors. None of the three risk perceptions was associated with subsequent STIs. The findings suggest that inappropriate risk perceptions after HPV vaccination such as lower perceived need for safer sexual behaviors and lower perceived risk of HPV or other STIs were not subsequently associated with risky behaviors or STI diagnosis in HIV-infected young women.

BACKGROUND: Treatment adherence and viral suppression remain suboptimal in the United States. Attachment insecurity may be one understudied factor affecting adherence. According to attachment theory, people develop generalized internal working models of interpersonal relationships, which shape their perceptions of the availability of others at times of stress and how they handle stressors as an individual. Two dimensions of attachment insecurity are attachment-related avoidance (avoidance of intimacy with others and avoidance of negative emotions) and attachment-related anxiety (feeling unable to deal with stressors without others’ help). For people living with chronic stressful health conditions that require life-long self-management, attachment-related avoidance and attachment-related anxiety may diminish the ability to cope with stressors as an individual leading to negative health outcomes. METHODS: We examined cross-sectional associations of the 2 attachment-related insecurity dimensions with antiretroviral treatment (ART) adherence, HIV visit adherence, CD4 cell counts, and viral suppression. Survey and clinical data from 453 women living with HIV in 4 US cities were analyzed controlling for age, education, income, time on ART, illicit drug use, and race. RESULTS: Attachment-related avoidance was the only unique predictor of suboptimal ART adherence, viral failure, and low CD4 count, and attachment-related anxiety was the only unique predictor of missed HIV care visits. These effects were over and above the effects of all covariates. ART adherence mediated the association of attachment-related avoidance with both viral failure and low CD4 counts.

CONCLUSIONS: Interventions may need to focus on the vulnerable subpopulation with high attachment insecurity and incorporate existing strategies that address insecure attachment models.


PURPOSE OF REVIEW: This theoretical review identifies physiological mechanisms by which violence against women (VAW) may increase women’s susceptibility to HIV through trauma, stress, and immune dysfunction. RECENT FINDINGS: Research documents systemic and local immune responses are related to stress and trauma from abuse across the life course (i.e., childhood, IPV, adulthood re-victimization). Findings are interpreted within a theoretical framework grounded in the Social Stress Theory and the concept of toxic stress, and highlight the current state of the science connecting: (1) VAW to the physiological stress response and immune dysfunction, and (2) the physiological stress response and inflammation to HIV susceptibility and infection in the female reproductive tract. Despite a dearth of research in human subjects, evidence suggests that VAW plays a significant role in creating a physiological environment conducive to HIV infection. We conclude with a discussion of promising future steps for this line of research.
BACKGROUND: Food insecurity and mental health negatively affect the lives of women in the United States. Participants in the Women's Interagency HIV Study (WIHS) provided the opportunity to understand the association of food insecurity with depression and mental well-being over time. OBJECTIVE: We investigated the association between current and persistent food insecurity and depression among women at risk of or living with HIV in the United States. METHODS: We used longitudinal data from the WIHS, a prospective cohort study in women at risk of or living with HIV from multiple sites in the United States. Participants completed 6 semiannual assessments from 2013 to 2016 on food security (FS; high, marginal, low, and very low) and mental health (i.e., depressive symptoms and mental well-being). We used multiple regression analysis to estimate the association between these variables. RESULTS: Among 2551 participants, 44% were food insecure and 35% reported depressive symptoms indicative of probable depression. Current marginal, low, and very low FS were associated with 2.1-, 3.5-, and 5.5-point (all P < 0.001) higher depression scores, respectively. In models adjusting for both current and previous FS, previous marginal, low, and very low FS were associated with 0.2-, 0.93-, and 1.52-point higher scores, respectively (all P < 0.001). Women with very low FS at both time points (persistent food insecurity) had a 6.86-point higher depression score (P < 0.001). In the mental health models, there was a dose-response relation between current FS and worse mental health even when controlling for previous FS (all P < 0.001). Previous low FS was associated with worse mental health. These associations did not differ by HIV status. CONCLUSIONS: Food insecurity placed women at risk of depression and poor mental well-being, but the risk was substantially higher for women experiencing persistent food insecurity.

T1 was added as a control variable. Mediation analysis revealed a significant indirect effect of internalized HIV stigma at T1 on ART adherence at T3 through depression symptoms at T2 (while controlling for depression symptoms and ART adherence at T1; B = -0.05, SE = 0.03, 95% confidence interval [-0.11, -0.006]). CONCLUSION: These results provide strong longitudinal support for the hypothesis that internalized HIV-related stigma results in suboptimal ART adherence in a large sample of women living with HIV in the United States, working through the pathway of increased depression symptoms.


BACKGROUND: Ecological momentary assessments (EMAs) administered via text messaging facilitate real-time data collection. With widespread cell phone access, EMAs are becoming more available to even the most disenfranchised communities, such as those living with HIV. However, structural barriers disproportionately burden young men who have sex with men (MSM) and trans women (TW) living with HIV and threaten participation in HIV research. OBJECTIVE: We aim to identify structural barriers to completing EMA text surveys nested within a digital HIV care intervention for young MSM and TW living with HIV in San Francisco. METHODS: A total of 10,800 EMA text messages were delivered daily over 90 days to 120 participants enrolled in the Health eNav intervention (2017-2018) at the San Francisco Department of Public Health. EMA surveys inquired about participants’ daily affect, sexual behaviors, substance use, and treatment adherence. Survey completion was calculated after 30, 60, and 90 days of follow-up. We described characteristics of nonstarters (those who provided less than four complete responses to the first seven EMA surveys) and analyzed structural correlates of days to first weeklong or more EMA survey noncompletion using multivariable Cox proportional hazards regression. Qualitative interviews were used to evaluate the acceptability of EMA surveys. RESULTS: Participants completed 4384 of 10,800 (40.59%) EMA surveys. Completion of 70% or more of EMA surveys was attained by 56 of 120 participants (46.7%) at 30 days of follow-up, 40/120 (33.3%) at 60 days of follow-up, and 30/120 (25.0%) by the end of the 90-day study period. Twenty-eight participants (23.3%) were identified as nonstarters, and were more likely to be recently incarcerated (prevalence ratio [PR] 2.3, 95% CI 1.3-4.4), forego basic needs for HIV medications (PR 2.4, 95% CI 1.3-4.5), and be diagnosed with HIV in the last year (PR 2.2, 95% CI 1.1-4.1). Adjusting for nonstarters, young MSM and TW living in temporary/transitional housing (adjusted hazard ratio [aHR] 1.8, 95% CI 1.1-3.0), foregoing HIV medications to afford basic needs (aHR 1.7, 95% CI 1.1-2.7), and having less than a college education (aHR 3.5, 95% CI 1.4-9.0) had greater hazard of weeklong or more EMA survey noncompletion. Overall, there was high acceptability of the EMA surveys. CONCLUSIONS: Although access to and use of technology is increasingly ubiquitous, this analysis demonstrates persisting gaps in EMA completion by socioeconomic factors such as incarceration, education level, housing, and competing needs for young MSM and TW living with HIV in San Francisco. Moreover, those recently diagnosed with HIV were more likely to experience an immediate drop-off in completing EMA surveys. EMAs are feasible for individuals not experiencing social inequity and structural barriers. HIV prevention technologies addressing these barriers and leveraging similar methodology may prove effective for young MSM and TW living with HIV.

BACKGROUND: Food insecurity and mental health negatively affect the lives of women in the United States. Participants in the Women's Interagency HIV Study (WIHS) provided the opportunity to understand the association of food insecurity with depression and mental well-being over time. OBJECTIVE: We investigated the association between current and persistent food insecurity and depressed mental health among women living with HIV in the United States, working through the pathway of increased depression symptoms. METHODS: We used longitudinal data from the WIHS, a prospective cohort study in women at risk of or living with HIV from multiple sites in the United States. Participants completed 6 semiannual assessments from 2013 to 2016 on food security (FS; high, marginal, low, and very low) and mental health (i.e., depressive symptoms and mental well-being). We used multiple regression analysis to estimate the association between these variables. RESULTS: Among 2551 participants, 44% were food insecure and 35% reported depressive symptoms indicative of probable depression. Current marginal, low, and very low FS were associated with 2.1-, 3.5-, and 5.5-point (all P < 0.001) higher depression scores, respectively. In models adjusting for both current and previous FS, previous marginal, low, and very low FS were associated with 0.2-, 0.93-, and 1.52-point higher scores, respectively (all P < 0.001). Women with very low FS at both time points (persistent food insecurity) had a 6.86-point higher depression score (P < 0.001). In the mental health models, there was a dose-response relation between current FS and worse mental health even when controlling for previous FS (all P < 0.001). Previous low FS was associated with worse mental health. These associations did not differ by HIV status. CONCLUSIONS: Food insecurity placed women at risk of depression and poor mental well-being, but the risk was substantially higher for women experiencing persistent food insecurity.

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**BACKGROUND AND OBJECTIVE:** Sexually transmitted diseases (STDs) are increasing among older adults concomitant with a rise in divorce after the age of 50 years. The objective of this study was to examine the effectiveness of a web-based human immunodeficiency virus (HIV)/STD risk reduction intervention for divorced and separated women aged more than 50 years.

**RESEARCH DESIGN AND METHODS:** Two hundred nineteen divorced or separated women, aged 50 years and older, participated in 60-day randomized pre-post control group study. Recruitment occurred via health agencies in Boston and Columbia, SC, and Craigslist advertisements placed in Boston, Columbia, Charleston, New York City, Washington DC, Baltimore, Chicago, Atlanta, Orlando, and Miami. **RESULTS:** Intervention group reported greater intention to practice safe sex compared to the control group (B = .55, p = .03). Intention to practice safe sex differed by perceived stress (B = .15, p = .04).

OBJECTIVE: The aim of this study was to investigate the associations of food insecurity with other mental health outcomes. Wells, J. S., et al. (2019). "Knowledge of Anal Cancer, Anal Cancer Screening, and HPV in HIV-Positive and High-Risk HIV-Negative Women." J Cancer Educ.
anxiety disorder (GAD), stress, and posttraumatic stress disorder (PTSD) in the Women's Interagency HIV Study (WIHS), a prospective cohort study of women with or at risk of HIV in the United States. METHODS: Participants were 2553 women with or at risk of HIV, predominantly African American/black (71.6%). Structured questionnaires were conducted during April 2013-March 2016 every 6 mo. Food security (FS) was the primary predictor, measured using the Household Food Security Survey Module. We measured longitudinal outcomes for GAD (GAD-7 score) and a binary GAD-7 screener for moderate-to-severe GAD. Only cross-sectional data were available for outcomes measuring perceived stress (PSS-10 score) and PTSD (PCL-C score and a binary PCL-C screener for PTSD). We examined associations of FS with the outcomes through use of multivariable linear and logistic regression, including lagged associations with GAD outcomes. RESULTS: After adjusting for sociodemographic and health-related factors including HIV serostatus, current marginal, low, and very low FS were associated with increasingly higher GAD-7 scores, and with 1.41 (95% CI: 1.10, 1.80; P < 0.01), 2.03 (95% CI: 1.59, 2.61; P < 0.001), and 3.23 (95% CI: 2.43, 4.29; P < 0.001) times higher odds of screening positive for moderate-to-severe GAD, respectively. Low and very low FS at the previous visit (6 mo earlier) were independently associated with GAD outcomes at current visit. Associations of FS with PSS-10 and PCL-C scores exhibited similar dose-response relations. Very low FS was associated with 1.93 (95% CI: 1.15, 3.24; P < 0.05) times higher odds of screening positive for PTSD. CONCLUSIONS: Food insecurity may be associated with a range of poor mental health outcomes among women in the United States with or at risk of HIV.


BACKGROUND: In the United States, women represent less than 5% of all pre-exposure prophylaxis (PrEP) users. Social networks may promote and/or inhibit women's PrEP awareness, which could influence PrEP intentions. Furthermore, women experiencing intimate partner violence (IPV) may have smaller, less supportive networks, which could deter or have no impact on PrEP care engagement. This study examined associations between network characteristics and women's PrEP awareness, interest, uptake, and perceived candidacy and analyzed IPV as an effect modifier. SETTING/METHODS: From 2017 to 2018, data were collected from a prospective cohort study of 218 PrEP-eligible women with (n = 94) and without (n = 124) IPV experiences in Connecticut. Women completed surveys on demographics, IPV, social networks, and PrEP care continuum outcomes. RESULTS: Adjusted analyses showed that PrEP awareness related to having more PrEP-aware alters. PrEP intentions related to having more alters with favorable opinions of women's potential PrEP use and a smaller network size. Viewing oneself as an appropriate PrEP candidate related to having more PrEP-aware alters and more alters with favorable opinions of women's potential PrEP use. IPV modified associations between network characteristics and PrEP care. Having members who were aware of and/or used PrEP was positively associated with PrEP care engagement for women without IPV experiences but had either no effect or the opposite effect for women experiencing IPV. CONCLUSION: Improving PrEP attitudes might improve its utilization among women. Social network interventions might be one way to increase PrEP uptake among many US women but may not be as effective for women experiencing IPV.


BACKGROUND: Novel, technology-based methods are rapidly increasing in popularity across multiple facets of quantitative research. Qualitative research, however, has been slower to integrate technology into research methodology. One method, computer-mediated communication (CMC), has been utilized to a limited extent for focus group discussions. OBJECTIVE: This study aimed to assess feasibility of an online video conferencing system to further adapt CMC to facilitate synchronous focus group discussions among transgender women living in six cities in eastern and southern United States. METHODS: Between August 2017 and January 2018, focus group discussions with adult transgender women were conducted in English and Spanish by research teams based in Boston, MA, and Baltimore, MD. Participants were sampled from six cities: Baltimore, MD; Boston, MA; New York, NY; Washington, DC; Atlanta, GA; and Miami, FL. This was formative research to inform a technology-enhanced cohort study to assess HIV acquisition among transgender women. This analysis focused on the methodologic use of CMC focus groups conducted synchronously using online software that enabled video or phone discussion. Findings were based on qualitative observations of attendance and study team debriefing on topics of individual, social, technical, and logistical challenges encountered. RESULTS: A total of 41 transgender women from all six cities participated in seven online focus group discussions-five English and two Spanish. There was equal racial distribution of black/African American (14/41, 34%) and white (14/41, 34%) attendees, with 29% (12/41) identifying as Hispanic/Latina ethnicity. Overall, 29 of 70 (41%) eligible and scheduled transgender women failed to attend the focus group discussions.
The most common reason for nonattendance was forgetting or having a scheduling conflict (16/29, 55%). A total of 14% (4/29) reported technical challenges associated with accessing the CMC focus group discussion. CMC focus group discussions were found to facilitate geographic diversity; allow participants to control anonymity and privacy (e.g., use of pseudonyms and option to use video); ease scheduling by eliminating challenges related to travel to a data collection site; and offer flexibility to join via a variety of devices. Challenges encountered were related to overlapping conversations; variable audio quality in cases where Internet or cellular connection was poor; and distribution of incentives (e.g., cash versus gift cards). As with all focus group discussions, establishment of ground rules and employing both a skilled facilitator and a notetaker who could troubleshoot technology issues were critical to the success of CMC focus group discussions.

CONCLUSIONS: Synchronous CMC focus group discussions provide a secure opportunity to convene participants across geographic space with minimal time burden and without losing the standardized approach that is expected of focus group discussions. This method may provide an optimal alternative to engaging hard-to-reach participants in focus group discussions. Participants with limited technological literacy or inconsistent access to a phone and/or cellular data or service, as well as circumstances necessitating immediate cash incentives may, however, require additional support and accommodation when participating in CMC focus group discussions.


**PURPOSE:** The aim of the study was to characterize perceived social support for young men and transgender women who have sex with men (YM/TWSM) taking HIV pre-exposure prophylaxis (PrEP). METHODS: Mixed-methods study of HIV-negative YM/TWSM of color prescribed oral PrEP. Participants completed egocentric network inventories characterizing their social support networks and identifying PrEP adherence support figures. A subset (n = 31) completed semistructured interviews exploring adherence support and qualities of PrEP support figures. We calculated proportions of role types (e.g., family), individuals disclosed to regarding PrEP use, and PrEP-supportive individuals within each participant network. Interviews were analyzed using an inductive approach. RESULTS: Participants (n = 50) were predominately African American men who have sex with men. Median age was 22 years (interquartile range: 20-23). Biologic family were the most common support figures, reported by 75% of participants (mean family proportion .37 [standard deviation (SD): .31]), followed by 67% reporting friends (mean friend proportion .38 [SD: .36]). Most network members were aware (mean disclosed proportion .74 [SD: .31]) and supportive (mean supportive proportion .87 [SD: .28]) of the participants' PrEP use. Nearly all (98%) participants identified >/=1 figure who provided adherence support; more often friends (48%) than family (36%). Participants characterized support as instrumental (e.g., transportation); emotional (e.g., affection); and social interaction (e.g., taking medication together). Key characteristics of PrEP support figures included closeness, dependability, and homophily (alikeness) with respect to sexual orientation. CONCLUSIONS: Although most YM/TWSM identified family in their support networks, friends were most often cited as PrEP adherence support figures. Interventions to increase PrEP adherence should consider integrated social network and family-based approaches.


**BACKGROUND:** Prevalence of osteoporosis and fracture is increased among older people with HIV. We compared the effects of low (1000 IU) vs moderate (3000 IU) vitamin D3 (VitD) supplementation on areal bone mineral density (aBMD) and volumetric bone mineral density (vBMD) in African American and Hispanic postmenopausal women with HIV on antiretroviral therapy. METHODS: We performed a 12-month prospective, randomized, double-blind, placebo-controlled study with primary outcomes of change in aBMD by dual-energy X-ray absorptiometry (DXA) and secondary outcomes of change in vBMD by quantitative computed tomography and bone turnover markers. An intent-to-treat analysis was performed on 85 randomized subjects (43 low and 42 moderate) for primary DXA outcomes, and complete case analysis was performed for secondary outcomes. RESULTS: Mean age was 56 +/- 5 years, median CD4 count was 722 cells/mm, and 74% had HIV RNA </= 50 copies/mL. Serum 25-OHD was higher in the moderate than low VitD group at 6 months (33.1 +/- 10.3 vs 27.8 +/- 8.1 ng/mL, P = 0.03) and 12 months, but parathyroid hormone levels remained similar. Percent change in aBMD, vBMD, and bone turnover markers did not differ between low and moderate VitD groups before or after adjustment for baseline aBMD. CONCLUSIONS: VitD supplementation at 3000 IU daily increased mean total 25-OHD levels in postmenopausal women with HIV, but we did not find evidence of an effect on BMD beyond those observed with 1000 IU daily. Future studies are necessary to determine whether VitD supplementation is beneficial in this patient population, and if so, what dose is optimal for skeletal health.
Human immunodeficiency virus (HIV) imparts increased heart failure risk to women. Among women with HIV (WHIV), immune pathways relating to heart failure precursors may intimate targets for heart failure prevention strategies. Twenty asymptomatic, antiretroviral-treated WHIV and 14 non-HIV-infected women matched on age and body mass index underwent cardiac magnetic resonance imaging and immune phenotyping. WHIV (vs non-HIV-infected women) exhibited increased myocardial fibrosis (extracellular volume fraction, 0.34 +/- 0.06 vs 0.29 +/- 0.04; P = .002), reduced diastolic function (diastolic strain rate, 1.10 +/- 0.23 s-1 vs 1.39 +/- 0.27 s-1; P = .003), and heightened systemic monocyte activation. Among WHIV, soluble CD163 levels correlated with myocardial fibrosis (r = 0.53; P = .02), while circulating inflammatory CD14+CD16+ monocyte CCR2 expression related directly to myocardial fibrosis (r = 0.48; P = .04) and inversely to diastolic function (r = -0.49; P = .03). Clinical Trials Registration. NCT02874703.

OBJECTIVES: Urinary biomarkers of kidney injury may have potential to identify subclinical injury attributable to tenofovir disoproxil fumarate (TDF) toxicity. DESIGN: This observational study included 198 HIV-infected participants from the Multicenter AIDS Cohort Study and the Women's Interagency HIV Study, who initiated TDF between 2009 and 2015 and had urine samples collected at baseline before and after TDF initiation. METHODS: We used linear mixed-effects models controlling for urine creatinine and time on TDF to evaluate the effects of TDF initiation on changes in 14 urinary biomarkers. RESULTS: Within 1 year after TDF initiation, concentrations of trefoil factor 3 (+78%; 95% confidence interval [CI] +38%, +129%), alpha-1 microglobulin (alpha1m) (+32%; 95% CI +13%, +55%), clusterin (+21%; 95% CI +6%, +38%), uromodulin (+19%; 95% CI +4%, +36%), and kidney injury molecule-1 (KIM-1) (+13%; 95% CI +1%, +26%) significantly increased, whereas interleukin-18 (IL-18) significantly decreased (-13%, 95% CI -7%, -25%). Subsequent to the first year of TDF use, biomarker concentrations stabilized, and these changes were not statistically significant. When stratifying by baseline viremia (HIV-1 RNA < vs. >/=80 copies/ml), concentration changes for most biomarkers during the first year of TDF use were greater among aviremic vs. viremic participants, with significant differences in alpha1m (+80 vs. +22%), KIM-1 (+43 vs. +10%), beta-2 microglobulin (+83 vs. -10%), YKL-40 (+33 vs. -5%), and IL-18 (+20 vs. -27%). CONCLUSIONS: TDF initiation was associated with substantial changes in urinary biomarkers of kidney injury within the first year of use, particularly among aviremic participants. A urinary biomarker panel may be a clinically useful tool to detect and monitor the heterogeneous effects of TDF on the kidney.

MECHANISMS - ETIOLOGY - HIV/AGING

Objectives: Identify and describe ocular changes in elderly with HIV or aids through ophthalmological examination. Evaluate the association between ocular alterations and the level of TCD4 lymphocytes, time of antiretroviral therapy, demographic characteristics and age range. Methods: Case series of 40 elderly patients with HIV infection. The study was carried out at the ophthalmology and immunology outpatient clinics of the Gaffré and Guinle University Hospital (HUGG) from January 2017 to June 2018. The patients were attended at the ophthalmology clinic and underwent an ophthalmological exam including: anamnesis, visual acuity, ocular motility, pupillary reflex, biomicroscopy, aplanation tonometry and fundoscopy. Statistical analyses were performed using SPSS 20.0. Results: The average of the 40 patients was 64.7 years (sd: 5.1), aged between 60 and 78 years, and the average time of HIV infection was 16.6 years (sd: 7 years). Most of the patients examined...
had normal vision (55%) and normal intraocular pressure (between 11 and 21 mmHg). The main complaints of patients during anamnesis were visual blurring (50%), visual acuity reduction (47.5%), ocular itchiness (27.5%), tearing (25%) and burning (25%). The most frequent changes in biomicroscopy were: cataract (92.5%) and dry eye (32.5%). Funduscopy found 43.8% of retinal vascularization alterations, 43.8% of alterations related to the optic nerve and 31.3% related to retinal posterior pole. Conclusion: Ocular changes were common and can be explained by senility, inflammatory changes caused by chronic HIV infection, adverse effects of antiretroviral therapy and early biological ageing associated to HIV infection.

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Objetivos: Identificar e descrever as alterações oculares em idosos com HIV ou aids através de exame oftalmológico. Avaliar a associação entre as alterações oculares encontradas e o nível de linfócitos T CD4, tempo da terapia antirretroviral, características demográficas e faixa etária. Métodos: Série de 40 casos de pacientes idosos com HIV examinados nos serviços de oftalmologia e imunologia do Hospital Universitário Gaffré e Guinle (HUGG) de janeiro de 2017 a junho de 2018. Foi realizado o seguinte exame oftalmológico: anamnese, acuidade visual, motilidade ocular, reflexo pupilar, biomicroscopia, tonometria de aplaçãoção e fundoscopia. As análises estatísticas foram realizadas pelo SPSS 20.0. Resultados: A média de idade dos 40 pacientes foi 64,7 anos (dp: 5,1) e o diagnóstico de infecção pelo HIV foi em média há 16.6 anos (dp:7). A maioria dos pacientes examinados possui visão normal (n=22; 55%) e pressão intraocular normal (entre 11 e 21 mmHg). As principais queixas dos pacientes durante a anamnese foram: embaçamento visual (50%), redução da acuidade visual (47.5%), prurido ocular (27.5%), lacrimação (25%) e ardência (25%). As alterações biomicroscópicas mais frequentes foram catarata (92.5%), seguida de olho seco (32.5%). Na fundoscopia encontrou-se 43,8 % de alterações da vascularização retiniana, 43.8 % de alterações relacionadas ao nervo óptico e 31,3% relacionadas ao pólo posterior da retina. Conclusão: Alterações oculares foram comuns e podem ser justificadas pela: senilidade, estado inflamatório gerado pela infecção crônica do HIV, efeitos adversos da Terapia antirretroviral prolongada e senescência biológica precoce associada a infecção do HIV. (Portuguese) [ABSTRACT FROM AUTHOR]

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Human immunodeficiency virus-associated pulmonary arterial hypertension (HIV-PAH) is important to recognize given its association with significant morbidity and mortality. With the introduction of antiretroviral therapy, the focus of disease management has largely shifted from treating immunodeficiency-related opportunistic infections to managing chronic cardiopulmonary complications. Symptoms are nonspecific, and a high index of clinical suspicion is needed to avoid significant delay in the diagnosis of HIV-PAH. Although several viral proteins have been implicated in the pathogenesis of HIV-PAH, the exact mechanism remains uncertain. Further studies are needed to elucidate precise pathogenic mechanisms, early diagnostic tools, and novel therapeutic targets to improve prognosis of this severe complication.


Older adults with HIV are at increased risk of late diagnosis. We aimed to explore the association between age and HIV testing rates in sexual health clinics in England using Public Health England data for 2009-2014. We investigated associations between attendee age and likelihood of HIV test offer, acceptance, and coverage. For each year, increasing age was associated with reduced likelihood of test offer (Rs -0.797 to -0.958, p < 0.01). Offer rates were highest for men who have sex with men (MSM), and lowest for heterosexual females (HSFs). HSFs had the greatest decline in offer rates with age (from 86.2% for age 25-29 to 52.1% for age 70+ in 2014). Odds ratios for test offer in 2014 for attendees aged 15-49 compared with attendees aged 50+ were 1.94 (95%CI: 1.88, 2.00) for heterosexual males (HSMs), 1.86 (95%CI: 1.81, 1.91) for HSFs, and 1.54 (95%CI: 1.45, 1.64) for MSM. Overall, there was no significant association between age and test acceptance in any year (Rs -0.070 to -0.547; p > 0.05). The strongest determinant of acceptance was sexual orientation; for attendees aged 50+, compared with HSMs, acceptance was higher for MSM (OR: 1.10; 95%CI: 1.06, 1.13) and lower for HSFs (OR: 0.30; 95%CI: 0.30, 0.31).
OBJECTIVE: This study tests associations of DNA methylation-based (DNAm) measures of epigenetic age acceleration (EAA) with cross-sectional and longitudinal depressive symptoms in an urban sample of middle-aged adults. METHODS: White and...
Objective: The authors assessed the association of physical function, social variables, functional status, and psychiatric co-morbidity with cognitive function among older HIV-infected adults. DESIGN: From 2012-2014, a cross-sectional study was conducted among HIV-infected patients ages 50 or older who underwent comprehensive clinical assessment (MoCA) in older HIV-infected patients. RESULTS: None of the epigenetic age acceleration measures were associated with total depressive symptom scores at baseline or over time. IEAA - a measure of cellular epigenetic age acceleration irrespective of white blood cell composition - was cross-sectionally associated with decrement in "positive affect" in the total population ($\gamma_{011+/-SE} = -0.090+/-0.030, P=0.003, \text{Cohen's D:} -0.16$) and among Whites ($\gamma_{011+/-SE} = -0.135+/-0.048, P=0.005, \text{Cohen's D:} -0.23$), after correction for multiple testing. Baseline "positive affect" was similarly associated with AgeAccel. LIMITATIONS: Limitations included small sample size, weak-moderate effects and measurement error. CONCLUSIONS: IEAA and AgeAccel, two measures of EAA using Horvath algorithm, were linked to a reduced "positive affect", overall and among Whites. Future studies are needed to replicate our findings and test bi-directional relationships.


Stroke is a heterogeneous disease in persons living with human immunodeficiency virus (HIV). HIV is thought to increase the risk of stroke through both HIV-related and traditional stroke risk factors, which vary with respect to the patient's age and clinical characteristics. Numerous studies show that detectable viremia and immunosuppression increase the risk of stroke across all ages, whereas traditional risk factors are more common in the aging population with HIV. As persons living with HIV age and acquire traditional stroke risk factors, the prevalence of stroke will likely continue to increase. Large- and small-vessel disease are the most common causes of stroke, although it is important to evaluate for infectious etiology as well. Research regarding the management of stroke in patients with HIV is scant, and recommendations often parallel those for the general population. Treatment of HIV and effective reduction of traditional stroke risk factors is important to reduce the risk of stroke in persons living with HIV. Future research will help elucidate the pathophysiology of HIV and stroke risk, investigate sex differences in stroke risk, and evaluate the safety and benefits of standard stroke preventative measures and HIV-specific interventions in this population.


People living with HIV on antiretroviral treatment have significantly improved longevity, but as a result may also face increasing multimorbidity due to aging and long-term medication use. Thus, care needs for this population have evolved to require a chronic disease management approach in which self-management plays a central role. Here we highlight the importance of expanding self-management support options for people living with HIV, and discuss strategies for implementing and evaluating self-management interventions, outlining potential opportunities, challenges and solutions. We contend that standardized programs such as those offered through the Self-Management Resource Centre provide a rich opportunity to build the evidence base regarding the potential effectiveness of self-management support among people living with HIV. Thus we recommend enhancing self-management support through meaningful community-level collaboration with people with lived experience, careful assessment of process and outcome factors including who does not participate and why, attention to stigma and the specific needs of HIV priority groups, and consideration of how to extend engagement with services to address social and material needs beyond self-management program participation. We hope this reflection will serve as an aide for researchers and program managers to improve the array of evidence-based self-management support options available to people living with HIV.


ABSTRACT
Objective: The authors assessed the association of physical function, social variables, functional status, and psychiatric co-morbidity with cognitive function among older HIV-infected adults. DESIGN: From 2012-2014, a cross-sectional study was conducted among HIV-infected patients ages 50 or older who underwent comprehensive clinical
Palm Springs, CA, is a retirement community with the highest prevalence of gay men living with HIV older than 50 years in the United States. Through a community-academic partnership, we explored the major health issues, resiliencies, and priority research topics related to HIV and aging. We conducted five community facilitated focus groups with different demographic, functional and psychiatric variables and their association with cognitive impairment using a Montreal Cognitive Assessment (MoCA) score ≤ 26 as reflective of cognitive impairment. RESULTS: Thirty-four percent of participants had a MoCA score of ≤ 26. In unadjusted analyses, the following variables were significantly associated with an abnormal MoCA score: born female, not identifying as homosexual, non-white race, high school or less educational attainment, annual income ≤ $10,000, tobacco use, slower gait speed, reported problems with balance, and poor social support. In subsequent adjusted analysis, the following variables were significantly associated with an abnormal MoCA score: not identifying as homosexual, non-white race, longer 4-meter walk time, and poor social support. Psychiatric symptoms of depressive, anxiety, and post-traumatic stress disorders did not correlate with abnormal MoCA scores. CONCLUSIONS: Cognitive impairment remains common in older HIV-infected patients. Counter to expectations, co-morbid psychiatric symptoms were not associated with cognitive impairment, suggesting that cognitive impairment in this sample may be due to neurocognitive disorders, not due to other psychiatric illness. The other conditions associated with cognitive impairment in this sample may warrant separate clinical and social interventions to optimize patient outcomes.


CD4-based multi-state back-calculation methods are key for monitoring the HIV epidemic, providing estimates of HIV incidence and diagnosis rates by disentangling their inter-related contribution to the observed surveillance data. This paper, extends existing approaches to age-specific settings, permitting the joint estimation of age- and time-specific incidence and diagnosis rates and the derivation of other epidemiological quantities of interest. This allows the identification of specific age-groups at higher risk of infection, which is crucial in directing public health interventions. We investigate, through simulation studies, the suitability of various bivariate splines for the non-parametric modelling of the latent age- and time-specific incidence and illustrate our method on routinely collected data from the HIV epidemic among gay and bisexual men in England and Wales.


BACKGROUND: Mild cognitive impairment is common in chronic HIV infection and there is concern that it may worsen with age. Distinguishing static impairment from on-going decline is clinically important, but the field lacks well-validated cognitive measures sensitive to decline and feasible for routine clinical use. Measures capable of detecting improvement are also needed to assess interventions. The objective of this study is to estimate the extent of change on repeat administration of three different forms of a brief computerized cognitive assessment battery (B-CAM) developed for assessing cognitive ability in the mildly-impaired to normal range in people living with HIV. We hypothesized no change over a six-month period in people on effective antiretroviral therapy. METHODS: 102 HIV+ individuals completed a set of computerized cognitive tasks on three occasions over a six-month period. Rasch analysis was used to determine if change over time (i.e. improvement due to practice) was uniform across tasks and to refine scoring in order to produce three forms of the B-CAM of equivalent level of difficulty. Group-based trajectory analysis (GBTA) was then applied to determine if performance at baseline influenced the magnitude of practice-related improvement on the battery as a whole over the course of follow-up. RESULTS: Two cognitive tasks (fluency and word recall) had different levels of difficulty across test sessions, related to the different forms of the tasks. These two items were split by testing session. For all other items, the level of difficulty remained constant across all three time points. GBTA showed that the sample was composed of three distinct groups of people with unique trajectories, defined mainly by level of cognitive ability at baseline. Only the highest group showed an apparent improvement over time, but this change fell within measurement error. CONCLUSIONS: Rasch analysis provides mathematical confirmation that these three forms of the B-CAM are of equivalent difficulty. GBTA demonstrates that no adjustment of the total score is required to correct for practice effects. Application of these modern statistical methods paves the way towards rapid and robust quantification of change in cognition.

stakeholders, including two focus groups with older adults living with HIV, one with their caregivers, one with HIV-focused community-based organizations, and a joint focus group with researchers and HIV care providers. Using the rigorous and accelerated data reduction technique, five major themes emerged, which included long-term side effects of medication, social determinants of health, mental health, resiliencies, and involving community in research. These data are important for developing effective interventions, conducting useful and impactful research, and providing health care providers with the tools and knowledge to provide optimal care.


In 2016, 17% of new HIV infections in the US were among adults aged 50 and older. Differences by age, sex, and race/ethnicity exist among older people living with HIV. Co-morbid mental health and substance use disorders (SUD) are also major challenges for this population. This study examined the association between generalized anxiety disorder (GAD), posttraumatic stress disorder (PTSD), SUD, depression, and HIV diagnosis among adults aged 50 and older, and the disparities by age, sex, and race/ethnicity. Data were obtained from Cerner Corporation’s Health Facts(R) database. Multivariable logistic regression models were used to determine the associations between GAD, PTSD, SUD, and depression, and HIV diagnosis. Results were also stratified by age group, sex, and race/ethnicity. Overall, there were positive associations between SUD, depression, GAD, PTSD and HIV; and differences by age, sex and race/ethnicity existed in these associations. For example, after adjusting for age, race/ethnicity and marital status, men who were diagnosed with GAD were 10 times more likely (adjusted OR: 10.3; 95% CI: 8.75 - 12.1) to have an HIV diagnosis compared to men who were not diagnosed with GAD. Women who were diagnosed with GAD were five times more likely (adjusted OR: 5.01; 95% CI: 3.81 - 6.58) to have an HIV diagnosis compared to women who were not diagnosed with GAD. HIV prevention and intervention programs for older adults should address GAD, PTSD, SUD and depression and consider the age, sex and racial/ethnic disparities in the association between psychopathology and HIV.


Introduction: There is a high prevalence of at-risk drinking in the U.S. military. Among HIV-infected individuals, alcohol abuse confers additional risk for adverse health outcomes. In the military, however, the characteristics of HIV-infected individuals who engage in high-risk drinking are not well defined. The purpose of this study was to assess risk factors associated with at-risk drinking in an HIV-positive longitudinal cohort of DoD beneficiaries. Materials and Methods: Annual prevalence of at-risk drinking was calculated for members of the U.S. Military HIV Natural History Study who initiated highly active antiretroviral therapy (HAART) during or after January 2006 through May 2014; each participant completed at least one self-reported alcohol survey within a year of HAART initiation. Univariate and multivariable logistic regression was used to analyze factors associated with at-risk drinking. Results: Sixty-six percent of subjects (495/752) reported at-risk drinking on at least one survey after HAART initiation. At-risk drinkers were more likely to be Active Duty compared to Retired (OR 0.65 95% CI [0.46, 0.92]). In multivariate models, Caucasian race (OR 3.30 95% CI [2.31, 4.71]); Hispanic/other race (OR 2.17 95% CI [1.51, 3.14]) and younger age (OR 0.61 per 10 years older, [95%CI 0.49, 0.75]) were significantly associated with at-risk drinking. Single relationship status (OR 1.51 95% CI [1.08, 2.13]) was also associated with at-risk drinking. Conclusions: Consistent with general alcohol consumption patterns in the military, we found a high prevalence of at-risk drinking among individuals with HIV infection, which was associated most closely with young, non-African Americans. Targeting interventions toward this group will be important to reduce at-risk drinking and its potential for HIV-related complications.


OBJECTIVE(S): To examine the change in physical functional status among persons living with HIV (PLWH) in nursing homes (NHs) and how change varies with age and dementia. DESIGN: Retrospective cohort study. SETTING: NHs in 14 states in the United States. PARTICIPANTS: PLWH who were admitted to NHs between 2001 and 2010 and had stays of >/=90 days (N = 3550). MEASUREMENTS: We linked Medicaid Analytic eXtract (MAX) and Minimum Data Set (MDS) data for NH residents in the sampled states and years and used them to determine HIV infection. The main outcome was improvement in physical functional status, defined as a decrease of at least 4 points in the activities of daily living (ADL) score within 90 days of NH
admission. Independent variables of interest were age and dementia (Alzheimer's disease or other dementia). Multivariate logistic regression was used, adjusting for individual-level covariates. RESULTS: The average age on NH admission of PLWH was 58. Dementia prevalence ranged from 14.5% in the youngest age group (age <40 years) to 38.9% in the oldest group (age >/=70 years). Overall, 44% of the PLWH experienced ADL improvement in NHs. Controlling for covariates, dementia was related to a significantly lower likelihood of ADL improvement among PLWH in the oldest age group only: the adjusted probability of improvement was 40.6% among those without dementia and 29.3% among those with dementia (P < .01).

CONCLUSIONS/RELEVANCE: PLWH, especially younger persons, may be able to improve their ADL function after being admitted into NHs. However, with older age, PLWH with dementia are more physically dependent and vulnerable to deterioration of physical functioning in NHs. More and/or specialized care may be needed to maintain physical functioning among this population. Findings from this study provide NHs with information on care needs of PLWH and inform future research on developing interventions to improve care for PLWH in NHs.


INTRODUCTION: People living with HIV (PLHIV) on antiretroviral therapy (ART) experience high rates of non-communicable diseases (NCDs). These co-morbidities often accumulate and older adults may suffer from multimorbidity. Multimorbidity has been associated with loss of quality of life, polypharmacy, and increased risk of frailty and mortality. Little is known of the trends or predictors NCD multimorbidity in PLHIV in low- and middle-income countries. METHODS: We examined NCD multimorbidity in adult PLHIV initiating ART between 2003 and 2014 using a multi-site, observational cohort in Brazil. NCDs included cardiovascular artery disease, hyperlipidemia (HLD), diabetes, chronic kidney disease, cirrhosis, osteoporosis, osteonecrosis, venous thromboembolism and non-AIDS-defining cancers. Multimorbidity was defined as the incident accumulation of two or more unique NCDs. We used Poisson regression to examine trends and Cox proportional hazard models to examine predictors of multimorbidity. RESULTS: Of the 6206 adults, 332 (5%) developed multimorbidity during the study period. Parallel to the ageing of the cohort, the prevalence of multimorbidity rose from 3% to 11% during the study period. Older age, female sex (adjusted hazard ratio (aHR) = 1.30 (95% confidence interval (CI) 1.03 to 1.65)) and low CD4 nadir (<100 vs. >/=200 cells/mm(3) aHR = 1.52 (95% CI: 1.15 to 2.01)) at cohort entry were significantly associated with increased risk of multimorbidity. Among patients with incident multimorbidity, the most common NCDs were HLD and diabetes; however, osteoporosis was also frequent in women (16 vs. 35% of men and women with multimorbidity...
PURPOSE: The aim was to provide an overview of chronic low-grade inflammatory phenotype (CLIP) and evidence for its role in the pathogenesis of frailty and other chronic conditions as well as potential causative factors and interventions.

METHODS: We reviewed evidence from published clinical and laboratory studies and summarized the opinions of experts from published reviews. FINDINGS: CLIP is a low-grade, systemic, unresolved, and smoldering chronic inflammatory state clearly indicated by a 2- to 4-fold increase in serum levels of inflammatory mediators, such as interleukin-6 and C-reactive protein. It involves many other cellular and molecular inflammatory mediators. CLIP typically occurs during aging, also known as "inflammaging," and is an integral part of the spectrum of immunosenescence. Causative factors likely include persistent viral infections, particularly chronic cytomegalovirus infection, cellular senescence, failure to eliminate degraded materials and waste products, dysregulated microbiota and gut permeability, obesity, and others. Substantial evidence supports CLIP as a powerful contributing factor to frailty and many other chronic conditions and adverse health outcomes. Many of the inflammatory mediators and their regulatory mechanisms in CLIP may serve as potential targets for therapeutic intervention. However, development of new interventional strategies for CLIP and its associated chronic conditions should take the complexity of the inflammatory network into consideration. Nonpharmacologic interventions, such as caloric restriction and exercise, may have significant impact on CLIP and its causative factors, leading to substantial health benefits. Metformin and resveratrol have anti-inflammatory property and may serve as a promising therapeutic agent for treatment of CLIP and frailty. IMPLICATIONS: CLIP is a chronic inflammatory pathophysiologic process that plays an important role in the pathogenesis of frailty and many other chronic conditions. Improving our understanding of this phenotype may provide opportunities to identify potential targets of effective prevention and therapeutic strategies for frailty and other CLIP-associated conditions.

CONCLUSIONS: Among adult PLHIV in Brazil, NCD multimorbidity increased from 2003 to 2014. Females and adults with low CD4 nadir were at increased risk in adjusted analyses. Further studies examining prevention, screening and management of NCDs in PLHIV in low- and middle-income countries are needed.


Here, we aimed to investigate the associations of comorbidities in HIV patients given antiepileptic drugs. HIV patients given antiepileptic drugs for at least 6 months were considered. Comorbidities of the epileptic, HIV-positive patients were stratified according to patients' age and causes of epilepsy. Seventy-four of the 97 HIV patients identified had at least one comorbidity. Patients more than 50-years old had more comorbidities (1.9 +/- 1.5 vs. 1.1 +/- 1.2, p < 0.01) compared with younger subjects. The distribution of the psychiatric disorders was comparable between age-related categories. A marginally significant trend for higher frequency of psychiatric disorders was observed in patients with idiopathic epilepsy versus other causes of epilepsy (43% vs. 24%), Because the presence of comorbid disorders is a major driver for premature mortality both in HIV infection and epilepsy, strategies aimed at favoring prevention, early identification, and adequate treatment in these clinical settings should be pursued at all levels of care.


Kaposi sarcoma (KS) gained public attention as an AIDS-defining malignancy; its appearance on the skin was a highly stigmatizing sign of HIV infection during the height of the AIDS epidemic. The widespread introduction of effective antiretrovirals to control HIV by restoring immunocompetence reduced the prevalence of AIDS-related KS, although KS does occur in individuals with well-controlled HIV infection. KS also presents in individuals without HIV infection in older men (classic KS), in sub-Saharan Africa (endemic KS) and in transplant recipients (iatrogenic KS). The aetiologic agent of KS is KS herpesvirus (KSHV; also known as human herpesvirus-8), and viral proteins can induce KS-associated cellular changes that enable the virus to evade the host immune system and allow the infected cell to survive and proliferate despite viral infection. Currently, most cases of KS occur in sub-Saharan Africa, where KSHV infection is prevalent owing to transmission by saliva in childhood compounded by the ongoing AIDS epidemic. Treatment for early AIDS-related KS in previously untreated patients should start with the control of HIV with antiretrovirals, which frequently results in KS regression. In advanced-stage KS, chemotherapy with pegylated liposomal doxorubicin or paclitaxel is the most common treatment, although it is seldom curative. In sub-Saharan Africa, KS continues to have a poor prognosis. Newer treatments for KS based on the mechanisms of its pathogenesis are being explored.


Sub-Saharan Africa is the region in the world with the most people infected with the human immunodeficiency virus (HIV). The incidence of breast cancer is also rising in the region. This transcript focusses on the burden of these two diseases when they converge in the same populace. This comprehensive literature review of the topic suggests a trend towards an increasing incidence of breast cancer in the HIV-infected population, and the rationale for such a tendency is hypothesized, especially in the context of the availability of highly active antiretroviral therapy. Besides the age at diagnosis, all other clinical characteristics appear to be similar in HIV-positive and HIV-negative breast cancer populations. Outcomes of the different treatment modalities for breast cancer in HIV-positive patients are also appraised and finally innovative areas of future research are suggested along with plausible recommendations.


Advancements in antiretroviral therapy have extended the longevity of people living with HIV (PLWH). However, they often experience symptoms that negatively impact their quality of life, including fatigue, weight change, depression, pain, and memory loss. Although there is a dearth of data on the effect of physical activity (PA) for HIV-associated symptom management, increased PA has generally been associated with improvements in strength and overall quality of life. In this study, we enrolled 40 participants (mean age = 51.5; 40% female; 17.4 mean years living with HIV) and used Omron pedometers to measure daily step counts over 12 weeks. The 20-item HIV Symptom Index was administered at baseline and week 12. Increased PA was not associated with improvement in overall HIV symptom burden. However, bothersome symptoms were reduced, and total symptom burden was highly correlated with PA level at week 12 (r = -.48, p = .01), such that participants with higher step counts reported lower symptom burden. Significant gender differences in symptom burden were noted: males on average reported lower symptom burden. Further research is needed to examine associations between PA and HIV symptom burden and to further explore gender differences in HIV symptom burden to improve overall quality of life for all older PLWH.


Some older adults with human immunodeficiency virus (HIV) experience poor sleep which can worsen cognition. Transcranial direct current stimulation (tDCS) and cognitive training have improved sleep and cognition in studies of older adults; yet, their combined influence is unknown in adults with HIV. Older adults with HIV (n = 33) and without HIV (n = 33) were randomized to receive 10 one-hour sessions of speed of processing (SOP) training with tDCS or sham tDCS over approximately 5 weeks. tDCS with SOP training did not improve sleep. Omitting correction of multiple comparisons for this exploratory pilot study, main effects for HIV (F[1, 59] = 5.26, p = .03, etap(2) = .082) and tDCS (F[1, 59] = 5.16, p = .03, etap(2) = .080) on the Digit Copy Test were detected. A HIV x tDCS interaction was detected on the Letter Comparison Test (F[1, 59] = 5.50, p = .02, etap(2) = .085). Useful Field of View scores improved across all four groups (F[1, 59] = 64.76, p < .001, etap(2) = .523). No significant effects for HIV (F[1, 59] = 1.82, p = .18) and tDCS (F[1, 59] = .01, p = .94) were detected on the Useful Field of View test. While the current study did not show effects of combined tDCS and SOP training on sleep quality, future studies are needed to examine the effects of such interventions on sleep-related cognitive functions among cognitively impaired adults with HIV.


OBJECTIVE: To address the gap in knowledge about HIV risk reduction materials that target older adults. This review offered a comprehensive and rigorous examination of HIV risk reduction education materials that targeted older adults in the United States, assessing the gap in their coverage and content. METHOD: A cross-sectional review of both print and Internet sources from state departments of public health, state and area agencies on aging, and web resources that targeted older populations was performed. RESULTS: Of 29 health departments and 13 state and area agencies on aging that responded to the request, there were 9 HIV education materials identified that targeted older people. Of those materials, only 2 addressed the majority of aging-specific recommendations made from a previous study that described important HIV risk reduction information. DISCUSSION: Recommendations are made about dissemination ideas to increase awareness and utilization of HIV educational materials.


An editorial is presented on the impacts of health related issues to the older adults. Topics discussed include information on the effects of the Medical incidents on older people such as osteoporosis among postmenopausal women, sleep disturbance and women living with HIV and Alzheimer’s disease; discussions on the medical conditions associated with aging such as osteoporosis; and the information on the medical and sociocultural factors impacting the health of older adult women.


OBJECTIVE: To analyze the association between sociodemographic and behavioral factors with the metabolic syndrome in people living with HIV. METHODS: A cross-sectional study was carried out in specialized outpatient clinics in Ribeirao Preto - SP city, between October 2014 and October 2016. The criteria of the National Cholesterol Education Program Adult Treatment Panel III and the International Diabetes Federation were used for the evaluation of metabolic syndrome. Individual interviews were conducted and the Chi-square and Fisher’s exact test was used. RESULTS: 340 patients were evaluated, 28.5% (n=97) with metabolic syndrome by the National Cholesterol Education Program Adult Treatment Panel III criterion, and 39.4% (n=134) by the International Diabetes Federation. There was an association between MS and the variables gender (ATP: p<0.001, IDF: p=0.002), age (ATP: p<0.001, IDF: p<0.001), schooling (ATP: p=0.003, IDF: p=0.003), marital status (ATP: p=0.003, IDF: p=0.022), work status (ATP: p=0.003; IDF: p=0.024), smoking (ATP: p=0.037, IDF: p=0.033) and leisure activities (ATP: p=0.010, IDF: p=0.006). CONCLUSIONS: There are significant associations between the metabolic syndrome, sociodemographic and behavioral factors in people living with HIV.


Astrocytes regulate local cerebral blood flow, maintain ion and neurotransmitter homeostasis, provide metabolic support, regulate synaptic activity, and respond to brain injury, insults, and infection. Because of their abundance, extensive connectivity, and multiple roles in the brain, astrocytes are intimately involved in normal functioning of the CNS and their dysregulation can lead to neuronal dysfunction. In normal aging, decreased biological functioning and reduced cognitive abilities are commonly experienced in individuals free of overt neurological disease. Moreover, in several age-related CNS diseases, chronic inflammation and altered metabolism have been reported. Since people with HIV (PWH) are reported to experience rapid aging with chronic inflammation, altered brain metabolism is likely to be exacerbated. In fact, many studies report altered metabolism in astrocytes in diseases such as Alzheimer’s, Parkinson’s, and HIV. This review will address the roles of astrocyte activation and altered metabolism in normal aging, in age-related CNS disease, and in HIV-associated neurocognitive disorders.

Summary Sarcopenia is a progressive and generalised skeletal muscle disorder involving the accelerated loss of muscle mass and function that is associated with increased adverse outcomes including falls, functional decline, frailty, and mortality. It occurs commonly as an age-related process in older people, influenced not only by contemporaneous risk factors, but also by genetic and lifestyle factors operating across the life course. It can also occur in mid-life in association with a range of conditions. Sarcopenia has become the focus of intense research aiming to translate current knowledge about its pathophysiology into improved diagnosis and treatment, with particular interest in the development of biomarkers, nutritional interventions, and drugs to augment the beneficial effects of resistance exercise. Designing effective preventive strategies that people can apply during their lifetime is of primary concern. Diagnosis, treatment, and prevention of sarcopenia is likely to become part of routine clinical practice.


OBJECTIVES: The management of HIV disease is complicated by the incidence of a new spectrum of comorbid noncommunicable diseases (NCDs). It is important to document changes in the prevalence of NCDs over time. The aim of the study was to describe the impact of ageing on HIV markers and on the prevalence of NCDs in people living with HIV (PLWHIV) in the Italian Cohort of Individuals, Naive for Antiretrovirals (ICONA) seen for care in 2004-2014. METHODS: Analyses were conducted separately for a closed cohort (same people seen at both times) and an open cohort (all people under follow-up). We used the chi(2) test for categorical factors and the Wilcoxon test for quantitative factors to compare profiles over time. RESULTS: The closed cohort included 1517 participants and the open cohort 3668 under follow-up in 2004 and 6679 in 2014. The median age of the open cohort was 41 [interquartile range (IQR) 37-46] years in 2004 and 44 (IQR 36-52) years in 2014. Analysis of the closed cohort showed an increase in the prevalence of some NCDs [the prevalence of dyslipidaemia increased from 75% in 2004 to 91% in 2014, that of hypertension from 67 to 84%, and that of cardiovascular disease (CVD) from 18 to 32%] and a decrease in renal function (5% with eGFR < 60 ml/min per 1.73 m(2) in 2004 versus 30% in 2014); the percentage of people in the high-risk group for the Framingham CHD score more than tripled (from 13 to 45%). Results in the open cohort were similar. CONCLUSIONS: The burden of NCDs in our PLWHIV population markedly worsened over a 10-year time-span, which is likely to be a result of the effects of both ageing and HIV infection as well as their interaction. Special attention must be given to the management and prevention of NCDs.


OBJECTIVES: The key to newer therapeutic and eradication approaches often lies in understanding slow disease progression in HIV infection. The paediatric population has been poorly studied in this regard. We aimed to describe a cohort of perinatally infected long-term nonprogressor (LTNP) children living with HIV in India and to evaluate the immune biomarkers of disease progression. METHODS: LTNPs (ART-naive, with a CD4 count >/= 500 cells/µL at age >/= 7 years) among the cohort of HIV-infected children were identified and monitored longitudinally, and their CD4 T-cell counts and plasma viral loads were measured every 6 months. The plasma monocyte/macrophage activation markers, namely soluble CD14 (sCD14), soluble CD163 (sCD163) and interferon-inducible protein-10 (IP-10) were measured by enzyme-linked immunosorbent assay (ELISA) in LTNPs and progressors. The Mann-Whitney U-test was used to compare the two groups and P values < 0.05 were considered statistically significant. Spearman's rank or Pearson's correlation coefficient (r) was calculated to determine the associations between variables. RESULTS: Among 378 children living with HIV-1 surveyed in our cohort, 40 (10.6%) were LTNPs. Longitudinal analysis of the LTNP data showed that both CD4 count and viral load declined significantly with age (P < 0.0001 for both). Plasma sCD14 levels were significantly (P < 0.005) higher in progressors and sCD163 levels were significantly (P < 0.0001) higher in LTNPs. CONCLUSIONS: The prevalence of LTNPs in our cohort of perinatally infected children living with HIV was 10.6%. We observed a trend for associations between the increasing sCD163 monocyte/macrophage activation marker levels, declining CD4 counts and the gradual loss of nonprogressor status with age in the LTNPs. These findings underscore the need for early antiretroviral therapy in those children with proven slow disease progression.

OBJECTIVE: This study seeks to examine the health disparities of sexual minority older adults. METHOD: We used a probability sample of adults older than 50 years in select U.S. regions from the 2014, 2015, and 2016 Behavioral Risk Factor Surveillance System with administration of the sexual orientation question (n = 350,778). Binary and multinomial logistic regression models were performed to examine health disparities in general health conditions, lifetime chronic health conditions, limitations in activities, substance use, access to care and preventive health behaviors by sexual minority status (straight, gay/lesbian, bisexual, other, and nonresponse), stratified by sex (male vs. female) and age group (50-64 vs. 65+ years). RESULTS: Compared with their straight peers, sexual minority older adults had disparities in some health outcomes, including a higher prevalence of depressive disorder and substance use. However, the disparities were not uniform across gender and age groups. Both men and women sexual minorities had some advantages as well, related to preventive health behaviors (e.g., HIV testing), as compared with their straight peers. Nonrespondents in sexual orientation generally had better health outcomes than their straight peers. CONCLUSIONS: This study identifies health disparities among subgroups of lesbians, gay men, and bisexuals older adults and highlights the need to assess variability related to gender, sexual identity, and age of this high-risk population.


OBJECTIVES: Despite a recent fall in the incidence of HIV within the UK, men who have sex with men (MSM) continue to be disproportionately affected. As biomedical prevention technologies including pre-exposure prophylaxis are increasingly taken up to reduce transmission, the role of HIV testing has become central to the management of risk. Against a background of lower testing rates among older MSM, this study aimed to identify age-related factors influencing recent (<12 months) HIV testing. METHODS: Cross-sectional subpopulation data from an online survey of sexually active MSM in the Celtic nations—Scotland, Wales, Northern Ireland and Ireland (n=2436)—were analysed to compare demographic, behavioural and sociocultural factors influencing HIV testing between MSM aged 16-25 (n=447), 26-45 (n=1092) and >/=46 (n=897). RESULTS: Multivariate logistic regression demonstrated that for men aged >/=46, not identifying as gay (OR 0.62, CI 0.41 to 0.95), location (Wales) (OR 0.49, CI 0.32 to 0.76) and scoring higher on the personalised Stigma Scale (OR 0.97, CI 0.94 to 1.00) significantly reduced the odds for HIV testing in the preceding year. Men aged 26-45 who did not identify as gay (OR 0.61, CI 0.41 to 0.92) were also significantly less likely to have recently tested for HIV. For men aged 16-25, not having a degree (OR 0.48, CI 0.29 to 0.79), location (Republic of Ireland) (OR 0.55, CI 0.32 to 0.76) and scoring higher on emotional competence (OR 0.57, CI 0.42 to 0.77) were also significantly associated with not having recently tested for HIV. CONCLUSION: Key differences in age-related factors influencing HIV testing suggest health improvement interventions should accommodate the wide diversities among MSM populations across the life course. Future research should seek to identify barriers and enablers to HIV testing among the oldest and youngest MSM, with specific focus on education and stigma.


Despite improvements in its treatment, HIV infection continues to affect Blacks disproportionally. Using National HIV Surveillance System data from 50 U.S. states and the District of Columbia, we examined demographic and epidemiologic differences between U.S.-born and non-U.S.-born Black adults. Of 110,452 Black adults reported with diagnosed HIV during 2008-2014 with complete country of birth information, 11.1% were non-U.S.-born. Non-U.S.-born were more likely to be older, female, have HIV infection attributed to heterosexual contact, have been diagnosed late, and live in the northeastern U.S. region. During 2014, the HIV diagnosis rate among African-born Black females was 1.4 times the rate of U.S.-born Black males, 2 times the rate of African-born Black males, and 5.3 times the rate of U.S.-born Black females. We elucidate the differences between U.S.-born and non-U.S.-born Blacks on which to base culturally appropriate HIV-prevention programs and policies.

Background: We aimed to describe the frequency, risk factors, and costs attributable to drug-drug interactions (DDIs) among an aging French HIV population. Methods: We conducted a retrospective cohort study using French nationwide health care e-records: the SNIIRAM database. People living with HIV (PLWH) aged ≥65 years and receiving combined antiretroviral treatment (cART) during 2016 were included. A DDI was defined as "These drugs should not be co-administered," represented by a red symbol on the University of Liverpool website. Attributable DDIs' cost was defined as the difference between individuals with and without DDIs regarding all reimbursed health care acts. Results: Overall, 9076 PLWH met the study criteria. Their baseline characteristics were: mean age, 71.3 +/- 4.9 years; 25% female; median HIV duration (interquartile range [IQR]), 16.2 (9.5-20.3) years; median comorbidities (IQR), 2 (1-3). During 2016, they received a median (IQR) of 14 (9-21) comedications (non-cART), and 1529 individuals had at least 1 DDI (16.8%; 95% confidence interval [CI], 16.1-17.6). In multivariate analysis, raltegravir or dolutegravir plus 2 nucleoside reverse-transcriptase inhibitors (NRTIs) significantly and independently reduced the risk of DDIs (adjusted odds ratio [aOR], 0.02; 95% CI, 0.005-0.050; P < .0001) compared with non-nucleoside reverse-transcriptase inhibitor plus 2 NRTIs, whereas cART with boosted agents (protease inhibitors or elvitegravir) significantly increased the risk (aOR, 4.12; 95% CI, 3.34-5.10; P < .0001). Compared with propensity score-matched PLWH without DDIs, the presence of DDIs was associated with a $2693 additional cost per year (P < .0001). Conclusions: The presence of DDIs is frequent and significantly increases health care costs in the aging population of PLWH.


Background: High-level expression of the Fcgamma receptor, CD32hi, on CD4+ T cells was associated with enhanced human immunodeficiency virus (HIV) infection of the latent reservoir in a study of adults receiving antiretroviral therapy. We tested the hypothesis that CD32 was the preferential marker of the latent HIV reservoir in virally suppressed, perinatally HIV-infected adolescents. Methods: The frequency of CD32hiCD4+ T cells was determined by flow cytometry (N = 5) and the inducible HIV reservoir in both CD32hi and CD32-CD4+ T cells was quantified (N = 4) with a quantitative viral outgrowth assay. Viral outgrowth was measured by the standard p24 enzyme-linked immunosorbent assay and an ultrasensitive p24 assay (Simoa; Quanterix) with lower limits of quantitation. Results: We found a 59.55-fold enrichment in the absolute number of infectious cells in the CD32- population compared with CD32hi cells. Exponential HIV replication occurred exclusively in CD32-CD4+ T cells (mean change, 17.46 pg/mL; P = .04). Induced provirus in CD32hiCD4+ T cells replicated to substantially lower levels, which did not increase significantly over time (mean change, 0.026 pg/mL; P = .23) and were detected only with the Simoa assay. Conclusions: Our data suggests that the latent HIV reservoir resides mainly in CD32-CD4+ T cells in virally suppressed, perinatally HIV-infected adolescents, which has implications for reservoir elimination strategies.
Objective: The goal of the current study was to determine how a set of social cognitive factors predict antiretroviral therapy (ART) medication adherence in youth living with HIV in an era of newer highly active ART medications using a conceptual model. Methods: Behaviorally infected youth living with HIV ages 13-24 (N = 822) from 14 sites within the Adolescent Medicine Trials Unit (AMTU) were included in the study. Structural equation modeling was used to explore predictors of ART medication adherence. Results: Results found that motivational readiness for ART was related to higher ART medication adherence, which was associated with lower viral load. Higher social support and higher self-efficacy had an indirect relationship with higher adherence through increased motivational readiness. Fewer psychological symptoms were associated with higher social support and higher self-efficacy. Lower substance use was directly associated with lower adherence. Conclusions: The results provide insight into factors that may be related to adherence in youth living with HIV. Findings suggest focusing on motivational readiness to increase adherence. Improving the patients' ART self-efficacy and strengthening their social support networks during treatment can increase motivational readiness for ART treatment. Furthermore, programs maybe more effective with the inclusion of risk reduction components especially those related to substance use.


BACKGROUND: The use of combination antiretroviral therapy has led to dramatic improvements in the life expectancy of HIV-infected persons. As result, the HIV population is aging and increasingly facing illnesses typically seen in the elderly, such as chronic kidney disease (CKD). METHODS: A retrospective longitudinal study was conducted using data from years 2010 and 2014 in all HIV-infected persons enrolled at the Spanish VACH cohort. We analyzed the prevalence and the predictive factors for developing CKD (estimated glomerular filtration rate, eGFR<60mL/min/1.73m(2)) in all patients was identified, indicating a cross-over effect from a reduced risk to an increased risk. A significant negative baseline-age-by-WHO-stage interaction effect on progression to CKD in all patients was identified, with adjusted hazard ratios progressively lower at older ages. In addition, there were significant associations with older age, lower baseline eGFR, Dai ethnic minority, and anaemia for both outcomes, hyperglycaemia for CKD only, and higher CD4 count, tenofovir and ritonavir-boosted lopinavir use for mild renal impairment only. CONCLUSIONS: Our data suggest a complex pattern of renal function dynamics in patients on cART, which requires precise management with systematic monitoring of the interaction of the effects of sociodemographic, nephrological and HIV-specific clinical characteristics.


OBJECTIVES: The use of combination antiretroviral therapy (cART) increases clinical uncertainty about changes in renal function. Specifically, little is known regarding the interaction of the effects of aging, baseline renal impairment, and stages of HIV infection on post-treatment changes in renal function. METHODS: This analysis included 5533 HIV-infected patients on cART in 2004-2016. Progression to chronic kidney disease (CKD) was defined as either two consecutive estimated glomerular filtration rate (eGFR) measurements < 60 mL/min/1.73 m(2) for baseline eGFR >/= 60 mL/min/1.73 m(2) (mild renal impairment or normal renal function) or a 25% decline for baseline eGFR < 60 mL/min/1.73 m(2) (mild renal impairment). RESULTS: During follow-up (median 4.8 years), 130 (2.3%) of the patients progressed to CKD. A total of 20.1% of patients with baseline normal renal function progressed to mild renal impairment, while 74.0% of patients with baseline mild or moderate renal impairment improved to normal renal function. In multivariable analysis, a significant positive baseline-eGFR-by-World Health Organization (WHO)-stage interaction effect on progression to CKD in all patients was identified, indicating a cross-over effect from a reduced risk to an increased risk. A significant negative baseline-age-by-WHO-stage interaction effect on progression to mild renal impairment in patients with baseline normal renal function was identified, with adjusted hazard ratios progressively lower at older ages. In addition, there were significant associations with older age, lower baseline eGFR, Dai ethnic minority, and anaemia for both outcomes, hyperglycaemia for CKD only, and higher CD4 count, tenofovir and ritonavir-boosted lopinavir use for mild renal impairment only. CONCLUSIONS: Our data suggest a complex pattern of renal function dynamics in patients on cART, which requires precise management with systematic monitoring of the interaction of the effects of sociodemographic, nephrological and HIV-specific clinical characteristics.

Retroviral Therapy. AIDS Res Hum Retroviruses Edwar, L., et al. (2019). “Factors Affecting the Health of Retinal Vessels in Human Immunodeficiency Virus Patients Beginning Anti-

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Importance: Some opioids are known immunosuppressants; however, the association of prescribed opioids with clinically relevant immune-related outcomes is understudied, especially among people living with HIV. Objective: To assess the association of prescribed opioids with community-acquired pneumonia (CAP) by opioid properties and HIV status. Design, Setting, and Participants: This nested case-control study used data from patients in the Veterans Aging Cohort Study (VACS) from January 1, 2000, through December 31, 2012. Participants in VACS included patients living with and without HIV who received care in Veterans Health Administration (VA) medical centers across the United States. Patients with CAP requiring hospitalization (n = 4246) were matched 1:5 with control individuals without CAP (n = 21146) by age, sex, race/ethnicity, length of observation, and HIV status. Data were analyzed from March 15, 2017, through August 8, 2018. Exposures: Prescribed opioid exposure during the 12 months before the index date was characterized by a composite variable based on timing (none, past, or current); low (<20 mg), medium (20-50 mg), or high (>50 mg) median morphine equivalent daily dose; and opioid immunosuppressive properties (yes vs unknown or no). Main Outcome and Measure: CAP requiring hospitalization based on VA and Centers for Medicare & Medicaid data. Results: Among the 25 392 VACS participants (98.9% male; mean [SD] age, 55 [10] years), current medium doses of opioids with unknown or no immunosuppressive properties (adjusted odds ratio [AOR], 1.35; 95% CI, 1.13-1.62) and immunosuppressive properties (AOR, 2.07; 95% CI, 1.50-2.86) and current high doses of opioids with unknown or no immunosuppressive properties (AOR, 2.07; 95% CI, 1.50-2.86) and immunosuppressive properties (AOR, 3.18; 95% CI, 2.44-4.14) were associated with the greatest CAP risk compared with no prescribed opioids or any past prescribed opioid with no immunosuppressive (AOR, 1.24; 95% CI, 1.09-1.40) and immunosuppressive properties (AOR, 1.42; 95% CI, 1.21-1.67), especially with current receipt of immunosuppressive opioids. In stratified analyses, CAP risk was consistently greater among people living with HIV with current prescribed opioids, especially when prescribed immunosuppressive opioids (eg, AORs for current immunosuppressive opioids with medium dose, 1.76 [95% CI, 1.20-2.57] vs 2.33 [95% CI, 1.60-3.40]). Conclusions and Relevance: Prescribed opioids, especially higher-dose and immunosuppressive opioids, are associated with increased CAP risk among persons with and without HIV.


BACKGROUND: Sociometer theory posits that self-esteem is a subjective monitor of the quality of one’s interpersonal relationships. When people feel excluded by others, they may have negative relational evaluation about themselves-low self-esteem. In the present study, we hypothesised and tested that feelings of loneliness among children and adolescents affected by parental HIV would decrease their self-esteem over time; moreover, low self-esteem would intensify feelings of loneliness. METHODS: We utilised longitudinal data from a sample of children and adolescents affected by parental HIV to estimate the reciprocal effects between self-esteem and loneliness over time. The sample included 195 children and early adolescents affected by parental HIV (age range 7-15, Mage = 10.62, 82 females) who served as a control group in a large intervention study on psychological well-being. Seven waves of longitudinal panel data were collected from participants in three years. RESULTS: In cross-lagged panel models that tested the reciprocal effects of loneliness and self-esteem, loneliness predicted decreased levels of self-esteem over time; in addition, low self-esteem predicted increased levels of loneliness over time. CONCLUSIONS: These findings support sociometer theory and suggest that loneliness is a risk factor for children's and adolescents' self-esteem. The implications for improving vulnerable children's and adolescents' psychological well-being are discussed.


HIV patients responding to antiretroviral therapy (ART) have a high burden of cytomegalovirus (CMV) and display accelerated cardiovascular change assessed systemically. We assessed the effects of HIV, ART and CMV on retinal artery calibers (RAC), as a non-invasive measure of vasculopathy in HIV patients beginning ART. We analysed 79 HIV patients beginning ART in Jakarta, Indonesia, with a median (range) age of 31 (19-48) years. RAC was assessed using Image J software from fundus photos of both eyes, before ART (V0) and after 3-12 months (V3-V12). CMV DNA and antibodies were assessed. Systemic vascular pathology was assessed by carotid intima media thickness (cIMT). Multivariable models assessed which variables best predicted RAC values at V12. HIV patients had narrower retinal arteries and higher levels of
OBJECTIVE: This study examines whether disparities exist in poor health and depressive symptomatology among older gay/bisexual men (50+) with (n = 371) and without (n = 973) HIV. If so, what risk/promoting factors account for those disparities? METHOD: These cross-sectional analyses used 2014 data from the Aging With Pride: National Health, Aging, and Sexuality/Gender Study. RESULTS: Those with HIV reported poorer health and more depressive symptomatology accounted


The objective of the study was to examine additive and synergistic effects of age and HIV infection on resting state (RS) intra- and inter-network functional connectivity (FC) of the brain. We also aimed to assess relationships with neurocognition and determine clinical-, treatment-, and health-related factors moderating intrinsic brain activity in aging HIV-positive (HIV+) individuals. The current report presents data on 54 HIV+ individuals (age M=41, SD=12years) stabilized on cART and 54 socio-demographically matched healthy (HIV-) comparators (age M=43, SD=12years), with cohort education mean of 16years (SD=12). Age at seroconversion ranged 20-55years old. ANOVA assessed additive and synergistic effects of age and HIV in 133 ROIs. Bivariate statistics examined relationships of FC indices vulnerable to age-HIV interactions and neurocognitive domains T-scores (attention, executive, memory, psychomotor, semantic skills). Multivariate logistic models determined covariates of FC. This study found no statistically significant age-HIV effects on RS-FC after correcting for multiple comparisons except for synergistic effects on connectivity within cingulo-opercular network (CON) at the trending level. However, for uncorrected RS connectivity analyses, we observed HIV-related strengthening between regions of fronto-parietal network (FPN) and default mode network (DMN), and particular DMN regions and sensorimotor network (SMN). Simultaneously, FC weakening was observed within FPN and between other regions of DMN-SMN, in HIV+ vs. HIV- individuals. Ten ROI pairs revealed age-HIV interactions, with FC decreasing with age in HIV+, while increasing in controls. FC correlated with particular cognitive domains positively in HIV+ vs. negatively in HIV- group. Proportion of life prior-to-after HIV-seroconversion, post-infection years, and treatment determined within-FPN and SMN-DMN FC. In sum, highly functioning HIV+/cART+ patients do not reveal significantly altered RS-FC from healthy comparators. Nonetheless, the current findings uncorrected for multiple comparisons suggest that HIV infection may lead to simultaneous increases and decreases in FC in distinct brain regions even in patients successfully stabilized on cART. Moreover, RS-fMRI ROI-based analysis can be sensitive to age-HIV interactions, which are especially pronounced for inter-network FC in relation to neurocognition. Aging and treatment-related factors partially explain RS-FC in aging HIV+ patients.


Latent HIV reservoir is the main obstacle that prevents a cure for HIV-1 (HIV). While antiretroviral therapy is effective in controlling viral replication, it cannot eliminate latent HIV reservoirs in patients. Several strategies have been proposed to combat HIV latency, including bone marrow transplantation to replace blood cells with CCR5-mutated stem cells, gene editing to disrupt the HIV genome, and "Shock and Kill" to reactivate latent HIV followed by an immune clearance. However, high risks and limitations to scale-up in clinics, off-target effects in human genomes or failure to reduce reservoir sizes in patients hampered our current efforts to achieve an HIV cure. This necessitates alternative strategies to control the latent HIV reservoirs. This review will discuss an emerging strategy aimed to deeply silence HIV reservoirs, the development of this concept, its potential and caveats for HIV remission/cure, and prospective directions for silencing the latent HIV, thereby preventing viruses from rebound.


OBJECTIVE: This study examines whether disparities exist in poor health and depressive symptomatology among older gay/bisexual men (50+) with (n = 371) and without (n = 973) HIV. If so, what risk/promoting factors account for those disparities? METHOD: These cross-sectional analyses used 2014 data from the Aging With Pride: National Health, Aging, and Sexuality/Gender Study. RESULTS: Those with HIV reported poorer health and more depressive symptomatology accounted

According to Joint United Nations Programme on HIV/AIDS (UNAIDS) data, 36.9 million people are living with HIV worldwide. Older adults, those aged 50 years and older, with HIV are increasing worldwide; however, the prevalence and incidence differ substantially across regions. The purpose of this article is to provide an overview of how HIV is impacting older adults globally, with a focus on sexual and gender minority older adults. The article is organized using the eight geographical regions from UNAIDS, with information on the prevalence and incidence among older adults. Among sexual and gender minority older adults, key risks are identified, including laws that criminalize same-sex relationships; issues of stigma and fear; and the concomitant lack of access and barriers to HIV testing, treatment, and prevention. Progress within each region toward the UNAIDS 90-90-90 targets is included, and suggestions for future directions of research and service delivery are made.


The current study examined the association between perceived social support, depressive symptoms and alcohol use among people living with HIV (PLWH) 50 and older who identified as Black. Participants included 96 men and women ages 50 and older. Participants completed an interviewer-administered assessment examining mental and behavioral health functioning. Mediation analyses examined whether perceived support mediated the association between depressive symptoms and hazardous drinking. Depressive symptoms were significantly associated with hazardous drinking (B = .068, SE = .035, t = 1.92, p = 0.05) and negatively associated with having the desired amount of contact with a primary supporter (B = -.072, SE = .018, z = -3.96, p < 0.001). In addition, having the desired amount of contact with a confidant was negatively associated with hazardous drinking (B = -.543, SE = .208, t = -2.61, p < .01). The effect of depressive symptoms on hazardous drinking when controlling for having adequate contact with a primary supporter was not significant (B = .033, SE = .04, t = .829, p = 0.41). Having a valued confidant mediated the association between depressive symptoms and hazardous drinking. Thus, social support interventions may be an effective method of reducing hazardous drinking among older PLWH.


BACKGROUND: Falls and fall risk factors are common among people living with HIV (PLWH). We sought to identify fall risk factors among men with and without HIV. METHODS: Men aged 50-75 years with (n = 279) and without HIV (n = 379) from the Bone Strength Substudy of the Multicenter AIDS Cohort Study were included. Multinomial logistic regression models identified risk factors associated with falling. RESULTS: One hundred fourteen (41%) PLWH and 149 (39%) of uninfected men had >/=1 fall; 54 (20%) PLWH and 66 (17%) of uninfected men experienced >/=2 falls over 2 years. Five and 3% of PLWH and uninfected men, respectively, had a fall-related fracture (P = 0.34). In multivariate models, the odds of >/=2 falls were greater among men reporting illicit drug use, taking diabetes or depression medications, and with peripheral neuropathy; obesity was associated with a lower risk (all P < 0.05). In models restricted to PLWH, detectable plasma HIV-1 RNA, current use of efavirenz or diabetes medications, illicit drug use, and peripheral neuropathy were associated with greater odds of having >/=2 falls (P < 0.05). Current efavirenz use was associated with increased odds of an injurious fall; longer duration of antiretroviral therapy was protective (both P < 0.05). Greater physical activity was associated with lower risk of falls with fracture (P < 0.05). CONCLUSIONS: Identified risk factors for recurrent falls or fall with fracture included low physical activity, detectable HIV-1 RNA, use of efavirenz, or use of medications to treat diabetes and depression. Fall risk reduction should prioritize interventions targeting modifiable risk factors including increased physical activity, antiretroviral therapy adherence, and transition off efavirenz.
Engagement in care is a key component of the HIV treatment cascade and is influenced by biopsychosocial factors. Little is known about the association of health literacy with this impactful outcome in people living with HIV (PLWH). Ninety-five PLWH completed a comprehensive battery including health literacy measures covering several domains (i.e., numeracy, reading, self-efficacy, and ability to appraise and access health information). Engagement in care was operationalized as missed clinic visits (i.e., proportion of clinic visits in the prior 24 months where the participant did not attend and did not cancel or reschedule). The ability to appraise health information (measured by the Newest Vital Sign [NVS]) was the only significant health literacy predictor of missed clinic visits. Hierarchical linear regression including clinico-demographics and all health literacy variables showed that age, depression, neurocognition, and NVS were significant ($p < 0.05$) correlates of missed clinic visits. The ability to appraise health information was a strong and independent predictor of missed clinic visits in PLWH, even in the context of traditional correlates. Such measures may be useful in identifying PLWH with low health literacy who may be at risk for poorer engagement in care. Future research developing interventions targeting this health literacy dimension are warranted.
HIV may pose additional risk to achieving SFA. Further work should examine other mechanisms whereby HIV hinders SFA (e.g., biomarkers, stress, mental health) and ultimately inform interventions to facilitate SFA.


The field of HIV/STI prevention has primarily focused on gay men (or "men who have sex with men" [MSM] as a broad category) with limited attention to bisexual men in particular. Although bisexual men are also at increased risk for HIV and other STI, they are less likely to utilize HIV/STI prevention services than gay men, and very few interventions have been developed to address their unique needs. Further, while biomedical advances are changing the field of HIV prevention, bisexual men are also less likely to use biomedical HIV prevention strategies (e.g., pre-exposure prophylaxis [PrEP]) than gay men. In an effort to advance research on bisexual men and their sexual health needs, the goals of this commentary are: (1) to review the empirical literature on the prevalence of HIV/STI among bisexual men, the few existing HIV/STI prevention interventions developed for bisexual men, and the use of biomedical HIV prevention among bisexual men; (2) to describe the ways in which the field of HIV/STI prevention has largely overlooked bisexual men as a population in need of targeted services; and (3) to discuss how researchers can better address the sexual health needs of bisexual men in the age of biomedical HIV prevention.


The increased prevalence of type 2 diabetes mellitus (T2DM) and life expectancy of diabetic patients fosters the worldwide prevalence of retinopathy and nephropathy, two major microvascular complications that have been difficult to treat with contemporary glucose-lowering medications. The gut microbiota (GM) has become a lively field research in the last years; there is a growing recognition that altered intestinal microbiota composition and function can directly impact the phenomenon of ageing and age-related disorders. In fact, human GM, envisaged as a potential source of novel therapeutics, strongly modulates host immunity and metabolism. It is now clear that gut dysbiosis and their products (e.g. p-cresyl sulfate, trimethylamineNoxide) dictate a secretory associated senescence phenotype and chronic low-grade inflammation, features shared in the physiological process of ageing ("inflamming") as well as in T2DM ("metaflamming") and in its microvascular complications. This review provides an in-depth look on the crosstalk between GM, host immunity and metabolism. Further, it characterizes human GM signatures of elderly and T2DM patients. Finally, a comprehensive scrutiny of recent molecular findings (e.g. epigenetic changes) underlying causal relationships between GM dysbiosis and diabetic retinopathy/nephropathy complications is pinpointed, with the ultimate goal to unravel potential pathophysiological mechanisms that may be explored, in a near future, as personalized disease-modifying therapeutic approaches.


Persons with HIV (PWH) are aging. The impact of aging on healthcare utilization is unknown. The objective of this study was to evaluate hospitalization rates and reasons stratified by age among PWH in longitudinal HIV care. Hospitalization data from 2014-2015 was obtained on all adults receiving HIV care at 14 diverse sites within the HIV Research Network in the United States. Modified clinical classification software from the Agency for Healthcare Research and Quality assigned primary ICD-9 codes into diagnostic categories. Analysis performed with multivariate negative binomial regression. Among 20,608 subjects during 2014-2015, all cause hospitalization rate was 201/1000PY. Non-AIDS defining infection (non-ADI) was the leading cause for admission (44.2/1000PY), followed by cardiovascular disease (CVD) (21.2/1000PY). In multivariate analysis of all-cause admissions, the incidence rate ratio (aIRR) increased with older age (age 18-29 reference): age 30-39 aIRR 1.09 (0.90,1.32), age 40-49 1.38 (1.16,1.63), age 50-59 1.58 (1.33,1.87), and age >/= 60 2.14 (1.77,2.59). Hospitalization rates increased significantly with age for CVD, endocrine, renal, pulmonary, and oncology. All cause hospitalization rates increased with older age, especially among non-communicable diseases (NCDs), while non-ADIs remained the leading cause for hospitalization. HIV providers should be comfortable screening for and treating NCDs.

BACKGROUND/OBJECTIVES: Individuals with HIV are susceptible to visceral fat accumulation, which confers an increased risk of cardiometabolic disease. Advanced software to ascertain visceral fat content from dual-energy X-ray absorptiometry (DXA) has not been validated among this population. We sought to compare DXA with computed tomography (CT) in the measurement of visceral fat cross-sectional area (VAT) in HIV and non-HIV using Bland-Altman analyses.

SUBJECTS/METHODS: Data were combined from five previously conducted studies of individuals with HIV (n = 313) and controls without HIV (n = 144) in which paired DXA and CT scans were available. In cross-sectional analyses, DXA-VAT was compared with CT-VAT among participants with and without HIV. In longitudinal analyses, changes in VAT over time were compared between DXA and CT among participants with and without HIV receiving no intervention over 12 months and among individuals with HIV receiving tesamorelin—a medication known to reduce VAT over 6 months. RESULTS: In HIV, DXA underestimated VAT compared with CT among individuals with increased visceral adiposity. The measurement bias was -9 +/- 47 cm(2) overall, but became progressively larger with greater VAT (P < 0.0001), e.g., -61 +/- 58 cm(2) among those with VAT >/= 200 cm(2). Sex-stratified analyses revealed that the relationship between VAT and measurement bias was especially pronounced in men (P < 0.0001). Longitudinally, DXA underestimated changes in VAT, particularly among those at the extremes of VAT gain or loss (P < 0.0001). In contrast to the cross-sectional findings, the tendency for DXA to underestimate longitudinal changes in VAT was evident in both men and women. Analogous findings were seen among controls in cross-sectional and longitudinal analyses. CONCLUSIONS: DXA underestimated VAT relative to CT in men with and without HIV, who had increased visceral adiposity. DXA also underestimated changes in VAT over time in men and women, irrespective of HIV status. DXA-VAT should be used with caution among both HIV and non-HIV-infected populations.


OBJECTIVES: The aim of the study was to carry out a comparison of the safety and efficacy of dolutegravir-based regimens among age groups of HIV-1-infected paediatric and young adult patients. PATIENTS AND METHODS: This retrospective monocentric study included 109 patients infected since childhood who began receiving dolutegravir between January 2014 and December 2017. The patients were divided into three groups according to age at the time of dolutegravir initiation: 5-11, 12-17 and 18-25 years old. The primary endpoint was the proportion of patients achieving a plasma viral load (PVL) < 50 HIV-1 RNA copies/mL within 3 months of dolutegravir initiation (for patients with detectable viraemia at baseline), and maintaining virological suppression (PVL < 50 copies/mL) until the last follow-up visit (for all patients). RESULTS: Most of the subjects were antiretroviral-experienced (91.7%) and virologically suppressed at baseline (66.7%, 54.9% and 56.0% in the 5-11, 12-17 and 18-25 year age groups, respectively). Median follow-up was 24 months (range 6-54 months). Sustained virological success throughout follow-up was observed in 79.8% of patients, with similar rates among age groups (87.9%, 72.5% and 84.0%, respectively; P = 0.22). With reinforced measures to improve adherence, undetectable PVL was obtained at the last visit in 88.1% of patients, with similar proportions among age groups (93.9%, 84.3% and 88.0%, respectively; P = 0.51). No emergence of resistance mutations was observed in the 22 patients with virological failure. Dolutegravir was well tolerated; only one patient stopped treatment for severe drug-related side effects. CONCLUSIONS: The virological efficacy and safety of dolutegravir were similar among the three age groups. Because of its high genetic barrier to resistance, dolutegravir could be especially useful in the paediatric population, in which the risk of poor treatment adherence is high.


Impaired immunity is a common symptom of aging and advanced Human Immunodeficiency Virus type 1 (HIV-1) disease. In both diseases, a decline in lymphocytic function and cellularity leads to ineffective adaptive immune responses to opportunistic infections and vaccinations. Furthermore, despite sustained myeloid cellularity there is a background of chronic immune activation and a decrease in innate immune function in aging. In HIV-1 disease, myeloid cellularity is often more skewed than in normal aging, but similar chronic activation and innate immune dysfunction typically arise. Similarities between aging and HIV-1 infection have led to several investigations into HIV-1-mediated aging of the immune system. In this article, we review various studies that report alterations of leukocyte number and function during aging, and compare those alterations with those observed during progressive HIV-1 disease. We pay particular attention to changes within lymphoid tissue microenvironments and how histoarchitectural changes seen in these two diseases affect immunity. As we review various immune compartments including peripheral blood as well as primary and secondary lymphoid organs, common themes arise that help explain the decline of immunity in the elderly and in HIV-1-infected individuals with advanced disease. In both conditions, lymphoid tissues often show signs of histoarchitectural deterioration through fat...
accumulation and/or fibrosis. These structural changes can be attributed to a loss of communication between leukocytes and the surrounding stromal cells that produce the extracellular matrix components and growth factors necessary for cell migration, cell proliferation, and lymphoid tissue function. Despite the common general impairment of immunity in aging and HIV-1 progression, deterioration of immunity is caused by distinct mechanisms at the cellular and tissue levels in these two diseases.


HIV-positive patients are treated with various antiretroviral-containing drug combinations to control their underlying disease, which may also be combined with drugs aimed to manage independent or secondary comorbidities. This can expose patients to drug-drug interactions (DDIs) that may lead to suboptimal drug exposure, an increased risk of therapeutic failure or poor tolerability, and a need to adopt alternative therapeutic strategies. Although such undesired responses to pharmacological therapies can be appropriately managed in some situations, the fact that the available information is usually incomplete which makes it difficult (if not impossible) to assess DDIs and the consequent adjustments of polytherapies in clinical practice. For these reasons, we set up our ambulatory polytherapy management (Gestione Ambulatoriale Politerapie [GAP]) outpatient clinic in September 2016 to manage polypharmacy in HIV-infected patients. The main aims of the GAP clinic are to check whether patients are treated with drug combinations that are contraindicated due to known or predictable DDIs; assess the clinical and/or pharmacokinetic relevance of the DDIs; and provide written advice as to how the treatments should be modified if possible. We here describe the results of our 2-year experience in various clinical scenarios.


BACKGROUND: The study of stool microbiota has taken great relevance in the last years, given its role in the maintenance of the intestinal metabolic, physiological, and immunological homeostasis, as well as, its effect over HIV biomarkers levels such as CD4/CD8 ratio, high sensitivity C-Reactive Protein (hs-CRP), related to poor outcomes (rapid progression to AIDS). Several efforts have been made to characterize the gut microbiome. In HIV infection, most of the studies report the presence of a dysbiotic pattern; however, few of them have made an approach in elderly HIV-positive subjects despite the fact that nowadays this subgroup is rising. In this study, we compared the composition of faecal microbiota, Short Chain Fatty Acids (SCFAs), and systemic biomarkers between elderly HIV-positive and HIV-negative subjects. METHODS: A cross-sectional study with 18 HIV-negative controls and 20 HIV-positive patients. The quantification of Bacteroidetes, Firmicutes, Proteobacteria, Actinobacteria, Lactobacillus, Enterobacteriaceae, Bifidobacterium, Escherichia coli, Clostridium leptum, Clostridium cocoides was performed in faecal samples by qPCR. The analysis was performed by calculating the DeltaCq of each microorganism using 16S rDNA as a reference gene. Faecal SCFAs were measured by HPLC. The hs-CRP and sCD14 were performed by ELISA. RESULTS: An increase in the Firmicutes/Bacteroidetes ratio, coupled with a significant increase in the proteobacteria phylum was detected in HIV-positive subjects. In contrast, a decrease in the Clostridium leptum group was observed. Nevertheless, these elderly HIV-positive patients showed higher levels of total SCFAs mainly by an augmented propionic acid values, compared to HIV-negative subjects. Whereas high levels of hs-CRP were positively correlated with sCD14 in the HIV-positive group. CONCLUSIONS: Alterations in bacterial communities reveals a dysbiotic state related to an unbalance of faecal SCFAs. Therefore, these intestinal conditions might drive an increase of poor prognostic biomarkers in elderly HIV-positive subjects.


INTRODUCTION: Understanding the intersection of HIV, aging and health is crucial due to the increasing number of people aging with HIV. OBJECTIVE: The objective of the study was to assess the prevalence of, and risk factors for individual comorbidities and multi-morbidity in people living with HIV with similar duration of HIV infection, notwithstanding a 25-year difference at the time of HIV acquisition. METHODS: In a cross-sectional multicentre retrospective study, we compared three match-control age groups. The "Young" were selected from Romania and included HIV-positive patients prenatally infected and assessed at the age of 25-30 years. The "Old" and the "Geriatric" were selected from Italy. These respectively included subjects infected with HIV at the age of 25 years and assessed at the age of 50-55 years, and those infected at the age of 50 years and assessed at the age of 75-80 years. Each group was sex and age matched in a 1:5 ratio with controls selected from the CINECA ARNO database from Italy. We described non-infectious comorbidities (NICM), including cardiovascular disease, hypertension, dyslipidaemia, diabetes, chronic kidney disease, and multi-morbidity (MM). RESULTS: MM prevalence in the "Young" group compared to controls was 6.2% vs 0%, while in the "Geriatric" was 68.2% vs 3.6%. Using "Young" as a reference, in multivariate analyses, predictors for MM were as follows: HIV serostatus (OR=47.75, IQR 14.78-154.25, p<0.01) and "Geriatric" vs "Young" (OR=30.32, IQR 5.89-155.98, p<0.01). CONCLUSION: These data suggest that age at acquisition of HIV should be considered as a risk factor for NICM and MM.

PURPOSE OF REVIEW: This review points out unmet medical needs and open research questions of older adults living with HIV. Starting from the definition of aging in HIV, it explores the mosaic of this condition at epidemiological, pathophysiological, and clinical level. Antiretroviral management and diverse models of care are critically discussed.

RECENT FINDINGS: Aging cohorts suggest HIV as a paradigm of chronic inflammation and immune activation with specific aging trajectory patterns in which antiretroviral therapy may play a role. In the absence of randomized clinical trials, observational cohorts show that therapy is driven by duration of HIV infection and burden of non-infectious comorbidities. This review suggests that geriatric approach should be used to recognize the complexity of aging goes beyond the viro-immunological success and management of progressive accumulation of non-communicable diseases. This requires recognition of frailty and geriatric syndromes to stratify patients' diversity by using comprehensive geriatric assessment tools.

Aim: The objective of this paper is to critically discuss potential new outcomes to be used as a measure of success for people living with HIV (PLWH) both in clinical and research settings. Findings: This review critically discusses epidemiological, clinical, patient reported and public health outcomes in older adults living with HIV beyond the viro-immunological success. They include health adjusted life expectancy (HALE), frailty, health related quality of life (HRQoL), intrinsic capacity, all of which capture important aspects of the complexity of aging with HIV. Message: HIV outcomes should go beyond viral undetectability, and be patient-centred. Abstract: In the short time frame of 30 years, HIV research has been able to modify AIDS from a rapidly progressive disease leading inevitably to death to a chronic condition. Even more, the health status of people living with HIV (PLWH) has significantly improved reducing the burden of symptoms and improving quality of life (QoL). After introduction of the UNAIDS agenda on the "90-90-90 targets", it remains unclear what should be the next target in HIV care and research. The objective of this paper is to critically discuss potential new outcomes to be used as a
We assessed whether HIV status was associated with white matter hyperintensities (WMH), a neuroimaging correlate of cerebral small vessel disease (CSVD), in men aged >/=50 years. A cross-sectional substudy was nested within a larger cohort study. Virologically suppressed men living with HIV (MLWH) and demographically matched HIV-negative men aged >/=50 underwent magnetic resonance imaging (MRI) at 3 Tesla. Sequences included volumetric three-dimensional (3D) T1-weighted, fluid-attenuated inversion recovery and pseudocontinuous arterial spin labeling. Regional segmentation by automated image processing algorithms was used to extract WMH volume (WMHV) and resting cerebral blood flow (CBF).

The association between HIV status and WMHV as a proportion of intracranial volume (ICV; log-transformed) was estimated using a multivariable linear regression model. Thirty-eight MLWH [median age 59 years (interquartile range, IQR 55-64)] and 37 HIV-negative [median 58 years (54-63)] men were analyzed. MLWH had median CD4(+) count 570 (470-700) cells/μL and a median time since diagnosis of 20 (14-24) years. Framingham 10-year risk of cardiovascular disease was 6.5% in MLWH and 7.4% in controls. Two (5%) MLWH reported a history of stroke or transient ischemic attack and five (13%) reported coronary heart disease compared with none of the controls. The total WMHV in MLWH was 1,696 μL (IQR 1,229-3,268 μL) or 0.10% of ICV compared with 1,627 μL (IQR 1,032-3,077 μL), also 0.10% of ICV in the HIV-negative group (p = .43). In the multivariable model, WMHV/ICV was not associated with HIV status (p = .86). There was an age-
dependent decline in cortical CBF [-3.9 mL/100 mL/min per decade of life (95% confidence interval 1.1-6.7 mL)] but no association between CBF and HIV status (p > .2 in all brain regions analyzed). In conclusion, we found no quantitative MRI evidence of an increased burden of CSVD in MLWH aged 50 years and older.


BACKGROUND: Among older men, comparable cross-cultural investigations of sexual problems and associated distress that also include a multitude of relevant explanatory variables of these sexual problem and related distress are rare in the research literature. AIMS: To investigate prevalence rates of sexual problems and associated distress among older men across 4 European countries (Norway, Denmark, Belgium, and Portugal) and assess for associated mental and physical health-related factors. METHODS: Multinational cross-sectional questionnaire study using self-report measures.

OUTCOMES: Prevalence rates of sexual problems and associated distress levels. RESULTS: We found a high prevalence of sexual problems persisting for months or longer across countries, but noted that many affected men experienced minimal or no distress related to these problems. We also found marked cross-cultural differences in reported distress about sexual problems, with southern European men (ie Portugal) reporting significantly more distress related to the majority of sexual problems investigated compared with northern European men (ie Denmark and Norway). Finally, we identified several relational, physical, and mental health problems associated with the reported number of sexual problems and the distress related to these problems. CLINICAL IMPLICATIONS: We suggest that healthcare professionals also target distress when considering sexual problems among older men and contextualize these considerations within a multifactorial approach to general health in which (other) mental and physical health factors relevant to these patients' sexual health and function are also jointly considered. STRENGTHS & LIMITATIONS: Strengths of this study include the large sample size, inclusion of participants from 4 European countries, assessment of distress associated with sexual problems, and similar research design and method of data collection across the 4 included countries. Limitations of the study include the cross-sectional design, which precludes causal conclusions; the low response rate in the Portuguese sample; the lack of homosexual participants; and the lack of comprehensive assessments of dyadic factors that may be of relevance to sexual problems and associated distress. CONCLUSION: This study identified a high prevalence of sexual problems persisting for 3 months or longer among older men across 4 European countries, but also found that many of the men with sexual problems experienced minimal or no distress related to these problems. G.M. Hald, C. Graham, A. Stulhofer, et al. Prevalence of Sexual Problems and Associated Distress in Aging Men Across 4 European Countries. J Sex Med 2019;16:1212-1225.


BACKGROUND: People aging with HIV are living with increased risk for functional decline compared with uninfected adults of the same age. Early preclinical changes in biomarkers in middle-aged individuals at risk for mobility and functional decline are needed. OBJECTIVE: This pilot study aims to compare measures of free-living activity with lab-based measures. In addition, we aim to examine differences in the activity level and patterns by HIV status. METHODS: Forty-six men (23 HIV+, 23 HIV-) currently in the MATCH (Muscle and Aging Treated Chronic HIV) cohort study wore a consumer-grade wristband accelerometer continuously for 3 weeks. We used free-living activity to calculate the gait speed and time spent at different activity intensities. Accelerometer data were compared with lab-based gait speed using the 6-minute walk test (6-MWT). Plasma biomarkers were measured and biobehavioral questionnaires were administered. RESULTS: HIV+ men more often lived alone (P=.02), reported more pain (P=.02), and fatigue (P=.048). In addition, HIV+ men had lower blood CD4/CD8 ratios (P<.001) and higher Veterans Aging Cohort Study Index scores (P=.04) and T-cell activation (P<.001) but did not differ in levels of inflammation (P=.30) or testosterone (P=.83). For all participants, accelerometer-based gait speed was significantly lower than the lab-based 6-MWT gait speed (P<.001). Moreover, accelerometer-based gait speed was significantly lower in HIV+ participants (P=.04) despite the absence of differences in the lab-based 6-MWT (P=.39). HIV+ participants spent more time in the lowest quartile of activity compared with uninfected (P=.01), who spent more time in the middle quartiles of activity (P=.02). CONCLUSIONS: Accelerometer-based assessment of gait speed and activity patterns are lower for asymptomatic men living with HIV compared with uninfected controls and may be useful as preclinical digital biomarkers that precede differences captured in lab-based measures.

BACKGROUND: Polypharmacy (use of >/= five medications) increases the risk of drug-drug interactions and can lead to negative health outcomes. This study aimed to review the medications of people living with HIV (PLWH) and HIV-negative controls in the POPPY study and evaluate the frequency of polypharmacy and potential drug-drug interactions (PDDIs).

METHODS: PDDIs between non-antiretroviral (ARV) drugs were analysed using the Lexicomp(R) database, and PDDIs between non-ARV and ARV drugs using the Liverpool drug interaction database. Between-group differences were assessed using chi(2), Mann-Whitney U and Kruskal-Wallis tests. RESULTS: This analysis included 698 PLWH >/=50 years, 374 PLWH <50 years and 304 HIV-negative controls >/=50 years. The prevalence of polypharmacy was 65.8% in older PLWH, 48.1% in younger PLWH and 13.2% in the HIV-negative group. When ARVs were excluded, 29.8% of older PLWH and 14.2% of younger PLWH had polypharmacy. The prevalence of >/=1 PDDI involving non-ARV drugs was 36.1%, 20.3% and 16.4%, respectively, in older PLWH, younger PLWH and HIV-negative controls. In PLWH the prevalence of >/=1 PDDI involving ARV and non-ARV drugs was 57.3% in older PLWH and 32.4% in younger PLWH. CONCLUSIONS: Polypharmacy and PDDIs involving non-ARV/ARV drugs and non-ARV/non-ARV drugs were common among older PLWH, highlighting the need for increased awareness and additional research on all types of PDDI.


Middle and older age are usually ignored in the studies of the processes of coming out. This paper analyses the opportunities, and also the barriers which aging brings to the possibility of articulating one's own sexual identity in relation to others. It presents the life-course perspective as a suitable analytical tool for the study of the impact of historical context and the changing social locations within the life-biography. Analysis presented in this paper is based on 19 in-depth interviews with LGB people aged fifty and older living in the Czech Republic. The paper focuses on the way they relate to the idea of coming out and how they reflect on their previous biography with respect to the possibilities to articulate their sexuality in various phases of their life. It analyses how aging creates possibilities as well as barriers to articulate sexual identity with respect to family and closed ones and points out the need to critically reflect the narratives of coming out as a linear process of leaving "the closet". Older age was by the participants depicted as an important context that disrupted some of the barriers preventing coming out to others. However, the vision of late old age linked with specific age-related contexts (such as life in residential care facilities) was associated with impossibility to express sexual identity.


In patients infected with the human immunodeficiency virus (HIV), the HIV-Tat protein may be continually produced despite adequate antiretroviral therapy. As the HIV-infected population is aging, it is becoming increasingly important to understand how HIV-Tat may interact with proteins such as amyloid beta and Tau which accumulate in the aging brain and eventually result in Alzheimer's disease. In this review, we examine the in vivo data from HIV-infected patients and animal models and the in vitro experiments that show how protein complexes between HIV-Tat and amyloid beta occur through novel protein-protein interactions and how HIV-Tat may influence the pathways for amyloid beta production, degradation, phagocytosis, and transport. HIV-Tat may also induce Tau phosphorylation through a cascade of cellular processes that lead to the formation of neurofibrillary tangles, another hallmark of Alzheimer's disease. We also identify gaps in knowledge and future directions for research. Available evidence suggests that HIV-Tat may accelerate Alzheimer-like pathology in patients with HIV infection which cannot be impacted by current antiretroviral therapy.


HealthDay News — Among US veterans with HIV infection, depressive symptoms are associated with a significantly increased risk for mortality, but depression is not, according to a study published online March 29 in HIV Medicine. Kaku So-Armah, PhD, from Boston University, and colleagues used data from the Veterans Aging Cohort Study (from baseline in April 2003 through September 2015) to assess the contribution of depression and depressive symptoms to mortality in adults with and without HIV...
OBJECTIVE: The objective was to evaluate the association between age-related comorbidities (ARCs) and 5-year HIV-related excess mortality in people living with HIV aged >/=60 years. DESIGN: Cohort study using relative survival analysis (Esteve’s model). SETTING: The French multicentre prospective Dat’AIDS cohort that involves 12 French hospitals. PARTICIPANTS: Inclusion of 1415 HIV-1 infected patients actively followed aged >/=60 years on January 2008, with a 5-year follow-up period in the late combination antiretroviral therapy era. RESULTS: Among 1415 patients included, 154 died. By multivariable analysis, factors predictive of 5-year HIV-related excess mortality were non-AIDS-related cancer (adjusted excess HR (aEHR)=2.94; 95% CI 1.32 to 6.57), cardiovascular disease (aEHR=6.00; 95% CI 2.45 to 16.65), chronic renal disease (aEHR=4.86; 95% CI 2.24 to 10.53), cirrhosis (aEHR=3.58; 95% CI 1.25 to 10.28), hepatitis C co-infection (aEHR=3.63; 95% CI 1.44 to 9.12), body mass index<18.5 kg/m^2 (aEHR=4.10; 95% CI 1.61 to 10.48) and having a CD4 cell count </=200/mm^3 (aEHR=5.79; 95% CI 2.28 to 14.69). CONCLUSIONS: ARCs, particularly cardiovascular disease and chronic renal disease, are predictive of HIV-related excess mortality, with an increase in hazard similar to that of CD4 cell count.

TRIAL REGISTRATION NUMBER: NCT02898987.


Summary Background Research is needed to better understand relations between immunosuppression and HIV viraemia and risk for non-Hodgkin lymphoma, a common cancer in people living with HIV. We aimed to identify key CD4 count and HIV RNA (viral load) predictors of risk for non-Hodgkin lymphoma, overall and by subtype.

Findings Of 102 131 people living with HIV during the study period, 712 people de
developed non-Hodgkin lymphoma. The key independent predictors of risk for overall non-Hodgkin lymphoma were recent CD4 count (ie, lagged by 6 months; <50 cells per μL vs ≥500 cells per μL, hazard ratio [HR] 3.2, 95% CI 2.2–4.7) and average viral load during a 3-year window lagged by 6 months (a cumulative measure; ≥100 000 copies per mL vs ≤500 copies per mL, HR 9.6, 95% CI 6.5–14.0). These measures were also the key predictors of risk for diffuse large B-cell lymphoma (recent CD4 count <50 cells per μL vs ≥500 cells per μL, HR 2.4, 95% CI 1.4–4.2; average viral load ≥100 000 copies per mL vs ≤500 copies per mL, HR 7.5, 95% CI 4.5–12.7).

However, recent CD4 count was the sole key predictor of risk for CNS non-Hodgkin lymphoma (<50 cells per μL vs ≥500 cells per μL, HR 426.3, 95% CI 58.1–3126.4), and proportion of time viral load was greater than 500 copies per mL during the 3-year window (a cumulative measure) was the sole key predictor for Burkitt lymphoma (100% vs 0%, HR 41.1, 95% CI 9.1–186.6).

Interpretation Both recent immunosuppression and prolonged HIV viraemia have important independent roles in the development of non-Hodgkin lymphoma, with likely subtype heterogeneity. Early and sustained antiretroviral therapy to decrease HIV replication, dampen B-cell activation, and restore overall immune function is crucial for preventing non-Hodgkin lymphoma.


OBJECTIVE: As a proxy for undiagnosed HIV, the Centers for Disease Control and Prevention’s National HIV Behavioral Surveillance (NHBS) monitors participants who report being unaware of their infection, defined as self-reporting an HIV-negative or unknown status during the interview but testing positive for HIV infection. We validated the NHBS measure of awareness among MSM in 2014. DESIGN: We tested dried blood spots from MSM who reported being unaware of their infection for seven antiretrovirals (ARVs). MSM unaware with at least one ARV detected were defined as misreporters. METHODS: Weighted percentages and 95% confidence intervals were calculated to compare characteristics among misreporters, nonmisreporters, and those who self-reported as HIV-positive. Viral load was quantified with a validated assay using dried blood spots. RESULTS: Of 1818 HIV-positive MSM, 299 (16%) self-reported as HIV-negative or unknown

TRIAL REGISTRATION NUMBER: NCT02898987.
Introduction: Metabolic syndrome has become an important issue affecting the long-term prognosis of human immunodeficiency virus (HIV) patients in the context of cardiovascular disease. The aim of the study was to determine the magnitude of geriatric conditions and multimorbidity in PLWH older than 60 years who are living with symptomatic cognitive impairment. In a subset of participants, we examined associations between these geriatric conditions and everyday function and investigated multimorbidity burden using the Veterans Aging Cohort Study (VACS) index. RESULTS: Among 141 older PLWH with MND, 58% report incontinence, 55% meet criteria for pre-frailty, and a substantial proportion report dependence with instrumental activities of daily living (52%) or activities of daily living (41%). MEASUREMENTS: We conducted standardized assessment of geriatric conditions and everyday function and investigated multimorbidity burden using the Veterans Aging Cohort Study (VACS) index. RESULTS: Among 141 older PLWH with MND, 58% report incontinence, 55% meet criteria for pre-frailty, and a substantial proportion report dependence with instrumental activities of daily living (52%) or activities of daily living (41%). The mean VACS index score is 33 (standard deviation = 14), suggesting a 13.8% 5-year all-cause mortality risk. CONCLUSIONS: Older PLWH with symptomatic cognitive impairment carry a substantial burden of other geriatric conditions. Our work supports the need for comprehensive geriatric systems of care for cognitively impaired individuals aging with HIV. J Am Geriatr Soc 67:1913-1916, 2019.


OBJECTIVES: Nearly half of the population living with human immunodeficiency virus (HIV) in the United States is now older than 50 years with at least 6% over age 65. Between 35% and 50% live with mild to moderate cognitive impairment. Older persons living with HIV (PLWH) also have a substantial burden of HIV-associated non-acquired immunodeficiency syndrome medical conditions and are at risk for frailty, geriatric syndromes, and early mortality compared with HIV-uninfected peers. We sought to define the magnitude of geriatric conditions and multimorbidity in PLWH older than 60 years who are living with symptomatic cognitive impairment. In a subset of participants, we examined associations between these geriatric conditions. DESIGN: Retrospective cohort study. SETTING: HIV Elders Study at the University of California, San Francisco, Memory and Aging Center. PARTICIPANTS: Participants were HIV infected, virally suppressed, 60 years or older, and clinically diagnosed with mild neurocognitive disorder (MND). MEASUREMENTS: We conducted standardized assessment of geriatric conditions and everyday function and investigated multimorbidity burden using the Veterans Aging Cohort Study (VACS) index. RESULTS: Among 141 older PLWH with MND, 58% report incontinence, 55% meet criteria for pre-frailty, and a substantial proportion report dependence with instrumental activities of daily living (52%) or activities of daily living (41%). The mean VACS index score is 33 (standard deviation = 14), suggesting a 13.8% 5-year all-cause mortality risk. CONCLUSIONS: Older PLWH with symptomatic cognitive impairment carry a substantial burden of other geriatric conditions. Our work supports the need for comprehensive geriatric systems of care for cognitively impaired individuals aging with HIV. J Am Geriatr Soc 67:1913-1916, 2019.


The aim of this analysis of historical data was to determine whether patients’ pre-treatment beliefs about antiretroviral therapy (ART) predict the subsequent reporting of side effects. Data were collected as part of a prospective, 12-month follow-up study. Of 120 people starting ART, 76 completed follow-up assessments and were included in the analyses. Participants completed validated questionnaires assessing their beliefs about ART, beliefs about medicines in general, perceived sensitivity to adverse effects of medicines, depression and anxiety before initiating ART and after 1 and 6 months of treatment. Adherence was assessed at 1, 6 and 12 months. Pre-treatment concerns about ART were associated with significantly more side effects at 1 month (p < 0.05) and 6 months (p < 0.005). Side effects at 6 months predicted low adherence at 12 months (p < 0.005). These findings have implications for the development of interventions to support patients initiating ART by providing a mechanism to pre-empt and reduce side effects.

In a study of 299 patients initiating ART, 49% were considered misreporters based on ARV detection. Among the unaware, misreporters were more likely than nonmisreporters to be older and have health insurance. Compared with self-reported HIV-positive MSM, misreporters were more likely to be black, be bisexual, and have perceived discrimination. Of 138 misreporters with viral load data, 116 (84%) had an undetectable viral load. CONCLUSION: ARV testing revealed that half of MSM classified as unaware of their infection misreported their status. Although off-label preexposure prophylaxis use might explain the presence of ARVs, it is unlikely as many misreporters were virally suppressed, suggesting they were on HIV therapy. Biomarker validation of behavioral data can improve data quality and usefulness in NHBS and other studies.


Introduction: Metabolic syndrome has become an important issue affecting the long-term prognosis of human immunodeficiency virus (HIV) patients in the context of cardiovascular disease. The aim of the study was to determine
We assess long-term changes in lipid levels in human immunodeficiency disease (HIV-) infected patients undergoing highly active antiretroviral treatment (HAART) and their association with diabetes mellitus (DM) and thyroid dysfunction. We observed changes in the levels of total cholesterol (TC) and total triglyceride (TG) of 63 HIV-infected patients in the 6 years from starting HAART and analyzed correlations between relevant parameters. TC levels of patients with normal baseline TC levels as well as those diagnosed with DM or impaired fasting glucose (IFG) increased significantly (P < 0.05) as did the TG levels of patients with normal baseline TG levels (P < 0.05). TC levels of patients with hypercholesterolemia in the year HAART was initiated were significantly higher than those of patients with normal baseline TC levels (P < 0.05) for all 6 years. TC levels of patients diagnosed with DM were significantly higher than those with euglycemia (P < 0.05) 2 and 4 years after HAART commencement. Levels of TC, high-density lipoprotein-cholesterol (HDL-C), and low-density lipoprotein-cholesterol (LDL-C) were correlated negatively with viral load, whereas levels of TC and very-low-density lipoprotein-cholesterol (VLDL-C) were correlated positively with CD4+ cell counts before HAART commencement. Linear mixed-effect model demonstrated disturbance of glucose metabolism and HAART containing nevirapine and CD4+ cell count were positively correlated with TC levels after HAART commencement. These findings suggest that there are changes in the lipid levels of patients undergoing HAART, with the potential risk of dyslipidemia.
Background: T cells play a key role in controlling viral infections; however, the underlying mechanisms regulating their functions during human viral infections remain incompletely understood. Here, we used CD4 T cells derived from individuals with chronic viral infections or healthy T cells treated with camptothecin (CPT) - a topoisomerase I (Top1) inhibitor - as a model to investigate the role of DNA topology in reprogramming telomeric DNA damage responses (DDR) and remodeling T cell functions. Results: We demonstrated that Top1 protein expression and enzyme activity were significantly inhibited, while the Top1 cleavage complex (TOP1cc) was trapped in genomic DNA, in T cells derived from individuals with chronic viral (HCV, HBV, or HIV) infections. Top1 inhibition by CPT treatment of healthy CD4 T cells caused topological DNA damage, telomere attrition, and T cell apoptosis or dysfunction via inducing Top1cc accumulation, PARP1 cleavage, and failure in DNA repair, thus recapitulating T cell dysregulation in the setting of chronic viral infections. Moreover, T cells from virally infected subjects with inhibited Top1 activity were more vulnerable to CPT-induced topological DNA damage and cell apoptosis, indicating an important role for Top1 in securing DNA integrity and cell survival. Conclusion: These findings provide novel insights into the molecular mechanisms for immunomodulation by chronic viral infections via disrupting DNA topology to induce telomeric DNA damage, T cell senescence, apoptosis and dysfunction. As such, restoring the impaired DNA topologic machinery may offer a new strategy for maintaining T cell function against human viral diseases.

The number of people living with HIV (PLWH) ≥65 years is increasing in the United States. By 2035, the proportion of PLWH in this age group is projected to be 27%. As PLWH live longer, they face age-related comorbidities. We compared non-HIV disease and medication burden among PLWH (n = 2359) and HIV-negative individuals (n = 2,010,513) ≥65 years using MarketScan(R) Medicare Supplemental health insurance claims from 2009 to 2015. Outcomes were common diagnoses and medication classes, prevalence of non-HIV conditions, number of non-HIV conditions, and daily non-antiretroviral therapy (ART) medications over a 1-year period. We examined age-standardized prevalence rates and prevalence ratios (PRs) and fit multivariable generalized linear models, stratified by sex. PLWH were younger (mean 71 vs. 76 years) and a larger proportion were men (81% vs. 45%). The most common diagnoses among both cohorts were hypertension and dyslipidemia. Most non-HIV conditions were more prevalent among PLWH. The largest absolute difference was in anemia (29.6 cases per 100 people vs. 11.7) and the largest relative difference was in hepatitis C (PR = 22.0). Unadjusted mean number of non-HIV conditions and daily non-ART medications were higher for PLWH (4.61 conditions and 3.79 medications) than HIV-negative individuals (3.94 and 3.41). In models, PLWH had significantly more...
non-HIV conditions than HIV-negative individuals [ratios: men = 1.272, (95% confidence interval, 1.233-1.312); women = 1.326 (1.245-1.413)]. Among those with >0 daily non-ART medications, men with HIV had significantly more non-ART medications than HIV-negative men [ratio = 1.178 (1.133-1.226)]. The disease burden associated with aging is substantially higher among PLWH, who may require additional services to effectively manage HIV and comorbid conditions.


Introduction: HIV disease and aging can both affect prospective memory (PM), which describes the complex process of executing delayed intentions and plays an essential role in everyday functioning. The current study investigated the course of PM symptoms and performance over approximately one year in younger and older persons with and without HIV disease. Method: Participants included 77 older (>50 years) and 35 younger (<40 years) HIV+ individuals and 44 older and 27 younger seronegative adults. Participants completed the Memory for Intentions Test to measure PM in the laboratory, the Prospective and Retrospective Memory Questionnaire to measure PM symptoms in daily life, and several clinical measures of executive functions and retrospective memory as a part of a comprehensive neurocognitive evaluation at baseline and at 14-month follow-up. Results: Findings showed additive, independent main effects of HIV and aging on time- and event-based PM performance in the laboratory, but no change in PM over time. There were no interactions between time and HIV or age groups. Parallel findings were observed for clinical measures of retrospective memory and executive functions. Older HIV+ adults endorsed the greatest frequency of PM symptoms, but there was no change in PM symptom severity over time and no interactions between time and HIV or age groups. There were no effects of HIV or aging on naturalistic PM performance longitudinally. Conclusion: Overall these findings suggest that PM symptoms and performance in the laboratory are stably impaired over the course of a year in the setting of aging and HIV disease.


Recent evidence suggests the aging process is accelerated by HIV. Degradation of white matter (WM) has been independently associated with HIV and healthy aging. Thus, WM may be vulnerable to joint effects of HIV and aging. Diffusion-weighted imaging (DWI) was conducted with HIV-seropositive (n = 72) and HIV-seronegative (n = 34) adults. DWI data underwent tractography, which was parcellated into 18 WM tracts of interest (TOIs). Functional Analysis of Diffusion Tensor Tract Statistics (FADTTS) regression was conducted assessing the joint effect of advanced age and HIV on fractional anisotropy (FA), mean diffusivity (MD), axial diffusivity (AD), and radial diffusivity (RD) along TOI fibers. In addition to main effects of age and HIV on WM microstructure, the interactive effect of age and HIV was significantly related to lower FA and higher MD, AD, and RD across all TOIs. The location of findings was consistent with the clinical presentation of HIV-associated neurocognitive disorders. While older age is related to poorer WM microstructure, its detrimental effect on WM is stronger among HIV+ relative to HIV- individuals. Loss of WM integrity in the context of advancing age may place HIV+ individuals at increased risk for brain and cognitive compromise.


There is an emerging population of older adults living with HIV, and among them, Black older adults experience the greatest burden of the disease. This is a growing public health concern, as older adults are disproportionately diagnosed at a later stage of the disease, while reporting similar risk factors as younger adults. It has also been shown that the Black Church is well positioned to offer health screenings. Thus, this study aimed to assess HIV knowledge, beliefs, and risk behaviors of older church-affiliated Black adults. Data were collected from a sample of Black adults (N = 543) from four predominately Black churches in Kansas City, MO. Participants were surveyed on measures assessing demographic characteristics, HIV knowledge and attitudes, and HIV testing and risk behaviors. Results indicated that compared to younger Black adults, Black older adults were less knowledgeable about the transmission of HIV and were less willing to be tested for HIV in church settings. However, there was no significant difference on the perceived seriousness of HIV in the community. Results further showed that Black older adults were less likely to use condoms/barriers during the past 6 months and over their lifetime. We discuss the implications of results for HIV intervention programs.

BACKGROUND: There is an increasing burden of hypertension (HTN) across sub-Saharan Africa where HIV prevalence is the highest in the world, but current care models are inadequate to address the dual epidemics. HIV treatment infrastructure could be leveraged for the care of other chronic diseases, including HTN. However, little data exist on the effectiveness of integrated HIV and chronic disease care delivery systems on blood pressure control over time. METHODS: Population screening for HIV and HTN, among other diseases, was conducted in ten communities in rural Uganda as part of the SEARCH study (NCT01864603). Individuals with either HIV, HTN, or both were referred to an integrated chronic disease clinic. Based on Uganda treatment guidelines, follow-up visits were scheduled every 4 weeks when blood pressure was uncontrolled, and either every 3 months, or in the case of drug stock-outs more frequently, when blood pressure was controlled. We describe demographic and clinical variables among all patients and used multilevel mixed-effects logistic regression to evaluate predictors of HTN control. RESULTS: Following population screening (2013-2014) of 34,704 adults age >/= 18 years, 4554 individuals with HTN alone or both HIV and HTN were referred to an integrated chronic disease clinic. Within 1 year 2038 participants with HTN linked to care and contributed 15,653 follow-up visits over 3 years. HTN was controlled at 15% of baseline visits and at 46% (95% CI: 44-48%) of post-baseline follow-up visits. Scheduled visit interval more frequent than clinical indication among patients with controlled HTN was associated with lower HTN control at the subsequent visit (aOR = 0.89; 95% CI 0.79-0.99). Hypertension control at follow-up visits was higher among HIV-infected patients than uninfected patients to have controlled blood pressure at follow-up visits (48% vs 46%; aOR 1.28; 95% CI 0.95-1.71). CONCLUSIONS: Improved HTN control was achieved in an integrated HIV and chronic care model. Similar to HIV care, visit frequency determined by drug supply chain rather than clinical indication is associated with worse HTN control. TRIAL REGISTRATION: The SEARCH Trial was prospectively registered with ClinicalTrials.gov : NCT01864603.


Estimates indicate 70% of all individuals with HIV will be age 50 or older by 2030. Chronic conditions, including cardiovascular disease, diabetes mellitus, kidney disease, malignancies, neurocognitive disorders, and osteopenia or osteoporosis, occur more frequently in patients with HIV and have become the leading cause of morbidity in this population. NPs play an integral role in helping this population age healthfully.


People who inject drugs (PWID) face barriers to engagement in antiretro-viral treatment (ART) and medication-assisted treatment (MAT). We detail the design, rapid preparation and adaptation, and systematic implementation of a flexible, individually tailored intervention for PWID in multiple settings: Indonesia, Ukraine, and Vietnam. HPTN 074 integrated systems navigation and counseling to facilitate entry and adherence to ART and MAT. Site-level guidance on the intervention involved in-depth interviews (IDIs) among PWID and their supporters and site-specific document review. IDIs emphasized ART misinformation and importance of social support for adherence. The document review revealed differences in health care system barriers, requiring an intervention that was flexible and tailored enough to address key outcomes. Implementation included regular debriefs for iterative adaptations based on participants' needs, including booster counseling sessions and subsidizing pre-ART testing. HPTN 074 provides a unique framework implementing a flexible and scalable intervention to improve ART and MAT outcomes among PWID across multiple settings.


BACKGROUND: The association between X4 virus and an increased risk of non-AIDS-events has been reported. Morbidity/mortality due to non-AIDS events, which are properly predicted by the CD4/CD8 ratio and VACS index, have become particularly remarkable in HIV-infected patients receiving effective combined antiretroviral therapy (cART). METHODS: We verified the validity of the syllogism: as HIV-tropism (CRT) contributes to the onset of non-AIDS events which are successfully predicted by the CD4/CD8 ratio and VACS index, then CRT correlates with these two variables. The
CD4/CD8 ratio and VACS index at baseline and overtime were analyzed according to CRT tested before the first successful cART regimen in newly-diagnosed patients. RESULTS: Patients with R5 variants had a significantly lower baseline VACS percentage risk [mean (95%CI):18.2% (16.1-20.3) vs 24.3% (18.2-22.5), p = 0.002] and higher baseline CD4/CD8 ratio [mean (95%CI):0.43 (0.38-0.47) vs 0.28 (0.19-0.36), p = 0.002] than non-R5 patients. After an initial drop, VACS increased again in R5 and non-R5 patients and the two trend curves almost overlapped. The CD4/CD8 ratio had an increasing trend in both R5 and non-R5 patients; however, even though non-R5 patients had a greater gain of CD4+, they maintained a lower CD4/CD8 ratio at any time point. CONCLUSION: Our study confirms an association between pre-therapy CRT, CD4/CD8 ratio and VACS. A successful cART regimen positively affects the CD4/CD8 ratio; however, the disadvantage conferred by a non-R5 CRT is maintained overtime. The restoration of VACS in all patients could be directly due to variables included in the VACS calculation and to factors that adversely influence these variables.


In Greek mythology, Tithonus was granted eternal life but not eternal youth. As time passes he withers, slowly losing his health and all that he knew, lamenting a cruel immortality.(1).


To explore reasons for the disproportionate metabolic and cardiovascular disease burdens among older HIV-infected persons, we investigated whether associations of CD4 count and HIV viral load (VL) with non-high-density lipoprotein cholesterol (non-HDL-C) and high-density lipoprotein cholesterol [HDL-C] differed by age. Longitudinal clinical and laboratory data were collected between 2011 and 2016 for HIV-infected outpatients in the DC Cohort study. Using data for patients aged >/=21 years with >/=1 cholesterol result and contemporaneous CD4/VL results, we created multivariable linear regression models with generalized estimating equations. Among 3,912 patients, the median age was 50 years, 78% were male, 76% were non-Hispanic black, 93% were using antiretroviral therapy, 8% had a CD4 count <200 cells/μL, and 18% had an HIV VL >/=200 copies/mL. Overall, CD4 count <200 (vs. >500) cells/μL and VL >/=200 copies/mL were associated with lower non-HDL-C concentrations (p < .01), but associations were more positive with increasing age (CD4-age/VL-age interactions, p < .01). CD4 count <200 cells/μL was associated with lower non-HDL-C among patients aged <50 years [beta = -7.8 mg/dL (95% confidence interval, CI: -13.2 to -2.4)] but higher non-HDL-C among patients aged 60-69 years [beta = +8.1 mg/dL (95% CI: 0.02-16.2)]. VL >/=200 copies/mL was associated with lower non-HDL-C among patients aged <50 years [beta = -3.3 mg/dL (95% CI: -6.7 to 0.1)] but higher non-HDL-C among patients aged >/=70 years [beta = +16.0 mg/dL (95% CI: -1.4 to 33.3)], although precision was reduced in age-stratified analyses. Although no age differences were detected for HDL-C, VL >/=200 copies/mL was more strongly associated with lower HDL-C concentrations when CD4 count was <200 cells/μL [beta = -7.0 mg/dL (95% CI: -9.7 to -4.3)] versus 200-500 cells/μL [beta = -4.2 (95% CI: -5.9 to -2.6)] or >500 cells/μL [beta = -2.2 (95% CI: -3.7 to -0.8)] (CD4-VL interaction, p < .01). We detected a novel age-modified relationship between immunosuppression and viremia and atherogenic cholesterol patterns. These findings may contribute to our understanding of the high risk of dyslipidemia observed among persons aging with HIV.


HIV infection has transformed from a deadly disease into a chronic infection with low mortality. Using descriptive phenomenology, this study was designed to describe the lived experience of aging among persons living with HIV in Spain. Twenty-four participants ages 50 years or older were interviewed. Data were analyzed using Colaizzi’s method. Aging with HIV made participants aware of the process of growing old, a stage of life they never expected to reach. They acknowledged the physical changes their bodies were undergoing, mostly due to the HIV and as a consequence of antiretroviral therapy. Most participants had financial problems and felt lonely. The participants highlighted how others had positively and negatively influenced their lives and, finally, how they learned to cope and then to accept living with HIV infection, be ready to help peers, and fight against discrimination. More research is needed to reduce loneliness, evaluate the impact of financial problems on health, and identify barriers and facilitators for adaptation, coping, and resilience in persons living with HIV ages 50 years or older.
HIV infection is associated with an increased risk for developing B-cell lymphoproliferative disorders. The spectrum of disease differs in HIV-infected versus HIV-uninfected persons, with aggressive B-cell non-Hodgkin lymphomas constituting a higher proportion of all lymphoproliferative disorders in the HIV-positive population. Although antiretroviral therapy (ART) has significantly changed the landscape of lymphomas arising in HIV-infected persons, population growth and aging are reflected in the steady increase in non-AIDS-defining cancers. In the ART era, outcomes for HIV-infected lymphoma patients are similar to those of HIV-negative patients. This article reviews the diagnostic features and summarizes current biologic understanding of HIV-associated lymphomas.

Research in the last decade has explored the length of telomeres, the protective ends of eukaryotic chromosomes, as a biomarker for the cumulative effects of environmental exposures and life experiences as well as a risk factor for major diseases. With a growing interest in telomere biology across biomedical, epidemiological and public health research, it is critical to ensure that the measurement of telomere length is performed with high precision and accuracy. Of the several major methods utilized to determine telomere length, quantitative PCR (qPCR) remains the most cost-effective and suitable method for large-scale epidemiological and population studies. However, inconsistencies in recent reports utilizing the qPCR method highlight the need for a careful methodological analysis of each step of this process. In this review, we summarize each critical step in qPCR telomere length assay, including sample type selection, sample collection, storage, processing issues and assay procedures. We provide guidance and recommendations for each step based on current knowledge. It is clear that a collaborative and rigorous effort is needed to characterize and resolve existing issues related to sample storage, both before and after DNA extraction, as well as the impact of different extraction protocols, reagents and post extraction processing across all tissue types (e.g. blood, saliva, buccal swabs, etc.) to provide the needed data upon which best practices for TL analyses can be agreed upon. Additionally, we suggest that the whole telomere research community be invited to collaborate on the development and implementation of standardized protocols for the assay itself as well as for reporting in scientific journals. The existing evidence provides substantial support for the continuation of telomere research across a range of different exposures and health outcomes. However, as with any technological or methodologic advance in science, reproducibility, reliability and rigor need to be established to ensure the highest quality research.

Aim: To evaluate prior prevalence of HIV indicator conditions in late-presenters with HIV infection. Design: Retrospective cohort study between 2000 and 2014 in a healthcare network in Melbourne, Australia comparing patients presenting with late diagnosis of HIV infection (CD4 < 350 cells/ml) to those patients who had a CD greater than or equal to 350 cells/ml at presentation. Method: The European AIDS Clinical Society guidelines on HIV indicator guided testing were used to assess for any indicator conditions in their prior medical history which may have represented a missed opportunity for earlier diagnosis. Main outcome measures: Descriptive statistics and prevalence of HIV indicator conditions. Results: Of 436 patients with HIV infection, 82 were late presenters. Late presenters were more commonly male (83% vs. 75%, P = 0.11), older (mean age 45 vs. 39 years), born overseas (61% vs. 58%, P = 0.68) and report heterosexual transmission as their exposure risk (51% vs. 31%, P < 0.001). Of 80 patients with late presentation of HIV infection, 54 (55%) had at least one, 29 (36%) at least 2, 12 (15%) at least 3 and 5 (6%) had 4 or more previous HIV indicator conditions which would have triggered HIV testing according to guidelines. The most common indicator conditions were: unexplained loss of weight (31%), herpes zoster (10%), thrombocytopenia or leukopenia (10%), oral or oesophageal candidiasis (10%) and community acquired pneumonia (9%). Twenty patients (25%) had HIV indicator conditions diagnosed at least 12 months before the eventual diagnosis of HIV infection. Discussion/ Conclusion: Patients diagnosed with late-presenting HIV often had an HIV indicator condition prior to presentation, presenting a missed opportunity for earlier diagnosis.


BACKGROUND: Metabolic disorders presenting in HIV-infected patients on antiretroviral therapy (ART) may increase the risk of osteoarthritis. However, structural changes of the knee in HIV infected subjects are understudied. The aim of this study is to investigate knee cartilage degeneration and knee structural changes over 8 years in subjects with and without HIV infection determined based on the use of ART. METHODS: We studied 10 participants from the Osteoarthritis Initiative who received ART at baseline and 20 controls without ART, frequency matched for age, sex, race, baseline body mass index (BMI) and Kellgren & Lawrence grade. Knee abnormalities were assessed using the whole-organ magnetic resonance imaging score (WORMS) and cartilage T2 including laminar and texture analyses were analyzed using a multislice-multiecho spin-echo sequence. Signal abnormalities of the infrapatellar fat pad (IPFP) and suprapatellar fat pad (SPFP) were assessed separately using a semi-quantitative scoring system. Linear regression models were used in the cross-sectional analysis to compare the differences between ART/HIV subjects and controls in T2 (regular and laminar T2 values, texture parameters) and morphologic parameters (subscores of WORMS, scores for signal alterations of IPFP and SPFP). Mixed effects models were used in the longitudinal analysis to compare the rate of change in T2 and morphological parameters between groups over 8 years. RESULTS: At baseline, individuals on ART had significantly greater size of IPFP signal abnormalities (P = 0.008), higher signal intensities of SPFP (P = 0.015), higher effusion scores (P = 0.009), and lower subchondral cysts sum scores (P = 0.003) compared to the controls. No significant differences were found between the groups in T2-based cartilage parameters and WORMS scores for cartilage, meniscus, bone marrow edema patterns and ligaments (P > 0.05). Longitudinally, the HIV cohort had significantly higher global knee T2 entropy values (P = 0.047), more severe effusion (P = 0.001) but less severe subchondral cysts (P = 0.002) on average over 8 years. CONCLUSIONS: Knees of individuals with HIV on ART had a more heterogeneous cartilage matrix, more severe synovitis and abnormalities of the IPFP and SPFP, which may increase the risk of incident knee osteoarthritis.


BACKGROUND: Few large projects have evaluated the factors that influence the HIV RNA concentrations (viral load) in cerebrospinal fluid (CSF) during antiretroviral therapy (ART) over time. We aimed to determine the correlates of HIV RNA in CSF in a large cohort. METHODS: We analysed longitudinal data from adults living with HIV in the US CHARTER cohort. Participants in the CHARTER study were recruited from six US academic medical centres-in Baltimore (MD), Galveston (TX), New York (NY), St Louis (MO), San Diego (C92A), and Seattle (WA). Participants in this study had been assessed at least three times between Sept 4, 2003, and Sept 14, 2010, and were taking ART and underwent venous and lumbar puncture with measurement of HIV RNA concentration at all assessments. The lower limit of quantification of the HIV RNA assays was 50 copies per mL. Data were analysed with longitudinal mixed effects logistic regression to identify correlates of HIV RNA concentration (as a binary [detectable or not] and as a continuous variable) in CSF over time. We tested demographic characteristics, plasma HIV RNA, nadir and current CD4 cell count in blood, current CD8 cell count in blood, estimated duration of HIV infection, AIDS diagnosis, duration of ART, adherence to ART, ART characteristics, and CSF characteristics as potential correlates. FINDINGS: At the time of analysis, 2207 assessments from 401 participants met the criteria for inclusion in this study. Mean duration of observation was 33.7 months (range 12-84). HIV RNA concentrations in 710 (32.2%) plasma specimens and in 255 (11.6%) CSF specimens were greater than the lower limit of quantification. The best multivariate model of HIV RNA concentration in CSF greater than the lower limit of quantification over time included increased plasma HIV RNA concentration (odds ratio 18.0 per 1 log10 copy per mL, 95% CI 11.3 to 28.8; p<0.0001), increased CSF leucocyte count (2.01 per 5 cells per μL, 1.61 to 2.39; p<0.0001), decreased CD4 cell count (0.53 per 5 square-root cells per μL, 0.35 to 0.79; p=0.0025), decreased CNS penetration-effectiveness value (0.71 per unit, 0.56 to 0.92; p=0.0078), increased CD8 cell count (1.51 per 5 square-root cells, 1.11 to 2.06; p=0.0089), and protease inhibitor use (3.26, 1.04 to 10.23; p=0.039; model R(2)=0.22, p<0.0001). Analyses of continuous HIV RNA concentration in CSF that accounted for censoring below the lower limit of quantification had similar findings, although increased HIV RNA concentrations in CSF were also associated with black ethnicity (change in log10 HIV RNA concentration in CSF 0.205, 0.0367 to 0.3733; p=0.017), increased total protein in CSF (0.0025, -0.0002 to 0.0052; p=0.069), and the presence of addictive-drug metabolites in urine (0.103, -0.013 to 0.219; p=0.081). INTERPRETATION: The identified correlates of HIV RNA concentration in CSF during ART could strengthen clinical prediction of risk for failure to achieve or maintain HIV RNA suppression in CSF. Because most participants in this analysis were ART-experienced and were taking a three-drug regimen that did not include an integrase inhibitor, future research should focus on participants who are taking their first ART regimen or regimens that include integrase inhibitors or two drugs. FUNDING: The work was supported by the National Institute of Mental Health and the National Institute of Neurological Disorders and Stroke.
Studies suggest that inflammation might be involved in the pathogenesis of depression. Individuals with human immunodeficiency virus (HIV) have a higher risk of depression and elevated inflammatory profiles. Despite this, research on the link between inflammation and depression among this high-risk population is limited. We examined a sample of men who have sex with men from the Multicenter AIDS Cohort Study in prospective analyses of the association between inflammation and clinically relevant depression symptoms, defined as scores ≥ 20 on Center for Epidemiological Studies Depression Scale. We included 1,727 participants who contributed 9,287 person-visits from 1984 to 2010 (8,218 with HIV+ and 1,069 without HIV-)). Exploratory factor analysis (EFA) was used to characterize underlying inflammatory processes from 19 immune markers. Logistic regression with generalized estimating equations was used to evaluate associations between inflammatory processes and depressive symptoms stratified by HIV serostatus. Three EFA-identified inflammatory processes (EIPs) were identified. EIP-1 scores—described by soluble tumor necrosis factor receptor 2 (sTNFR2), soluble interleukin-2 receptor alpha (sIL-2RAlpha), sCD27, B-cell activating factor, interferon gamma-induced protein 10 (IP-10), soluble interleukin-6 receptor (sIL-6R), sCD14, and sGP130—were significantly associated with 9% higher odds of depressive symptoms in HIV+ participants (odds ratio = 1.09; 95% confidence interval: 1.03, 1.16) and 33% higher odds in HIV- participants (odds ratio = 1.33; 95% confidence interval: 1.09, 1.61). Findings suggest that immune activation might be involved in depression risk among both HIV+ and HIV- men who have sex with men.

AIMS: This study examined the changes and the predictors of suicide ideation/suicide attempt and the moderating effects of psychosocial factors on the suicide ideation/suicide attempts among human immunodeficiency virus (HIV)-positive patients at 6-12 months post-diagnosis. BACKGROUND: Suicide behaviours are prevalent among newly diagnosed HIV-positive patients, but the changes in suicide behaviours after diagnosis and the role of psychosocial factors in these behaviours are not well studied. DESIGN: This study used a prospective longitudinal design. METHODS: A total of 113 participants diagnosed as HIV-positive for 6-12 months were recruited from the outpatient department. Data were collected from June 2015 - October 2016. They were asked to complete Beck's Scale for Suicide Ideation, the Beck Depression Inventory-II, the Body Image Scale, the Meaning in Life Questionnaire and the Multidimensional Scale of Perceived Social Support at baseline, the third month and the sixth month. RESULTS: The results showed the high occurrence rates for suicide ideation ranging from 27.2%, 21.6%, and 25.8% and suicide attempt ranging from 14.7%, 8.6%, and 13.3% at the baseline, the third month and the sixth month, respectively. The education level, social support from family and depressive symptoms were the predictors of suicide ideation. The history of depression disorders, depressive symptoms and social support from friends significantly predicted suicide attempt. Meaning in life-presence moderated the relationship between depressive symptoms and suicide ideation. CONCLUSIONS: After diagnosed for 6-12 months, HIV-positive patients remain the high-risk group for suicide ideation and attempt. Suicide intervention targeting the risk and protective factors are required for HIV-positive patients.

AIDS Memorial Quilt—The NAMES Project.
BACKGROUND: Regular physical activity (PA) has been recommended for the management of HIV and AIDS. The purpose of this study was to develop a context-sensitive intervention for promoting PA among women living with HIV and AIDS (WLWHA) of low socioeconomic status (SES). A secondary aim of the study was to optimise the PA intervention using behavioural theory/ frameworks derived from preliminary studies and the literature. METHODS: The Behaviour Change Wheel (BCW) for designing behaviour change interventions was used. This method was further supplemented by evidence from the literature, systematic literature review (SLR), a concurrent mixed methods study and two cross-sectional studies. The SLR aided in determining the theoretical frameworks to inform the intervention, the specific PA behaviours to be targeted by the intervention, the intervention functions, the intervention policy category and the mode of delivery of the intervention. The concurrent mixed methods study was used to identify key factors that needed to change in order for participants to engage in regular PA. The first cross-sectional study was used to determine the gender to be targeted by the study. The second cross-sectional study was used to determine the domain and intensity of PA to target in the intervention. RESULTS: A face-to-face context-sensitive PA intervention employing 14 behavioural change techniques was designed. The PA intervention (a) utilised the Transtheoretical model of behaviour change and the Social Cognitive theory as the underpinning theoretical frameworks (b) included convenient PAs, such as walking, doing simple home-based exercises, engaging in activities of daily living or doing simple exercises at the community centre (c) used education, reward, training in PA, modelling exercise activities and enablement to increase the opportunity to engage in PA as intervention functions (d) used service provision as policy priorities, and (e) used a direct face-to-face mode of delivery. CONCLUSIONS: The PA intervention emphasises behavioural techniques for increasing PA participation, such as goal-setting, self-monitoring, strategies for overcoming PA barriers, social support and rewards. The intervention employs strategies that highlight low-cost local PA resources and opportunities to help HIV infected women of low SES to participate in PA. The BCW provides a useful and comprehensive framework for the development of evidence and theory-based PA interventions for PLWHA of low SES. The BCW can thus be used in the development of interventions that ‘talk’ to policy by bridging the health inequality gap.


Older persons living with diagnosed HIV (PLWHD) are also at risk for age-related chronic conditions. With conflicting results on studies assessing health literacy and durable viral suppression, this study is the first in assessing this relationship using representative data on older in-care HIV-diagnosed persons with multimorbidity. Weighted data collected 2009-2014 from the Medical Monitoring Project (MMP) was used. Health literacy was assessed using the three-item Brief Health Literacy Screen (BHLS). The mean health literacy score was 11.22 (95% CI 10.86-11.59), and the mean multimorbidity was 4.75 (SE = 0.32). After adjusting, health literacy (OR 0.87, 95% CI 0.77-0.99) was found to be significantly associated with durable viral suppression. Adequate health literacy can help with achieving durable viral suppression. For these persons, addressing health literacy might increase their ability to access and navigate the healthcare system, thereby helping them stay engaged and maintain adherence to HIV care.


BACKGROUND: Among people living with HIV (PLWH), the prevalence of non-HIV related co-morbidities is increasing. Aim of the present study is to describe co-morbidity and multi-morbidity, their clustering mode and the potential disease-disease interactions in a cohort of Italian HIV patients. METHODS: Cross-sectional analysis conducted by the Coordinamento Italiano per lo Studio di Allergia e Infezioni da HIV (CISAI) on adult subjects attending HIV-outpatient facilities. Non-HIV co-morbidities included: cardiovascular disease, diabetes mellitus, hypertension, oncologic diseases, osteoporosis, probable case of chronic obstructive pulmonary disease (COPD), hepatitis C virus (HCV) infection, psychiatric illness, kidney disease. Multi-morbidity was defined as the presence of two or more co-morbidities. RESULTS: One thousand and eighty-seven patients were enrolled in the study (mean age 47.9 +/- 10.8). One hundred-ninety patients (17.5%) had no co-morbidity, whereas 285 (26.2%) had one condition and 612 (56.3%) were multi-morbid. The most recurrent associations were: 1) dyslipidemia + hypertension (237, 21.8%); 2) dyslipidemia + COPD (188, 17.3%); 3) COPD + HCV-Ab+ (141, 12.9%). Multi-morbidity was associated with older age, higher body mass index, current and former smoking, CDC stage C and longer ART

Kenya has experienced an increase in the incidence of various types of cancers in the last few decades. This article highlights dietary factors as major contributors to this rising trend of cancer incidence in Kenya at the backdrop of an evolving diet. Literature search revealed that diet plays a major role in the etiology of various cancers with highest incidence rates in various categories of people in Kenya. Other than among children (≤15 years) and HIV/AIDS patients, young MSM, especially ethnic and racial minority young MSM, bear a disproportionate burden of new HIV infections. This group also has the highest rates of undiagnosed infection and lowest rates of viral suppression. Previous research indicates that young MSM are testing for HIV too late, which may explain why rates of new HIV infection are rising in young Hispanic MSM and not falling in young Black and White MSM despite advances in preventive medications. Analysis of our sample showed an overall average age at first HIV test of approximately 26. The average age at first HIV test was 25.5 years for Black/African American individuals, 24.7 years for Hispanic individuals, and 28 years for White individuals. More testing resources and innovative outreach methods are needed to increase rates of testing among young MSM.


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diet-related cancers such as esophageal, colorectal, stomach, prostate and breast appear to predominate among Kenyans in various categories, i.e., young people (15 < 30 years), adults (31 < = 65 years), and older people (>65 years). In the past few decades, Kenya has been undergoing nutritional transition characterized by departure from potentially cancer-protective traditional diets (mostly rich in dietary fiber, fruits, and vegetables) to "western diet" (rich in charred red/organ meats, fat, cholesterol, sugar, and salt) that poses elevated cancer risks. Other potentially carcinogenic factors that characterize the evolving Kenyan diet include; drinking of illicit and/or excess alcohol, traditional soot-laced sour milk, reuse of frying fats/oils, kerosene-laced meals, aflatoxin and agrochemical contaminated foods. The various plausible mechanisms of carcinogenesis of these dietary factors are discussed.


Introduction: Combined antiretroviral therapy has transformed HIV infection into a chronic disease thus people living with HIV (PLWH) live longer. As a result, the management of HIV infection is becoming more challenging as elderly experience age-related comorbidities leading to complex polypharmacy and a higher risk for drug-drug or drug-disease interactions. Furthermore, age-related physiological changes affect pharmacokinetics and pharmacodynamics thereby predisposing elderly PLWH to incorrect dosing or inappropriate prescribing and consequently to adverse drug reactions and the subsequent risk of starting a prescribing cascade. Areas covered: This review discusses the demographics of the aging HIV population, physiological changes and their impact on drug response as well as comorbidities. Particular emphasis is placed on common prescribing issues in elderly PLWH including drug-drug interactions with antiretroviral drugs. A PubMed search was used to compile relevant publications until February 2019. Expert opinion: Prescribing issues are highly prevalent in elderly PLWH thus highlighting the need for education on geriatric prescribing principles. Adverse health outcomes potentially associated with polypharmacy and inappropriate prescribing should promote interventions to prevent harm including medication reconciliation, medication review, and medication prioritization according to the risks/benefits for a given patient. A multidisciplinary team approach is recommended for the care of elderly PLWH.


We assessed successful aging among older PLWH compared to older people without HIV. One hundred ten older men and women in Palm Springs, California completed a self-administered 28-question survey which collected data on physiological and psychosocial factors related to successfully aging with HIV, including demographics, HIV status, sexual activity, health and wellbeing, experiences of stigma or discrimination, feelings of isolation, receipt of disability benefits, work and volunteer participation, and presence of comorbid infectious diseases, non-infectious diseases, and geriatric syndromes.

Most participants were male (96.4%), non-Hispanic white (84.5%), college educated (61.7%), and age ranged from 55-87 years (median = 64 years). PLWH were significantly older than people without HIV (p = 0.04). The overall prevalence of two or more comorbid conditions across the sample was 59.1%. PLWH were more likely to report depression (p = 0.008). PLWH were also significantly more likely to report having a current sex partner living with HIV (p < 0.001) and receiving disability benefits than people without HIV (41.9% vs 6.3%). Among PLWH, there was a significant relationship between not working or volunteering and feelings of isolation (p = 0.005). For people without HIV, we found a significant relationship between feelings of isolation and not living with someone (p < 0.001), but there was no such relationship among PLWH-possibly reflecting the strength of the support network for PLWH in Palm Springs. Our findings suggest that older PLWH experience successful aging to a similar degree compared to their peers without HIV. However, depression and social isolation remain highly salient issues that threaten successful aging and with which PLWH must contend.

Mara, K. and W. Staff (2019). Home focuses on aging with HIV; Hope House, a foster home in Stillwater, targets growing population.

The messy work of upgrading parts of Hope House of the St. Croix Valley - a home for four people who have HIV/AIDS - is already underway. New flooring and cabinets will soon be installed, and the home was recently repainted. Come summer, a grassy plot along the side of the house will become a garden...

Epigenetic modifications such as DNA methylation are associated with both human immunodeficiency virus (HIV) infection and type 2 diabetes mellitus (T2DM). We investigated epigenetic associations with T2DM according to HIV infection status and assessed interaction effects among 681 male participants of the Veterans Aging Cohort Study. Methylation at previously reported sites, cg1963031 (TXNIP), cg18181703 (SOCS3), and cg09152259 (PROC), was significantly associated with T2DM in HIV-infected individuals. We identified 3 novel associations with suggestive statistical significance: cg1231141 (ADAMTS2), cg19534769 (HGFAC), and cg13162919 (TLE3). Suggestive interaction with HIV infection status was found at cg17862404 (TSC22D1). The implicated genes are involved in inflammation, pancreatic beta-cell function, and T2DM pathogenesis.


The focus of HIV interventions in Botswana, a country with the second highest prevalence of HIV in the world, remains targeted at those aged 15-49 years despite a growing cohort of older people living with the disease - driven largely by the successful roll-out of antiretroviral therapy (ART). Primarily utilising the Botswana AIDS Impact Survey IV, we set out to examine HIV related characteristics and behaviours of this often ignored older cohort (50-64 years) relative to younger (25-49 years) adults. Analysis revealed that more than 80% of older people living with HIV were on ART. HIV prevalence among this older cohort was 24.6% in 2013 compared to 35.1% among the younger cohort, p < 0.0001. Prevalence in older adults was higher among older males (27.8%) than females (21.9%), p = 0.02. Furthermore, 58.9% of older adults acknowledged being sexually active, with 59.0% of these admitting to inconsistent condom use during sexual intercourse. In addition to this low condom usage, older men (6.0%) were significantly more likely to be unaware of their HIV-positive status than older women (3.0%), p = 0.002. While HIV prevalence showed a dramatic increase among older men over time (17.2% in 2004, to 23.4% in 2008, to 27.8% in 2013), the trend was flatter among older women (16.3% in 2004, to 22.4% in 2008, to 21.9% in 2013). These trends are likely attributable to a large increase in ART coverage and uptake. Going forward, more targeted interventions acknowledging the ageing epidemic are important to consider.


We report the sharp reduction in the incidence of AIDS defining cancers in a multicentric, retrospective study carried out since 1991 and involving six Infectious Diseases Units spread across Italy. However, due to the parallel increase in non-AIDS defining cancers, cancer incidence was not reduced. Focusing on predictors of death in HIV-positive patients with neoplastic disease, multivariate models revealed that males as well as drug abusers were independently associated with a poor clinical outcome.

McKellar, M. S., et al. (2019). "Racial Differences in Change in Physical Functioning in Older Male Veterans with HIV." *AIDS Res Hum Retroviruses*.

Little is known about longitudinal change in physical functioning of older African American/Black and White HIV-infected persons. We examined up to 10 years of data on African American (N = 1,157) and White (N = 400) men with HIV infection and comparable HIV-negative men (n = 1,137 and 530, respectively), age 50-91 years from the Veterans Aging Cohort Study Survey sample. Physical functioning was assessed using the SF-12 (12-Item Short Form Health Survey) physical component summary (PCS) score. Mixed-effects models examined association of demographics, health conditions, health behaviors, and selected interactions with PCS score; HIV biomarkers were evaluated for HIV-infected persons. PCS scores were approximately one standard deviation below that of the general U.S. population of similar age. Across the four HIV/race groups, over time and through ages 65-75 years, PCS scores were maintained; differences were not clinically significant. PCS score was not associated with race or with interactions among age, race, and HIV status. CD4 and viral load counts of African American and White HIV-infected men were similar. Older age, low socioeconomic status, chronic health conditions and depression, lower body mass index, and smoking were associated with poorer PCS score in both groups. Exercising and,
counterintuitively, being HIV infected were associated with better PCS score. Among these older African American and White male veterans, neither race nor HIV status was associated with PCS score, which remained relatively stable over time. Chronic disease, depression, and lack of exercise were associated with lower PCS score. To maintain independence in this population, attention should be paid to controlling chronic conditions, and emphasizing good health behaviors.


BACKGROUND: Microbial translocation from the gut to circulation contributes to immune activation during HIV infection and is usually assessed by measuring plasma levels of bacterial lipopolysaccharide (LPS). Gut fungal colonization increases during HIV infection and elevated systemic levels of the fungal polysaccharide (13)--D-Glucan (DG) have been reported in people living with HIV (PLWH). We assessed plasma DG in 146 early and chronic PLWH and investigated its contribution to systemic immune activation. METHODS: Cross-sectional and longitudinal assessment of plasma DG levels were conducted along with markers of HIV disease progression, epithelial gut damage, bacterial translocation, pro-inflammatory cytokines, and DG-specific receptor expression on monocytes and NK cells. RESULTS: Plasma DG levels were elevated during early and chronic HIV infection and persisted despite long-term ART. DG increased over 24-months without ART (p=0.01) but remained unchanged after 24-months of treatment (p>0.99). DG correlated negatively with CD4 T-cell count (r=-0.252; p=0.001), and positively with time to ART initiation (r=0.254; p=0.04), viral load (r=0.350; p=0.002), I-FABP (r=0.384; p=0.001), LPS (r=0.267; p=0.001), and sCD14 (r=0.388; p=0.001). Elevated DG correlated positively with IOD-1 enzyme activity (r=0.345; p=0.004), Tregs frequency (r=0.410; p=0.006), activated CD38+HLA-DR+ CD4 (r=0.652; p=0.001) and CD8 T-cells (r=0.687; p=0.001), and negatively with Dectin-1 (r=-0.474; p=0.01) and NKp30 (r=-0.614; p=0.009) expression on monocytes and NK cells, respectively. CONCLUSION: PLWH have elevated plasma DG in correlation with markers of disease progression, gut damage, bacterial translocation and inflammation. Early ART initiation prevents further DG increase. This fungal antigen contributes to immune activation and represents a potential therapeutic target to prevent non-AIDS events.


Telomere length (TL) is a marker of cellular and biological aging. Human immunodeficiency virus (HIV) infection has been reported to be associated with short TLs, which suggests that accelerated biological aging occurs in some cellular compartments of HIV+ individuals. In this study, we measured the TLs of peripheral leukocytes of HIV+ and healthy individuals and examined the biological and environmental correlates of TL. We also investigated the influence of TL on leukoaraiosis, an indicator of cerebral small vessel disease, in HIV+ individuals. Three hundred and twenty-five HIV+ individuals who received stable combination antiretroviral therapy (cART) for >1 year and achieved viral loads of <40 RNA copies/mL were enrolled along with 147 healthy individuals. Relative TLs of leukocytes were estimated by quantitative real-time polymerase chain reaction. Leukoaraiosis was assessed in 184 HIV+ individuals by fluid-attenuated inversion recovery magnetic resonance imaging. We analyzed several covariates, including markers of HIV infection, cART, and social/environmental factors; variables associated with TL length in univariate analyses were incorporated into multivariate models. The TLs of peripheral leukocytes of HIV+ individuals were significantly shorter than those of healthy individuals, and the rate of LT length decline with increasing age was greater. Linear regression analysis showed that in HIV+ individuals, increasing age, cART without integrase-stand transfer inhibitors (INSTI), failure to achieve viral loads of <40 copies/mL within 1 year of initiating cART, and substance use were significantly associated with shorter TLs, even after adjustment for the effects of age. Logistic regression analysis indicated an increasing risk of leukoaraiosis was associated with older age, shorter TLs, hypertension, and carotid artery plaque. Multivariate regression analysis indicated that older age and shorter TLs were significant risk factors for leukoaraiosis. In summary, our data showed that TL shortening in HIV+ individuals was independently associated with leukoaraiosis, and was associated with age, control of viral loads, use of INSTI, and substance use. Our results suggest that effective viral control and less toxic cART can help reduce TL shortening and improve outcomes among HIV+ individuals.

and hence as human professionals, it is our prerogative to understand if the LGBT identity adds further vulnerabilities to the elderly population. LGBT elderly can be possibly availing the services for the older persons, but certainly there are unmet needs that may pertain specifically to this specific group in the older age, which this article seeks to understand. Rooting in the qualitative method of social research, this article uses a case study of a fifty seven year old gay man to understand if any vulnerability or possibilities of vulnerability prevails within this community. Within the LGBTQ spectrum, the article largely discusses the issues that can pertain to gay man, but certainly this can be used as a basis to articulate issues that may pertain to the whole community rather than just this specific subgroup. [ABSTRACT FROM AUTHOR]

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People aging with HIV (PAWH) infection experience greater impairments in physical and cognitive function, in addition to higher rates of peripheral comorbid conditions (e.g., renal failure, diabetes, bone fracture, hypertension, cardiovascular disease, polypharmacy, and multimorbidity). While multifactorial drivers, including HIV infection itself, antiretroviral therapy-related toxicities, disparities in care, and biobehavioral factors, likely contribute, there remains an overarching question as to what are the relevant age-related mechanisms and models that could inform interventions that promote health span and life span in PAWH? This workshop was convened to hear from experts on the biology of aging and HIV researchers studying PAWH to focus on advancing investigations at the interface of HIV and Aging. In this study, we summarize the discussions from the Harvard Center for AIDS Research and Boston Claude D. Pepper cosponsored workshop on HIV and Aging, which took place in October 2018.


Older persons living with HIV (PLWH), often defined as age 50years and older, are a rapidly growing population, with high rates of chronic pain, substance use, and decreased physical functioning. No interventions currently exist that address all three of these health outcomes simultaneously. An 8-week behavioral intervention combining cognitive-behavioral therapy and tai chi reinforced with text messaging (CBT/TC/TXT) was developed and pilot tested in a community-based AIDS service organization with substance using PLWH aged 50years and older who experienced chronic pain. Fifty-five participants were enrolled in a three arm randomized controlled trial that compared the CBT/TC/TXT intervention (N=18) to routine Support Group (SG) (N=19) and Assessment Only (AO) (N=18) to assess the intervention’s feasibility, acceptability and preliminary efficacy to reduce pain and substance use and improve physical performance. Participants were assessed at baseline, treatment-end (week 8) and week 12. Feasibility and acceptability indicators showed moderate levels of participant enrollment (62% of those eligible), excellent 12-week assessment completion (84%) and high attendance at CBT and tai chi sessions (>60% attended at least 6 of 8 sessions). Efficacy indicators showed within-group improvements from baseline to week 12 in the CBT/TC/TXT group, including all four substance use outcomes, percent pain relief in the past 24h, and in two physical performance measures. Observed between-group changes included greater reductions in days of heavy drinking in the past 30days for both CBT/TC/TXT (19%) and SG (13%) compared to the AO group. Percent pain relief in the past 24h improved in the CBT/TC/TXT group relative to SG, and the CBT/TC/TXT’s physical performance score improved relative to both the SG and AO groups. Findings demonstrate that the CBT/TC/TXT intervention is feasible to implement, acceptable and has preliminary efficacy for reducing substance use and pain and improving physical performance among a vulnerable population of older PLWH.


OBJECTIVE: HIV+ patients have increased their life expectancy with a parallel increase in age-associated co-morbidities and pharmacotherapeutic complexity. The aim of this study was to determine an optimal cutoff value for Medication regimen
complexity index (MRCI) to predict polypharmacy in HIV+ older patients. METHODS: A transversal observational single cohort study was conducted at a tertiary Hospital in Spain, between January 1st up to December 31st, 2014. Patients included were HIV patients over 50 years of age on active antiretroviral treatment. Prevalence of polypharmacy and its pattern were analyzed. The pharmacotherapy complexity value was calculated through the MRCI. Receiver operating characteristic curve analyses were used to calculate the area under the curve (AUC) for the MRCI value medications to determine the best cutoff value for identifying outcomes including polypharmacy. Sensitivity and specificity were also calculated. RESULTS: A total of 223 patients were included. A 56.1% of patients had polypharmacy, being extreme polypharmacy in 9.4% of cases. Regarding the pattern of polypharmacy, 78.0% had a cardio-metabolic pattern, 12.0% depressive-psychoanatic, 8.0% mixed and 2.0% mechanical-thyroidal. The ROC curve demonstrated that a value of medication complexity index of 12.25 point was the best cutoff for predict polypharmacy (AUC=0.931; sensitivity= 77.6%; specificity=91.8%). CONCLUSIONS: A cut-off value of 11.25 for MRCI is proposed to determine if a patient reaches the criterion of polypharmacy. In conclusion, the concept of polypharmacy should include not only the number of prescribed drugs but also the complexity of them.


As the most stigmatised epidemic in history - the human immunodeficiency virus and acquired immune deficiency syndrome (HIV/AIDS) have proven to be a fierce challenge to humanity. The stigmatisation associated with the HIV/AIDS pandemic continues to destroy societies worldwide. The present study was designed to explain the challenges faced by teachers living with HIV. Transformational and ethical care theories framed this research study. A narrative research design rooted in social constructivism was used to gather qualitative data. The data were analysed using qualitative content analysis, where descriptive, process, and emotion codes were used to interpret the data. Key findings speak to affected teachers' social exclusion, stigmatisation and discrimination, inadequate care and support, physical debilitation as well as psychological stress and depression. All these conditions resulted in teachers being unable to perform their tasks at optimal level in South African schools. [ABSTRACT FROM AUTHOR]


In mental health and substance abuse treatment, individualized assessments provide information on the specific thoughts and cognitive processes influencing a person's behavior, emotional responses, and psychological functioning. Given the lack of automated assessment procedures or individualized clinical interventions in the growing health disparities in the South Los Angeles of USA, we developed a novel system using idiographic techniques to automatically and quickly generate individualized patient assessment data for use in clinical interventions.


Introduction Understanding of the burden of HIV infection and comorbid conditions in older adults is limited, especially in low- and middle-income countries. Antiretroviral therapy (ART) has increased longevity of HIV-positive individuals, making age related co-morbidities more likely. Objective To compare demographic and disease profiles, including chronic comorbid conditions of in-patients, at least 50 years of age, by HIV status, admitted to a regional hospital in South Africa. Methods Adults, aged 50 years and older, admitted to internal medicine wards from November 2015 to February 2016 were approached to participate. Socio-demographic data, laboratory results, anthropometric data, discharge diagnoses and HIV status were collected and compared by HIV serostatus. Results Overall, 151 participants were enrolled. Their median age was 61 years (IQR: 56-68 years); 89 (58.9%) were women. Overall 47 (31.1%) were HIV-positive, of whom 10 (6.6%) were first diagnosed during the admission. HIV-positive in-patients were younger than HIV-negative patients. The leading discharge diagnoses of all participants was acute gastroenteritis (11.5%) and community acquired pneumonia (11.5%). Hypertension and type 2 diabetes mellitus (T2DM) were the leading co-morbidities in both HIV-negative and HIV-positive participants. Prevalence of hypertension was 75.0% in seronegative, 39.5% in those with a prior diagnosis of HIV, and 40.0% in newly diagnosed; similarly, prevalence of T2DM was 22.1% in HIV-negative and 24.3% in known HIV-positive participants. Similar proportions died during admission; 11.3% of HIV-negative and 12.7% of HIV-positive admitted in-patients died. Conclusion Almost one third of patients admitted were HIV-positive. In HIV-positive older admitted to hospital, leading
cause for hospitalisation were co-infections. In the ART era, irrespective of HIV status, older patients have similar age-related chronic illnesses and similar mortality rates despite younger age at admission.


INTRODUCTION: This study evaluated knowledge about HIV/AIDS in elders using the services of Family Health Strategy.

METHODS: Cross-sectional, descriptive, and analytical study involving 238 participants. Mini-Mental State Examination and QHIV3I were applied. RESULTS: About 30% of participants had active sexual lives and 5.5% used condoms consistently. The question with the highest score of right answers was about transmission through needles (95%) and the lowest (52.5%) was about whether individuals infected with the virus always displayed symptoms. CONCLUSIONS: It is necessary to train health professionals to develop actions that encourage elders to take preventive measures.


BACKGROUND: Whether continued, accelerated liver fibrosis progression occurs following acute hepatitis C virus infection (AHCVI) in HIV-positive MSM is unknown. DESIGN AND METHODS: HIV-positive MSM from the AIDS Therapy Evaluation in the Netherlands and MSM Observational Study for Acute Infection with Hepatitis C-cohorts with primary AHCVI and at least one fibrosis-4 (FIB-4) measurement less than 2 years before and 1 year after estimated AHCVI were included. Mixed-effect linear models were used to evaluate (time-updated) determinants of FIB-4 levels over time. Determinants of transitioning to and from FIB-4 < 1.45 and > 1.45 were examined using multistate Markov models. RESULTS: Of 313 MSM, median FIB-4 measurements per individual was 12 (interquartile range = 8-18) and median follow-up following AHCVI was 3.5 years (interquartile range = 1.9-5.6). FIB-4 measurements averaged at 1.00 [95% confidence interval (CI) = 0.95-1.05] before AHCVI, 1.31 (95% CI = 1.25-1.38) during the first year of AHCVI and 1.10 (95% CI = 1.05-1.15) more than 1 year after AHCVI. Mean FIB-4 more than 1 year after AHCVI was higher for chronically infected patients compared with those successfully treated (P = 0.007). Overall FIB-4 scores were significantly higher with older age, lower CD4 cell count, longer duration from HIV-diagnosis or AHCVI, and nonresponse to HCV-treatment. At the end of follow-up, 60 (19.2%) and eight MSM (2.6%) had FIB-4 between 1.45-3.25 and > 3.25, respectively. Older age, lower CD4 cell count and detectable HIV-RNA were significantly associated with higher rates of progression to FIB-4 > 1.45, whereas older age, longer duration from HIV-diagnosis and nonresponse to HCV-treatment were significantly associated with lower rates of regression to FIB-4 < 1.45. CONCLUSION: In this population of HIV-positive MSM, FIB-4 scores were higher during the first year of AHCVI, but FIB-4 > 3.25 was uncommon by the end of follow-up. Well controlled HIV-infection appears to attenuate FIB-4 progression.


This review summarizes research discoveries within 4 areas of exercise immunology that have received the most attention from investigators: (1) acute and chronic effects of exercise on the immune system, (2) clinical benefits of the exercise-immune relationship, (3) nutritional influences on the immune response to exercise, and (4) the effect of exercise on immunosenescence. These scientific discoveries can be organized into distinctive time periods: 1900-1979, which focused on exercise-induced changes in basic immune cell counts and function; 1980-1989, during which seminal papers were published with evidence that heavy exertion was associated with transient immune dysfunction, elevated inflammatory biomarkers, and increased risk of upper respiratory tract infections; 1990-2009, when additional focus areas were added to the field of exercise immunology including the interactive effect of nutrition, effects on the aging immune system, and inflammatory cytokines; and 2010 to the present, when technological advances in mass spectrometry allowed system biology approaches (i.e., metabolomics, proteomics, lipidsomics, and microbiome characterization) to be applied to exercise immunology studies. The future of exercise immunology will take advantage of these technologies to provide new insights on the interactions between exercise, nutrition, and immune function, with application down to the personalized level. Additionally, these methodologies will improve mechanistic understanding of how exercise-induced immune perturbations reduce the risk of common chronic diseases.

Self-perception of aging is an important predictor of quality of life. Therefore, we sought to examine self-perceptions of aging (age discrepancy and aging satisfaction) between HIV-positive and HIV-negative individuals. Methods: Baseline data were from the prospective cohort study of 257 participants enrolled in Taizhou, Zhejiang province from January to December, 2017. A total of 459 HIV positive patients and 798 HIV negative controls with sleep disorders (Pittsburg Sleep Quality Index >5 or at least one question with answers of “most nights” or “every night” for Jenkins Sleep Scale) were included in the analysis. Cluster analysis was conducted to identify the different subtypes of sleep disorder based on 15 sleep-related questions. Results: A total of 1,257 participants were divided into three groups (clusters), i.e. difficulty falling asleep and sleep keeping group (cluster 1), the mild symptoms group (cluster 2), and restless night and daytime dysfunction group (cluster 3), accounting for 19.4% (89/459), 63.8% (293/459) and 16.8% (77/459) in HIV positive group and 13.8% (110/798), 60.5% (483/798) and 25.7% (205/798) in HIV negative group. Conclusions: The proportion of those who were illiterate or with primary school education level was significantly high in cluster 1, and the proportion of abnormal waist-to-hip ratio was significantly higher in cluster 1 and 3. Mental and physical health status were the main factors affecting the prevalence of sleep disorder. It is necessary to conduct targeted interventions to improve sleep quality.

The age of the HIV-infected population is increasing. Although many studies document gray matter volume (GMV) changes following HIV infection, GMV also declines with age. Findings have been inconsistent concerning interactions between HIV infection and age on brain structure. Effects of age, substance use, and inadequate viral suppression may confound identification of GMV serostatus effects using quantitative structural measures. In a cross-sectional study of HIV infection, including 97 seropositive and 84 seronegative, demographically matched participants, ages 30-70, we examined serostatus and age effects on GMV and neuropsychological measures. Ninety-eight percent of seropositive participants were currently treated with anti-retroviral therapies and all were virally suppressed. Gray, white, and CSF volumes were estimated using high-resolution T1-weighted MRI. Linear regression modeled effects of serostatus, age, education, comorbidities, and magnetic field strength on brain structure, using both a priori regions and voxel-based morphometry. Although seropositive participants exhibited significant bilateral decreases in striatal GMV, no serostatus effects were detected in the thalamus, hippocampus, or cerebellum. Age was associated with cortical, striatal, thalamic, hippocampal, and cerebellar GMV reductions. Effects of age and serostatus on striatal GMV were additive. Although no main effects of serostatus on neuropsychological performance were observed, serostatus moderated the relationship between pegboard performance and striatal volume. Both HIV infection and age were associated with reduced striatal volume. The lack of interaction of these two predictors suggests that HIV infection is associated with premature, but not accelerated, brain age. In serostatus groups matched on demographic and clinical variables, there were no observed differences in neuropsychological performance. Striatal GMV measures may be promising biomarker for use in studies of treated HIV infection.


Significant advances in the treatment of Human Immunodeficiency Virus (HIV) have occurred in recent times, with life expectancy now approaching the normal population. Therefore, patients with HIV will increasingly be undergoing joint replacement in the future, however concerns remain regarding the complications and outcome in this patient cohort. The aim was to assess the outcome of total hip and knee arthroplasty in HIV-infected patients. A systematic search of the literature using MOOSE reporting guidelines was performed to assess the outcome of hip and knee arthroplasty in HIV-infected patients. The primary outcome was infection. Secondary outcome was all-cause revision. The search yielded 552 results, of which 19 met the inclusion criteria, comprising 5,819,412 joint replacements. The overall quality of the studies was poor with significant heterogeneity between the studies. Infection and revision appeared to be more likely to occur in HIV positive patients compared to HIV negative patients. A subgroup analysis of four studies revealed a risk ratio of 3.31 and 2.25 for increase in infection and revision respectively in HIV positive patients. This systematic review and meta-analysis demonstrates an increased risk of infection and revision in HIV infected patients undergoing total hip and knee arthroplasty. However, these findings are based on poor quality evidence in a limited number of studies and need to be interpreted with caution. Further research should concentrate on large, well-designed, prospective studies, that control for co-morbidities and employ standardised outcome measures to allow for direct comparison.


BACKGROUND: More than 60% of people aging with HIV are observed to have multiple comorbidities, which are attributed for an Age- and Sex-Matched Patient Population Living With HIV: Cross-Sectional Study." JMIR Aging 2(2): e13865.


BACKGROUND: Little is known about sexual problems and genitourinary health of older sexual minority adults, who comprise up to 4% of the adult population but may differ in experiences of genitourinary aging, given known health disparities and behavior differences. AIM: To examine and compare genitourinary and sexual complaints among older sexual minority and sexual majority adults. METHODS: We analyzed data from the 2010-2011 National Social Life, Health, and Aging Project (NSHAP), a nationally representative sample of older community-dwelling U.S. adults. Sexual minority men were defined as those who have sex with men or with both women and men. Sexual minority women were those who have sex with women or with both women and men. Descriptive statistics, weighted frequencies, and the chi-square test were used to compare outcomes by sexual orientation group and gender. MAIN OUTCOME MEASURES: Structured questionnaires examined sexual activity, practices, and genitourinary problems such as erectile dysfunction, insufficient vaginal lubrication, and urinary incontinence (UI). RESULTS: Of 2,813 participants (median age 69.6 years), 4.2% were sexual minorities (5.3% of men, 3.5% of women). Among men, sexual minorities were more likely to report UI (35.6% vs 21.8%; P = .029), but otherwise the 2 groups had similar prevalences of other urinary symptoms, importance of sexual activity, sexual practices, sexual activity within the last 3 months, and erectile difficulty (P > .10 for all). Among women, sexual minorities were more likely to report receiving oral sex (42.5% vs. 21.2%; P = .004), but otherwise the 2 groups had similar prevalences of UI, other urinary symptoms, importance of sexual activity, sexual activity within the last 3 months, and difficulty with lubrication (P > .10 for all). CLINICAL IMPLICATIONS: Sexual activity and sexual problems may be as common among older sexual minority adults as in their sexual majority counterparts, whereas UI may be more common in sexual minority men compared with sexual majority men. Therefore, clinicians should employ culturally-relevant health screening, diagnosis, and treatment to ensure reaching all adults regardless of sexual orientation. STRENGTHS & LIMITATIONS: Strengths include a national population-based sample of older adults that describes sexual and genitourinary health. Statistical power was limited by the small numbers of sexual minority individuals. CONCLUSION: Here we provide new evidence that older sexual minority men may experience UI more often than sexual majority men, and that sexual practices may differ between sexual minority and majority women, but frequency of sexual problems is similar. Given the challenges faced by sexual minority individuals in accessing equitable health care, clinicians must ensure that diagnosis and treatment are relevant to people of all sexual orientations. Obidin-Maliver J, Lisha N, Breyer BN. More Similarities Than Differences? An Exploratory Analysis Comparing the Sexual Complaints, Sexual Experiences, and Genitourinary Health of Older Sexual Minority and Sexual Majority Adults. J Sex Med 2019;16:347-350.


BACKGROUND: More than 60% of people aging with HIV are observed to have multiple comorbidities, which are attributed to a variety of factors (eg, biological and environmental), with sex differences observed. However, understanding these


RESULTS: Significant contributors to high Charlson scores in males were age (beta=2.37; 95% CI 1.45-3.29), longer hospital stay (beta=.046; 95% CI 0.009-0.083), malnutrition (beta=2.96; 95% CI 1.72-4.20), kidney failure (beta=2.23; 95% CI 0.934-3.52), chemotherapy (beta=3.58; 95% CI 2.16-5.002), history of tobacco use (beta=1.40; 95% CI 0.200-2.61), and hepatitis C (beta=1.49; 95% CI 0.181-2.79). Significant contributors to high Charlson scores in females were age (beta=1.37; 95% CI 0.361-2.38), longer hospital stay (beta=.042; 95% CI 0.005-0.078), heart failure (beta=2.41; 95% CI 0.833-3.98), chemotherapy (beta=3.48; 95% CI 1.626-5.33), and substance abuse beta=1.94; 95% CI 0.180, 3.702. CONCLUSIONS: Our findings identified sex-based differences in medical resource utilization. These include kidney failure for men and heart failure for women. Increased prevalence of comorbidities in people living long with HIV has the potential to overburden global health systems. The development of narrower HIV phenotypes and aging-related comorbidity phenotypes with greater clinical validity will support intervention efficacy.


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BACKGROUND: Extra virgin olive oil (EVOO) has shown beneficial effects on the lipid profile and inflammatory parameters in general population. Our goal is to analyze these changes together with those of intestinal microbiota in human immunodeficiency virus (HIV)-infected patients over 50 years of age. METHODS: Experimental single arm open study. HIV patients over the age of 50 with undetectable viral load were selected. EVOO was distributed among the patients so that each one consumed 50 g daily for 12 weeks. Lipid profile, C-reactive protein (CRP), and intestinal microbiota composition were analyzed at the beginning and at the end of the intervention. RESULTS: Total cholesterol decreased significantly (5 mg/dL), and a nonsignificant decrease in low-density lipoprotein cholesterol (12 mg/dL), triglycerides (21 mg/dL), and CRP (1.25 mg/dL) was observed. There was a significant increase in alpha diversity after the intervention in men and a decrease in proinflammatory genera such as Dethiosulfovibrionaceae was observed. Differences were also observed in the microbiota of men and women and according to the type of antiretroviral treatment. CONCLUSION: Sustained consumption of 50 g of EVOO in elderly HIV-infected patients might be associated with an improvement in lipid profile and alpha diversity of intestinal microbiota.


BACKGROUND: New technologies can promote knowledge of HIV infection among patients suffering from this disease. Older patients with HIV infection represent an increasingly large group that could benefit from the use of specific apps. OBJECTIVE: The aim of the study was to observe the acceptability and use of a mobile app on HIV infection in patients at least 60 years old and offer them the possibility of anonymously establishing contact with their peers. METHODS: A series of clinical and psychosocial parameters were studied in 30 HIV-infected patients of over 60 years. The patients must be at least 60 years old, with a follow-up in the outpatient clinic for at least 1 year and without pathologies that limit his or her life expectancy to less than a year. They must know how to read and write. To be part of the group assigned to the app, they had to have their own smartphone and confirm that they were connected to the internet from that device. Overall, 15 of them were randomized to use an app and 15 were in the control group. All tests were repeated after 6 months. RESULTS: The median age of patients was 66.5 years. Among them, 29 patients had an undetectable viral load at baseline. The median number of comorbid diseases was 2. Overall, 11 of them lived with their partners and 19 lived alone. They spent an average of 5 hours a day sitting down, and 56% (17/30) of them referred high physical activity. They scored 4 out of 5 for general quality of life perception. Moreover, 80% (24/30) presented high adherence to their treatment, and the average number of concomitant medications was 5. In the 6-min walking test, they covered a distance of 400 meters, and 3 of them desaturated during the test. The 15 patients made frequent use of the app, with 2407 sessions and an average of 7 min and 56 seconds time of use with a total of 13,143 screen views. During the 6 months of the trial, 3 non-AIDS events took place. There were no significant modifications to body mass index, blood pressure measurements, lipid profile, or immunovirology information data. There were no differences in the questionnaire scores for perception of quality of life, confessed physical activity, or antiretroviral treatment (ART) and non-ART treatment adherence. CONCLUSIONS: Significant differences between studied parameters were not objectified in these patients, possibly because this trial has significant limitations, such as a small sample size and only a brief follow-up period. However, patients did use the app frequently, making this a possible intervention to be proposed in future subsequent studies.


As the number of persons living with HIV (PLWH) will continue to increase in the coming years, it is critical to understand factors influencing appropriate nursing home (NH) care planning. This study described the sociodemographic characteristics as well as the antiretroviral therapy treatment and physical and mental health among Medicare-eligible PLWH in NHs. Persons living with HIV were identified and summarized using a 2011-2013 nationwide data set of Medicare claims linked to NH resident health assessments and a prescription dispensing database, comparing new admissions in 2011-2013 with
OBJECTIVES: In rural pregnant Indian women, multiple missed antenatal screening opportunities due to inadequate public health facility-based screening result in undiagnosed HIV and sexually transmitted bloodborne infections (STBBIs) and conditions (anaemia). Untreated infections complicate pregnancy management, precipitate adverse outcomes and risk mother-to-child transmission. Additionally, a shortage of trained doctors, rural women’s preference for home delivery and health illiteracy affect health service delivery. To address these issues, we developed AideSmart!, an innovative, app-based, cloud-connected, rapid screening strategy that offers multiplex screening for STBBIs and anaemia at the point of care. It offers connectivity, integration, expedited communications and linkages to clinical care throughout pregnancy. METHODS: In a cross-sectional study, we evaluated the AideSmart! strategy for feasibility, acceptability, preference and impact. We trained 15 healthcare professionals (HCPs) to offer the AideSmart! strategy to 510 pregnant women presenting for care to outreach rural service units of Christian Medical College, Vellore, India. RESULTS: With the AideSmart! screening strategy, we recorded an acceptability of 100% (510/510), feasibility (completion rate) of 91.6% (466/510) and preference of 73%. We detected 239 infections/conditions (239/510, 46.8%) at the point-of-care, of which 168 (168/239; 70%) were lab

Olson, B., et al. (2019). "Depressive symptoms, physical symptoms, and health-related quality of life among older adults with HIV." Qual Life Res.

PURPOSE: In the United States, approximately 45% of persons living with HIV (PLHIV) are >/= 50 years of age. Many older PLHIV have multi-morbidities that complicate HIV infection and/or interfere with, or are exacerbated by, antiretroviral treatment. Physical health symptoms and psychiatric disorders, particularly depression, can worsen life quality in older PLHIV. METHODS: This study assessed associations among physical symptoms, indicators of HIV-related health status (i.e., time since diagnosis; ever diagnosed with AIDS; having attained viral suppression), depressive symptoms, and health-related quality of life (HRQoL) in older PLHIV. Regression analyses examined data from 296 PLHIV >/= 50 years of age living in Cincinnati, OH, Columbus, OH, and New York City. RESULTS: Depressive symptoms and physical symptoms, particularly those related to appearance and sexual functioning, most strongly predicted HRQoL. Indicators of HIV health status did not significantly predict HRQoL. Depressive symptoms were a particularly robust predictor of HRQoL, even when accounting for physical health symptoms. CONCLUSION: Findings suggest that symptom management is critical to HRQoL in older PLHIV, and symptoms related to physical appearance and sexual functioning should not be overlooked in this growing population.


Sarcopenia, age-related low muscle mass and function, is a well-established independent risk factor for bone fracture in the geriatric population but is understudied in older people living with HIV (PLWH). The objective of this cross-sectional study was to investigate in older PLWH the relationship between muscle mass and bone mineral density (BMD). Sedentary PLWH who were >/= 50 years of age, receiving antiretroviral therapy, and enrolled in an exercise intervention trial were included. Established definitions for sarcopenia and osteopenia/osteoporosis were applied to muscle mass data and BMD collected by dual-energy X-ray absorptiometry before exercise training. Participants were 93% male and 33% Caucasian race with median age 61 years, and median CD4 lymphocytes 707 cells/muL. The majority (64%) were overweight and obese by body mass index. Appendicular skeletal muscle index (ASMI) correlated with BMD at the femoral neck (r = 0.49, p < .01), total hip (r = 0.54, p < .01), and lumbar spine (r = 0.48, p < .05). Low BMD at the femoral neck was present in 39% (26% osteopenia, 13% osteoporosis). ASMI was lower among those with low BMD compared with normal BMD (p = .02). Low muscle mass measured by ASMI is associated with low BMD in clinically stable older PLWH. Detailed body composition assessment may help guide lifestyle recommendations to prevent bone fractures in older PLWH.

confirmed, staged and treated rapidly. Of the 168 confirmed infections/conditions, 127 were anaemia, 11 Trichomonas and 30 hepatitis B virus (HBV) (25 resolved naturally, 5 active infections). Four infants (4/5; 80%) were prophylaxed for HBV and were declared disease-free at 9 months. Recruited participants were young; mean age was 24 years (range: 17-40) and 74% (376/510) were in their second trimester. Furthermore, 95% of the participants were retained throughout their pregnancy.

CONCLUSION: The AideSmart! strategy was deemed feasible to operationalise by HCPs. It was accepted and preferred by participants, resulting in timely screening and treatment of HIV/STIs and anaemia, preventing mother-to-child transmission. The strategy could be reverse-innovated to any context to maximise its health impact.


A participatory approach to developing the HIV Nursing Research Strategy


OBJECTIVE: Findings on the influence of age and HIV on brain and cognition remain equivocal, particularly in aviremic subjects without other age or HIV-related comorbidities. We aimed to (a) examine the effect of HIV status and age on structural brain measurements and cognition, and (b) apply the machine learning technique to identify brain morphometric and cognitive features that are most discriminative between aviremic subjects with HIV on stable combination antiretroviral therapy (cART) and healthy controls. METHOD: Fifty-three HIV-seropositive patients and 62 healthy controls underwent neuropsychological testing (executive functions, attention, memory, learning, psychomotor speed, fluency) and volumetric MRI scans. Voxel-based morphometry, ANCOVAs, machine learning, and multivariate regression were conducted to determine the between group differences in terms of relationship of HIV status, age, and their interaction on neurocognitive and structural brain measures. RESULTS: Volume and gray matter (GM) thickness of the caudate, parahippocampus, insula, and inferior frontal gyrus were smaller in seropositive subjects in comparison with healthy controls (HC). They also performed worse in complex attention and cognitive fluency tasks. Support vector machine (SVM) analysis revealed that the best between-groups classification accuracy was obtained based on cognitive scores encompassing complex attention and psychomotor speed, as well as volumetric measures of white matter and total gray matter; third, fourth, and lateral ventricles; amygdala; caudate; and putamen. Both voxel-based morphometry (VBM) and regression analysis yielded that HIV and aging independently increase brain vulnerability and cognitive worsening.

CONCLUSION: Patients with HIV on effective cART demonstrate smaller volumetric measures and worse cognitive functioning relative to seronegative individuals. There is no interaction between HIV infection and aging. (PsycINFO Database Record (c) 2019 APA, all rights reserved).
There are distinct trajectories to cognitive impairment among participants in the Multicenter AIDS Cohort Study (MACS).

Here we analyzed the relationship between regional brain volumes and the individual trajectories to impairment in a subsample (n = 302) of the cohort. 302 (167 HIV-infected; mean age = 55.7 yrs.; mean education: 16.2 yrs.) of the men enrolled in the MACS MRI study contributed data to this analysis. We used voxel-based morphometry (VBM) to segment the brain images to analyze gray and white matter volume at the voxel-level. A Mixed Membership Trajectory Model had previously identified three distinct profiles, and each study participant had a membership weight for each of these three trajectories. We estimated VBM model parameters for 100 imputations, manually performed the post-hoc contrasts, and pooled the results. We examined the associations between brain volume at the voxel level and the MMTM membership weights for two profiles: one considered "unhealthy" and the other considered "Premature aging." The unhealthy profile was linked to the volume of the posterior cingulate gyrus/precuneus, the inferior frontal cortex, and the insula, whereas the premature aging profile was independently associated with the integrity of a portion of the precuneus. Trajectories to cognitive impairment are the result, in part, of atrophy in cortical regions linked to normal and pathological aging. These data suggest the possibility of predicting cognitive morbidity based on patterns of CNS atrophy.


BACKGROUND: Treatment of hepatitis C virus infections (HCV) with direct acting antivirals (DAA) can prevent new infections since cured individuals cannot transmit HCV. However, as DAA s are expensive, many countries defer treatment to advances stages of fibrosis, which results in ongoing transmission. We assessed the epidemiological impact and cost-effectiveness of treatment initiation in different stages of infection in the Netherlands where the epidemic is mainly concentrated among HIV-infected MSMs. METHODS: We calibrated a deterministic mathematical model to the Dutch HCV epidemic among HIV-infected MSM to compare three different DAA treatment scenarios: 1) immediate treatment, 2) treatment delayed to chronic infection allowing spontaneous clearance to occur, 3) treatment delayed until F2 fibrosis stage. All scenarios are simulated from 2015 onwards. Total costs, quality adjusted life years (QALY), incremental cost-effectiveness ratios (ICERs), and epidemiological impact were calculated from a providers perspective over a lifetime horizon. We used a DAA price of euro35,000 and 3% discounting rates for cost and QALYs. RESULTS: Immediate DAA treatment lowers the incidence from 1.2/100 person-years to 0.2/100 person-years (interquartile range 0.1-0.2) and the prevalence from 5.0/100 person-years to 0.5/100 person-years (0.4-0.6) after 20 years. Delayed treatment awaiting spontaneous clearance will result in a similar reduction. However, further delayed treatment to F2 will increases the incidence and prevalence. Earlier treatment will cost society euro68.3 and euro75.1 million over a lifetime for immediate and awaiting until the chronic stage, respectively. The cost will increase if treatment is further delayed until F2 to euro98.4 million. Immediate treatment will prevent 7070 new infections and gains 3419 (3019-3854) QALYs compared to F2 treatment resulting in a cost saving ICER. Treatment in the chronic stage is however dominated. CONCLUSIONS: Early DAA treatment for HIV-infected MSM is an excellent and sustainable tool to meet the WHO goal of eliminating HCV in 2030.


The NEUrocognitive (NEU) Screen is a practical tool proposed to screen for HIV-associated cognitive impairment in the clinical setting. This is a pencil-and-paper method that can be applied rapidly (<10 minutes for administration) and has no copyright limitations. In this study, we aimed at investigating its diagnostic accuracy in an older population of persons living with HIV (PLWH), with cutoffs set at 30, 40, 50, and 60 years. Data were collected from a sample of 368 PLWH who underwent a comprehensive neuropsychological tests battery (gold standard). Results of statistical tests showed that accuracy of the NEU Screen increased with age of the participants. The highest degree of precision, with a sensitivity of 91% and specificity of 92%, was obtained for people ages 60 years or older (correct classification: 91%). These optimal results point to the great potential of the NEU Screen as a tool for detecting cognitive disorders in older PLWH.


We previously reported that galectin-9 (Gal-9), a soluble lectin with immunomodulatory properties, is elevated in plasma during HIV infection and induces HIV transcription. The link between Gal-9 and compromised neuronal function is becoming increasingly evident; however, the association with neuroHIV remains unknown. We measured Gal-9 levels by ELISA in cerebrospinal fluid (CSF) and plasma of 70 HIV-infected (HIV+) adults stratified by age (older > 40 years and younger < 40 years) either ART suppressed or with detectable CSF HIV RNA, including a subgroup with cognitive assessments, and 18 HIV uninfected (HIV-) controls. Gal-9 tissue expression was compared in necropsy brain specimens from HIV- and HIV+ donors using gene datasets and immunohistochemistry. Among older HIV+ adults, CSF Gal-9 was elevated in the ART suppressed and CSF viremic groups compared to controls, whereas in the younger group, Gal-9 levels were elevated only in the CSF viremic group (p < 0.05). CSF Gal-9 positively correlated with age in all groups (p < 0.05). CSF Gal-9 tracked with CSF HIV RNA irrespective of age (beta = 0.33; p < 0.05). Higher CSF Gal-9 in the older viremic HIV+ group correlated with worse neuropsychological test performance scores independently of age and CSF HIV RNA (p < 0.05). Furthermore, CSF Gal-9 directly correlated with myeloid activation (CSF-soluble CD163 and neopterin) in both HIV+ older groups (p < 0.05). Among HIV+ necropsy specimens, Gal-9 expression was increased in select brain regions compared to controls (p < 0.05). Gal-9 may serve as a novel neuroimmuno-modulatory protein that is involved in driving cognitive deficits in those aging with HIV and may be valuable in tracking cognitive abnormalities.

INTRODUCTION: The elderly population is increasingly benefiting from recent technological advances. In this scenario, geolocation-based dating applications provide a viable alternative for finding partners in a practical and timely manner, but may be accompanied by certain risk behaviors for HIV infection. Although there are considerable number of users over 50 on these applications, no studies have addressed this problem. The aim of the present study was to analyze factors of vulnerability to HIV/AIDS among the population of men who have sex with men (MSM) age 50 years or older who use dating apps. METHODS: This was a cross-sectional, population-survey-based, analytical study, conducted exclusively online with a sample of 412 MSM. The data was collected from the following apps: Grindr(R), Hornet(R), Scruff(R) and Daddy Hunter(R). RESULTS: Factors associated with a higher chance of having HIV were: sexual relations with an HIV-infected partner (ORa=5.53; 95%CI=2.23-13.73); chemsex (ORa=3.97; 95%CI=1.72-8.92); and, above all, having an HIV-infected partner (ORa=8.02; 95%CI=2.01-32.01). The belief that apps increase protection against sexually transmitted infections (ORa=0.43; 95%CI=0.19-0.95) and not being familiar with post-exposure prophylaxis (ORa=0.43; 95%CI=0.19-0.95) were associated with decreased chances of having HIV. CONCLUSIONS: We highlight some important factors that structure the vulnerability of the MSM surveyed in relation to HIV infection. The findings should be used to customize care for this population, which could bring them in more for health care services.

BACKGROUND: COPD screening guidelines in patients with HIV are lacking, and data about its under-diagnosis are still limited. This study aimed to determine the feasibility of a case-finding program and the prevalence of COPD under-diagnosis in a large cohort of HIV-infected subjects. METHODS: All out-patients attending their routine visit for HIV monitoring at Spedali Civili General Hospital in Brescia, Italy, from February 2015 to January 2016, were enrolled. The case-finding program was structured in three steps: questionnaire administration, pre-bronchodilator spirometry testing measured with a portable spirometer, and post-bronchodilator diagnostic spirometry during a pulmonology appointment. RESULTS: A total of 1,463 subjects were included; the average age was 46.2 +/- 10.3 y. Two hundred eighty-two subjects had a positive questionnaire; 190 completed portable spirometry, and approximately 34% (65 of 190 subjects) reported respiratory impairment; of these 65 subjects, 33 completed diagnostic spirometry, and 66.7% (22 of 33) showed evidence of COPD, including 2 subjects with severe airway obstruction (GOLD stage 3, according to the Global Initiative for Chronic Obstructive Lung Disease). High dropout rates were observed in our program. Individuals with COPD exacerbations showed lower CD4+ cell counts at screening compared to those without acute worsening of symptoms (534 cells/mm(3) for subjects with GOLD 1 exacerbations and 495 cells/mm(3) for subjects with GOLD 2 exacerbations vs 781 cells/mm(3) for those without acute worsening of symptoms). The positive predictive value of the COPD screening questionnaire and portable spirometry was 33.8%. CONCLUSIONS: COPD may be under-diagnosed in HIV-infected people, and case-finding programs are an urgent issue to address as part of routine practice in these individuals.
This study examined the empirical structure (i.e., size, density, duration) of transgender women's social networks and estimated how network alters' perceived HIV risk/protective behaviors influenced transgender women's own HIV risk/protective behaviors. From July 2015 to September 2016, 271 transgender women completed surveys on sociodemographic characteristics, HIV risk/protective behaviors, and social networks. Hierarchical generalized linear models examined the associations of social network alter member data 'nested' within participant data. Analyses revealed that social network factors were associated with HIV risk/protective behaviors, and that the gender identity of the alters (cisgender vs. transgender), and social network sites and technology use patterns ('SNS/tech') moderated these associations. Among network alters with whom the participant communicated via SNS/tech, participants' HIV risk behavior was positively associated with alters' HIV risk behavior (cisgender alters aOR 4.10; transgender alters aOR 5.87). Among cisgender alters (but not transgender alters) with whom the participant communicated via SNS/tech, participants' HIV protective behavior was positively associated with alters' HIV protective behavior (aOR 8.94).

The stability and variability of older adults' late-differentiated peripheral blood T and natural killer (NK) cells over time remains incompletely quantified or understood. We examined the variability and change over time in T and NK cell subsets in a longitudinal sample of older adults; the effects of sex, cytomegalovirus (CMV) serostatus, and chronic disease severity on immune levels and trajectories; and interdependencies among T and NK cell subsets. Older adults (N=149, age 64-94 years, 42% male) provided blood every 6 months for 2.5 years (up to 5 waves) to evaluate late-differentiated CD8 T cells (CD28-, CD57+) and CD56(dim)NK cells (CD57+, NKG2C+, Fc\varepsilon RI\gamma-). In multilevel models, most of the variance in immune subsets reflected stable differences between people. However, CD56(dim)NK cell subsets (CD57+ and Fc\varepsilon RI\gamma-) also increased with age, whereas T cell subsets did not. Independent of age, all subsets examined were higher in CMV-positive older adults. Men had higher levels of CD56(dim) CD57+ than women. Chronic disease was not associated with any immune subset investigated. T and NK cell subsets correlated within each cell type, but interdependencies differed by CMV serostatus. Our results suggest the accumulation of these stable cell populations may be driven less by chronological aging, even less by chronic disease severity, and more by CMV, which may differentially skew T and NK cell differentiation.

Cytomegalovirus (CMV) and psychological stress are implicated as drivers of immunological aging. It is unknown, however, whether associations among CMV titers, stress, and immune aging are more stable or dynamic over time. The present investigation tested the between-person (stable differences) and within-person (dynamic fluctuations) associations of CMV titers and perceived stress on late-differentiated T and natural killer (NK) peripheral blood cells in a longitudinal study of older adults aged 64-92 years (N=149). Participants reported stress levels and provided blood biannually for 2.5 years (up to 5 waves per person) to assess CMV IgG titers and composites of late-differentiated CD8 T cells (CD28- and CD57+ subsets) and CD56(dim) NK cells (CD57+, NKG2C+, and Fc\varepsilon RI\gamma-). In multilevel models that controlled for demographic variables, higher CMV titers were associated with higher proportions and counts of aged T and NK cells between people and lower counts of aged T cells within people. Perceived stress was associated with higher counts of aged T cells between people, but was not associated with aged NK cells. A significant interaction between stress and CMV titers on T cells between people indicated that older adults with lower stress levels and lower CMV titers had the lowest proportions of late-differentiated T cells, whereas those with higher stress levels had high proportions, regardless of CMV control. Our results provide evidence for longer-term, between-person associations among CMV titers, stress, and immunological aging, rather than dynamic within-person associations. We propose that targeting factors that promote low, stable perceived stress in older adults may retard T cell differentiation and ultimately support healthy aging.
The introduction of highly active antiretroviral therapy (HAART) resulted in a significant increase in life expectancy for HIV patients. Indeed, in 2015, 45% of the HIV+ individuals in the United States were ≥55 years of age. Despite improvements in diagnosis and treatment of HIV infection, geriatric HIV+ patients suffer from higher incidence of comorbidities compared to age-matched HIV- individuals. Both chronic inflammation and dysbiosis of the gut microbiome are believed to be major contributors to this phenomenon, however carefully controlled studies investigating the impact of long-term (>10 years) controlled HIV (LTC-HIV) infection are lacking. To address this question, we profiled circulating immune cells, immune mediators, and the gut microbiome from elderly (≥55 years old) LTC-HIV+ and HIV- gay men living in the Palm Springs area. LTC-HIV+ individuals had lower frequency of circulating monocytes and CD4+ T-cells, and increased frequency CD8+ T-cells. Moreover, levels of systemic INFgamma and several growth factors were increased while levels of IL-2 and several chemokines were reduced. Upon stimulation, immune cells from LTC-HIV+ individuals produced higher levels of pro-inflammatory cytokines. Last but not least, the gut microbiome of LTC-HIV+ individuals was enriched in bacterial taxa typically found in the oral cavity suggestive of loss of compartmentalization, while levels of beneficial butyrate producing taxa were reduced. Additionally, prevalence of Prevotella negatively correlated with CD4+ T-cells numbers in LTC-HIV+ individuals. These results indicate that despite long-term adherence and undetectable viral loads, LTC-HIV infection results in significant shifts in immune cell frequencies and gut microbial communities.


BACKGROUND: Risks for cardiovascular diseases, including myocardial infarction and stroke, are elevated in people with HIV infection (PWH). However, no trials of statin utilization with clinical cardiovascular disease (CVD) end points have been completed in PWH, and there are sparse real-world data regarding statin use and lipid-lowering effectiveness. We therefore used a unique cohort of PWH and uninfected controls to evaluate (1) differences in statin types used for PWH versus uninfected persons; (2) lipid lowering achieved by statin use for PWH versus uninfected persons; and (3) racial and ethnic disparities in appropriate statin use among PWH and uninfected persons. METHODS: We analyzed a cohort of 5,039 PWH and 10,011 uninfected demographically matched controls who received care at a large urban medical center between January 1, 2000, and May 17, 2017. Medication administration records, prescription data, and validated natural language processing algorithms were used to determine statin utilization. Statins were categorized by generic active ingredient name and intensity (high, moderate, or low). Lipid values collected in routine clinical care were available for analysis. The first set of analyses was restricted to PWH and uninfected matched controls taking statins and compared (1) differences in statin type and (2) difference in cholesterol levels after versus before statin initiation by HIV status. For the second set of analyses, we first used prevalent CVD risk factors to determine participants with statin indications and then determined how many of these participants were taking statins. We then compared statin utilization among persons with indications for statins by race/ethnic group for PWH and uninfected matched controls using multivariable-adjusted logistic regression. RESULTS: Among people prescribed statins, PWH were more likely than controls to have ever taken pravastatin (34.8% vs 12.3%, P < .001) or atorvastatin (72.2% vs 65.6%, P = .002) and less likely to have ever taken simvastatin (14.2% vs 39.5%, P < .001). Among PWH with indications for statin utilization, 55.7% of whites, 39.4% of blacks, and 45.8% of Hispanics were prescribed statins (P < .001). These differences in statin prescription by race/ethnicity remained significant after adjustment for demographics (including insurance status), cardiovascular risk factors, antiretroviral therapy use, HIV viremia, and CD4 count. These racial/ethnic disparities in statin utilization were less pronounced among uninfected persons. CONCLUSIONS: Among PWH with statin indication(s), blacks and Hispanics were less likely than whites to have been prescribed a statin. These racial/ethnic disparities were less pronounced among uninfected persons. There were significant differences in type of statin used for PWH compared to uninfected matched controls. Future efforts addressing disparities in CVD prevention among PWH are warranted.


BACKGROUND: Ambulatory function predicts morbidity and mortality and may be influenced by cardiopulmonary dysfunction. Persons living with HIV (PLWH) suffer from a high prevalence of cardiac and pulmonary comorbidities that may contribute to higher risk of ambulatory dysfunction as measured by 6-minute walk test distance (6-MWD). We investigated the effect of HIV on 6-MWD. METHODS: PLWH and HIV-uninfected individuals were enrolled from 2 clinical centers and
OBJECTIVE: Obesity is a common, modifiable cardiovascular and cerebrovascular risk factor. Among people with HIV, obesity may contribute to multisystem dysregulation including cognitive impairment. We examined body mass index (BMI) and central obesity (waist circumference [WC]) in association with domain-specific cognitive function and 10-year cognitive decline in men with HIV infection (MWH) vs HIV-uninfected (HIV-) men. METHODS: A total of 316 MWH and 656 HIV-Multicenter AIDS Cohort Study participants >/=40 years at baseline, with neuropsychological testing every 2 years and concurrent BMI and WC measurements, were included. MWH were included if taking >/=2 antiretroviral agents and had completed a 6-MWD, spirometry, diffusing capacity for carbon monoxide (DLCO) and St. George's Respiratory Questionnaire (SGRQ). Results of 6-MWD were compared between PLWH and uninfected individuals after adjusting for confounders. Multivariable linear regression analysis was used to determine predictors of 6-MWD. RESULTS: Mean 6-MWD in PLWH was 431 meters versus 462 in 130 HIV-uninfected individuals (p = 0.0001). Older age, lower forced expiratory volume (FEV1)% or lower forced vital capacity (FVC)%, and smoking were significant predictors of decreased 6-MWD in PLWH, but not HIV-uninfected individuals. Lower DLCO% and higher SGRQ were associated with lower 6-MWD in both groups. In a combined model, HIV status remained an independent predictor of decreased 6-MWD (Mean difference = -19.9 meters, p = 0.005). CONCLUSIONS: HIV infection was associated with decreased ambulatory function. Airflow limitation and impaired diffusion capacity can partially explain this effect. Subjective assessments of respiratory symptoms may identify individuals at risk for impaired physical function who may benefit from early intervention.


With ageing, the potency of individual risk factors traditionally associated with common illnesses declines. Instead, it is becoming clear that the impact of a wide range of age-related deficits not traditionally considered as risk factors for these illnesses increases. These age-related deficits chiefly confer risk as a group, not individually. The many effects of age-related changes can be demonstrated epidemiologically, and in preclinical models, using a frailty index to distinguish between the contributions of traditional and non-traditional risk factors. Quantifying the contribution of age-related deficit accumulation in clinical and preclinical samples offers a powerful new tool for understanding mechanisms of age-related disease. It appears that a range of common late-life illnesses might be targeted by drugs aimed at ageing processes.


INTRODUCTION: People living with HIV (PLWH) on antiretroviral therapy (ART) do not progress to AIDS. However, they still suffer from an increased risk of inflammation-associated complications. HIV persists in long-lived CD4+ T cells, which form the major viral reservoir. The persistence of this reservoir despite long-term ART is the major hurdle to curing HIV. Importantly, the size of the HIV reservoir is larger in individuals who start ART late in the course of infection and have a low CD4+/CD8+ ratio. HIV reservoir size is also linked to the levels of persistent inflammation on ART. Thus, novel strategies to reduce immune inflammation and improve the host response to control the HIV reservoir would be a valuable addition to current ART. Among the different strategies under investigation is metformin, a widely used antidiabetic drug that was recently shown to modulate T-cell activation and inflammation. Treatment of non-diabetic individuals with metformin controls inflammation by improving glucose metabolism and by regulating intracellular immunometabolic checkpoints such as the adenosin 5 monophosphate activated protein kinase and mammalian target of rapamycin, in association with microbiota modification. METHODS AND ANALYSIS: 22 PLWH on ART for more than 3 years, at high risk of inflammation or the development of non-AIDS events (low CD4+/CD8+ ratio) will be recruited in a clinical single-arm pilot study. We will test whether supplementing ART with metformin in non-diabetic HIV-infected individuals can reduce the size of the HIV reservoir as determined by various virological assays. The expected outcome of this study is a reduction in both the size of the HIV reservoir and inflammation following the addition of metformin to ART, thus paving the way towards HIV eradication. ETHICS AND DISSEMINATION: Ethical approval: McGill university Health Centre committee number MP-37-2016-2456. Canadian Canadian Institutes of Health Research/Canadian HIV Trials Network (CTN) protocol CTNPT027. Results will be made available through publication in peer-reviewed journals and through the CTN website. TRIAL REGISTRATION NUMBER: NCT02659306.


OBJECTIVE: Obesity is a common, modifiable cardiovascular and cerebrovascular risk factor. Among people with HIV, obesity may contribute to multisystem dysregulation including cognitive impairment. We examined body mass index (BMI) and central obesity (waist circumference [WC]) in association with domain-specific cognitive function and 10-year cognitive decline in men with HIV infection (MWH) vs HIV-uninfected (HIV-) men. METHODS: A total of 316 MWH and 656 HIV-Multicenter AIDS Cohort Study participants >/=40 years at baseline, with neuropsychological testing every 2 years and concurrent BMI and WC measurements, were included. MWH were included if taking >/=2 antiretroviral agents and had
BACKGROUND: Unlike their younger counterparts, some of today's older HIV patients were diagnosed before the advent of highly active antiretroviral therapy (HAART). The psychosocial and behavioral outcomes of people living with HIV (PLWH) have been widely studied, and associated factors are well known. However, their evolution both in terms of age and serostatus, and adjusted for sociodemographic, behavioral, and clinical characteristics. At baseline and follow-up, 8% of MWH and 15% of HIV- men and 41% of MWH and 56% of HIV- men were >/=60 years, respectively. RESULTS: Cross-sectionally, higher BMI was inversely associated with motor function in MWH and HIV- men, and attention/working memory in HIV- men. WC was inversely associated with motor function in MWH and HIV- men. Longitudinal associations indicated an obese BMI was associated with a less steep decline in motor function in MWH whereas in HIV- men, obesity was associated with a greater decline in motor function, learning, and memory. WC, or central obesity, showed similar patterns of associations. CONCLUSION: Higher adiposity is associated with lower cognition cross-sectionally and greater cognitive decline, particularly in HIV- men. Overweight and obesity may be important predictors of neurologic outcomes and avenues for prevention and intervention.


This invention concerns compositions and methods of treating or diagnosing inflammatory disorders and other disorders, as well as compositions and methods of treating HIV.


Balance deficits impose limitations and can impede safe walking contributing to falls and falls-related complications. The objective of this study was to perform an in-depth balance assessment and compare domains of limitations in older men with and without HIV infection. Fifteen sedentary African American men either with HIV (n=6) or without HIV (n=9 controls) participated. Standing balance was assessed under quiet stance on dual synchronized force plates during three 30-sec trials with eyes open. Participants also completed standardized clinical instruments of balance including the Berg Balance Scale (BBS) and Dynamic Gait Index (DGI). Older participants with HIV have lower BBS and DGI scores than controls (both P<0.05). Adults with HIV have nearly 100% greater COP sway variability than controls (1.42+/-.120 cm2 vs. 0.71+/-.01 cm2, P<0.05). This data demonstrating differences in COP sway area between groups may be a better reflection of potential fall risk and contribute to frailty in older adults with HIV.


INTRODUCTION: Chronic respiratory disease is a common cause of morbidity in children with HIV infection. We investigated longitudinal lung function trends among HIV-infected children, to describe the evolution of lung disease and assess the effect of anti-retroviral therapy (ART). METHODS: Prospective follow-up of two cohorts of HIV-infected children, aged 6 to 16 years, in Harare, Zimbabwe; one group were ART-naive at enrolment, the other established on ART for a median of 4.7-years. Standardised spirometric assessments were repeated over a 2-year follow-up period. Forced expiratory volume (FEV1) and forced vital capacity (FVC) were expressed as Global Lung Initiative defined z-scores (FEV1z and FVCz). Linear mixed-effects regression modelling of lung function was performed, with co-variate parameters evaluated by likelihood ratio comparison. RESULTS: We included 271 ART-naive and 197 ART-established children (median age 11 years in both groups) incorporating 1144 spirometric assessments. Changes in FEV1 and FVC were associated with age at ART initiation and body mass index for both cohorts. Our models estimate that ART initiation earlier in life could prevent a deterioration of 0.04 FVCz/year. In the ART-naive cohort, likelihood ratio comparison suggested an improvement in 0.09 FVCz/year during the two years following treatment initiation, but no evidence for this among participants established on ART. CONCLUSION: Early ART initiation and improved nutrition are positively associated with lung function and are important modifiable factors. An initial improvement in lung growth was seen in the first 2-years following ART initiation, although this did not appear to be sustained beyond this timeframe.


BACKGROUND: Unlike their younger counterparts, some of today's older HIV patients were diagnosed before the advent of highly active antiretroviral therapy (HAART). The psychosocial and behavioral outcomes of people living with HIV (PLWH) have been widely studied, and associated factors are well known. However, their evolution both in terms of age and
One in six new HIV diagnoses in Europe occur among people over 50 years of age. As in the general population, the aging process is not homogeneous among older adults with HIV, and some of them exhibit impaired physical function, higher frailty and more frequent geriatric syndromes. These illness reflect a higher biological age independently of their chronological age. After starting antiretroviral treatment, people living with HIV (PLWH) older than 50 exhibit a poorer immunological recovery than younger PLWH. Moreover, older adults with HIV present early onset of comorbidities and functional impairment caused by persistent and chronic activation of the immune system, which leads to immune exhaustion and accelerated immunosenescence despite optimal suppression of HIV replication. The evidence of poorer immunological response to ARV, linked with early immunosenescence in PLWH and its prematurely deleterious effect in physiological functions and its clinical consequences, are the basis to accept the cut-off of 50 years of age to define an "older adult with HIV". [ABSTRACT FROM AUTHOR]

We identified mortality predictors among HIV-exposed uninfected infants and infants living with HIV in Kenyan early infant diagnosis services between 2012 and 2017. Younger maternal age and absence of antenatal antiretroviral therapy among HIV-exposed uninfected infants (n = 2366) and travel time to hospital and delayed infant testing among infants living with HIV (n = 130) predicted mortality, highlighting the importance of supporting engagement in maternal/pediatric HIV services.


Following recent attention focused on IL-32 as an important component involved in the inflammatory cytokine network, we speculated that IL-32's action on IFN-gamma and IFN-gamma secreting T cell subsets may help sustain the immune activation and dysregulation found in patients with HIV-1 achieving viral suppression. To explore this hypothesis, transcript levels of IL-32 and IFN-gamma were evaluated in PBMC from 139 virologically suppressed HIV-1-infected patients and from 63 healthy individuals by Real Time RT-PCR assays. IL-32 and IFN-gamma mRNA levels were also analyzed in CD4+ T cells, CD14+ monocytes and lamina propria lymphocytes (LPL) of the gut district in a subgroup of HIV-1-infected subjects. IFN-gamma secreting CD4+ (Th1) and CD8+ (Tc1) T cell subset frequencies were evaluated in LPL by multiparametric flow cytometry. Gene expression results revealed that IL-32 and IFN-gamma levels in PBMC from HIV-1-positive patients were significantly elevated compared to those from healthy donors, correlated with each other and increased with patient age. Both IL-32 and IFN-gamma genes were also more strongly expressed in CD4+ T cells than in CD14+ monocytes. By contrast, IL-32 levels in LPL were comparable to those measured in PBMC, while IFN-gamma levels were higher in PBMC than those in LPL. Negative correlations were found between IL-32 levels and the frequencies of Th1 and Tc1 subsets in gut mucosa. Collectively, our results provide the first evidence that IL-32 levels remain elevated in treated HIV-1-infected patients and correlate with IFN-gamma, Th1 and Tc1 subsets.


We evaluated white matter microstructure integrity in perinatally HIV-infected (PHIV) youths receiving cART compared to age- and gender-matched healthy youths through DTI metrics using voxel-based morphometry (VBM). We investigated 14 perinatally HIV-infected patients (age 17.9 +/- 2.5 years) on cART and 17 healthy youths (HC) (age 18.0 +/- 3.0 years) using a 3T MRI scanner. Four DTI-derived metrics were fractional anisotropy (FA), mean diffusivity (MD), axial diffusivity (AD), and radial diffusivity (RD). Statistical analysis was done with voxel-based analysis of covariance (ANCOVA), with age and gender as covariates. Region-of-interest secondary analyses in statistically significant regions were also performed. Regional increases in FA in the PHIV youths were found in left middle frontal gyrus, right precuneus, right lingual gyrus, and left supramarginal gyrus. Increased MD was found in the right precentral gyrus while decreased MD was found in the white matter of the right superior parietal lobule and right inferior temporal gyrus/fusiform gyrus. Regions of increased/decreased RD overlapped with regions of increased/decreased MD. Both increased and decreased AD were found in three to four regions respectively. The regional FA, MD, RD, and AD values were consistent with the voxel-based analysis findings. The findings are mostly consistent with previous literature, but increased FA has not been previously reported for perinatally HIV-infected youths. Potentially early and prolonged therapy in our population may have

AIM: (1) describe the percentage of people living with HIV (PLWH) experiencing high levels of treatment burden who are at risk for self-management non-adherence, and (2) examine the relationship between known antecedent correlates (the number of chronic conditions, social capital, and age) of self-management and treatment burden while controlling for sample socio-demographics. BACKGROUND: Chronic condition self-management is key to maintaining optimal health in the aging population of PLWH. Despite the efforts of providers, patients, and caregivers, self-management non-adherence is still a factor contributing to poor chronic condition self-management and subsequent poor health outcomes. Recent research has identified treatment burden as a risk factor of poor chronic disease self-management adherence. METHOD: Cross-sectional, secondary analysis of a sub-sample of 103 community dwelling, men and women diagnosed with HIV/AIDS derived from a larger parent study examining physical activity patterns in PLWH. RESULTS: Participants reported an overall low level of treatment burden (M=22.84; SD=24.57), although 16% (n=16) of the sample indicated experiencing high treatment burden. The number of chronic conditions (r=0.25; p<.01) and social capital (r=-0.19; p=.03) were significantly correlated with treatment burden. Multivariate analysis testing known antecedent correlates of treatment burden was statistically significant (p<.05), but only explained 8% of treatment burden's variance. CONCLUSION: Findings have implications for nursing care of PLWH demonstrating a subset of PLWH experience high treatment burden related to chronic condition self-management. Findings also identify characteristics of PLWH who may be at high risk for treatment burden and subsequent self-management non-adherence.


This meta-analysis examined the effects of mindfulness-based interventions (MBIs) on stress, psychological symptoms, and biomarkers of disease among people living with HIV/AIDS (PLWHA). Comprehensive searches identified 16 studies that met the inclusion criteria (N = 1059; M age = 42 years; 20% women). Participants had been living with HIV for an average of 8 years (range = <1-20 years); 65% were currently on antiretroviral therapy. Between-group analyses indicated that depressive symptoms were reduced among participants receiving the MBIs compared to controls (d+ = 0.37, 95% CI 0.03, 0.71). Within-group analyses showed reductions in psychological symptoms (i.e., less anxiety, fewer depressive symptoms) and improved quality of life over time among MBI participants (d+ = 0.40-0.85). No significant changes were observed for immunological outcomes (i.e., CD4 counts) between- or within-groups. MBIs may be a promising approach for reducing psychological symptoms and improving quality of life among PLWHA. Studies using stronger designs (i.e., randomized controlled trials) with larger sample sizes and longer follow-ups are needed to clarify the potential benefits of MBIs for PLWHA.


OBJECTIVE: Persistent inflammation and higher risk to develop cardiovascular diseases still represent a major complication for HIV-infected patients despite effective antiretroviral therapy (ART). We investigated the correlation between the gut microbiota profile, markers of inflammation, vascular endothelial activation (VEA) and microbial translocation (MT) in perinatally HIV-infected patients (PHIV) under ART. DESIGN: Cross-sectional study including 61 ART-treated PHIV (age range 3-30 years old) and 71 age-matched healthy controls. Blood and stool sample were collected at the same time and analyzed for gut microbiota composition and plasma biomarkers. METHODS: Gut microbiota composition was determined by 16S rRNA targeted-metagenomics. Soluble markers of MT, inflammation and VEA were quantified by ELISA or Luminex assay. Markers of immune activation were analyzed by flow cytometry on CD4 and CD8 T cells. RESULTS: We identified two distinct gut microbiota profiles (groups A and B) among PHIV. No different clinical parameters (age, sex, ethnicity, clinical class), dietary and sexual habits were found between the groups. The group A showed a relative dominance of Akkermansia...

Since the introduction of suppressive antiretroviral therapy (ART), HIV has become a chronic disease, with infected people in high-income countries approaching similar life expectancy to the general population. As this population ages, an enhanced health care system may be needed to manage chronic conditions.

Background: Recent evidence has demonstrated that MSM attending sexual health clinics who disclosed participating in chemsex (the use of mephedrone, crystal methamphetamine and γ-hydroxybutyrate/γ-butyrolactone (GHB/GBL) to enable, enhance and prolong sexual interactions) had a higher likelihood of being newly diagnosed with HIV-infection. It has been suggested that chemsex has increased among men having sex with men (MSM) attending sexual health clinics in large UK cities. Methods: The prospective cohort study, Attitudes to and Understanding Risk of Acquisition of HIV over Time (AURAH2), collected online questionnaire data from HIV negative or undiagnosed MSM (at enrolment) from 2015 to 2018, recruited from sexual health clinics. We aimed to investigate changes in chemsex, three individual drugs associated with chemsex, frequency of chemsex sessions and measures of sexual behaviour, among the cohort of MSM over the study's 3-year follow-up period. Results: In total 622 MSM completed at least one online questionnaire for the AURAH2 study, of which 400 (64.3%) were still engaged with the study within the last six months of follow-up. Prevalence of chemsex significantly declined during the follow-up from 31.8% (198/622) at the first online questionnaire, to 11.1% (8/72; p<0.001) at the 9th. This decline was reflected in the proportion of MSM reporting use of two of the three individual chemsex drugs: mephedrone use had significantly declined from 25.2% at the first online questionnaire to 9.7% (p<0.001) at the 9th, GHB/GBL use had also declined from 19.9% to 8.3% (p=0.001). While crystal methamphetamine use declined, but not significantly (11.1% to 6.9% [p=0.289]). Most measures of sexual behaviour (any anal sex, group sex, recent HIV test and bacterial STI) also tended to decline over the follow-up period, with the exception of CLAI with more than one and more than two partners. Conclusions: Chemsex and use of two individual chemsex drugs (mephedrone and GHB/GBL) significantly declined over time among individuals in the study, alongside most measures of sexual behaviour with the exception of those related to CLAI. Focusing health promotion and HIV prevention, such as awareness of post-exposure prophylaxis (PEP) and access to pre-exposure prophylaxis (PrEP), on MSM that report chemsex, and in particular problematic chemsex, would be highly beneficial, potentially only necessary for a relatively short period of time for individuals, and could have long term benefits for HIV and STI prevention.


Silicotuberculosis is critical in community settings among workers and employees exposed to silica dust. Older age of entry (>30 years), male sex, infection with human immunodeficiency virus (HIV), exposure duration, smoking, chronic obstructive pulmonary disease, migration, the severity of the silicosis and the intensity of the exposure are potential risk factors. Lack of timely diagnosis and treatment for tuberculosis (TB) may also raise the rate of infection; previous treatment of TB is possibly associated with the development of silicotuberculosis in more than half of patients, increasing with age (>40 years). Identification of risk factors benefits not only the academic research community, but also the workers or employees and policy making. Some strategies can be implemented, such as controlling or reducing exposure to silica dust, ensuring continuity of treatment of TB or extended anti-TB treatment, management of the situation by occupational health professionals, prevention of oscillating migration, providing workers with compensation, training and education in occupational health, improving the quality of life of miners and workers, intensive medical surveillance and TB screening in routine health check ups, and policy making for higher immunity to inhibit inhalation of dust by workers or employees.


Since the introduction of suppressive antiretroviral therapy (ART), HIV has become a chronic disease, with infected people in high-income countries approaching similar life expectancy to the general population. As this population ages, an enhanced health care system may be needed to manage chronic conditions.
increasing number of people with HIV are living with age-, treatment-, and disease-related comorbidities. Lifestyle factors such as smoking, alcohol abuse, and substance misuse have a role in age-related comorbidity. Some degree of immune dysfunction is suggested by the presence of markers of immune activation/inflammation despite effective suppression of HIV replication. Cumulative exposure to some antiretroviral drugs contributes to HIV-associated comorbidities, with risk increasing with age. Specifically, tenofovir disoproxil fumarate (TDF), ritonavir-boosted atazanavir, and ritonavir-boosted lopinavir are associated with renal impairment, and TDF is known to cause loss of bone mineral density. Tenofovir alafenamide (TAF) was developed to improve on the safety profile of TDF, while maintaining its efficacy. TAF has better stability in plasma, and higher intracellular accumulation of tenofovir diphosphate in target cells, which has resulted in improved antiviral activity at lower doses with improved renal and bone safety. TAF has been studied extensively in randomized clinical trials and real-world studies. TAF-based regimens are recommended over TDF-containing regimens for the improved safety profile.


Understanding why persons with human immunodeficiency virus (HIV) have accelerated atherosclerosis and its sequelae, including coronary artery disease (CAD) and myocardial infarction, is necessary to provide appropriate care to a large and aging population with HIV. In this review, we delineate the diverse pathophysiologies underlying HIV-associated CAD and discuss how these are implicated in the clinical manifestations of CAD among persons with HIV. Several factors contribute to HIV-associated CAD, with chronic inflammation and immune activation likely representing the primary drivers. Increased monocyte activation, inflammation, and hyperlipidemia present in chronic HIV infection also mirror the pathophysiology of plaque rupture. Furthermore, mechanisms central to plaque erosion, such as activation of toll-like receptor 2 and formation of neutrophil extracellular traps, are also abundant in HIV. In addition to inflammation and immune activation in general, persons with HIV have a higher prevalence than uninfected persons of traditional cardiovascular risk factors, including dyslipidemia, hypertension, insulin resistance, and tobacco use. Antiretroviral therapies, although clearly necessary for HIV treatment and survival, have had varied effects on CAD, but newer generation regimens have reduced cardiovascular toxicities. From a clinical standpoint, this mix of risk factors is implicated in earlier CAD among persons with HIV than uninfected persons; whether the distribution and underlying plaque content of CAD for persons with HIV differs considerably from uninfected persons has not been definitively studied. Furthermore, the role of cardiovascular risk estimators in HIV remains unclear, as does the role of traditional and emerging therapies; no trials of CAD therapies powered to detect clinical events have been completed among persons with HIV.


Negative stereotypes regarding the sex lives of older adults persist, despite sexuality being an important factor that influences the quality of life. We conducted a systematic review of the qualitative literature on the sexuality and sexual health of older adults to address which topics have been researched and the quality of research within this field. We searched PsycINFO, SocINDEX, MEDLINE, and CINAHL for qualitative articles investigating the sexuality of adults aged 60+ years. We analyzed 69 articles using thematic analysis to synthesize their findings. We identified two overarching thematic categories: psychological and relational aspects of sexuality (personal meanings and understandings of sex, couplehood aspects, and sociocultural aspects) and health and sexuality (effects of illness and/or treatment on sexuality, and help-seeking behaviors). Research is needed into male sexual desire and pleasure, culture-specific and sexual/gender identities and their effect on outcomes such as help-seeking behavior and sexual satisfaction, and sexual risk-taking in older adults.


Information about the prevalence, and risk factors for subclinical atherosclerosis in an Asian HIV-infected population is limited. Carotid intima-media thickness (cIMT) is one predictor for the risk of cardiovascular disease (CVDs) and mortality. We evaluated the prevalence and risk factors related to carotid atherosclerosis among well-suppressed HIV-infected adults receiving long-term ART from Thailand. This was a cross-sectional study of HIV-infected adults >50 years of age and free from CVDs from Thailand during 1 March 2016 and 30 May 2017. Ultrasonography of the carotid was performed and read by cIMT experienced neurologists who were blinded from the patient care. Subclinical atherosclerosis was defined by...
Human Immunodeficiency Virus (HIV) is an enveloped virus, belonging to the viral family Retroviridae. It is a highly evolved virus which has grasped the attention of all researchers with its special features like morphology, genetics and also by its emerging nature. The special feature of all retro viruses is the presence of an enzyme called Reverse transcriptase which plays major role in reverse transcription process. HIV enters the host body, damages immune system and will cause life-threatening opportunistic infections finally leads to AIDS (Acquired Immunodeficiency Syndrome). Many advances have been made in the prevention of HIV transmission and management of HIV/AIDS since the virus was discovered in the early 1980s. One of the most important discoveries has been antiretroviral treatment, which can halt the replication of HIV and ease symptoms, turning AIDS into a chronic condition instead of a rapidly terminal illness. Despite advances, HIV remains a major public health challenge. This article reviews the genus, life cycle, and transmission of HIV, as well as workplace issues surrounding the virus and the challenges of developing an HIV vaccine.


Neurocognitive impairment (NCI) remains a significant cause of morbidity in human immunodeficiency virus (HIV)-positive individuals despite highly active antiretroviral therapy (HAART). White matter abnormalities have emerged as a key component of age-related neurodegeneration, and accumulating evidence suggests they play a role in HIV-associated neurocognitive disorders. Viral persistence in the brain induces chronic inflammation associated with lymphocytic infiltration, microglial proliferation, myelin loss, and cerebrovascular lesions. In this study, gene expression profiling was performed on frontal white matter from 34 older HIV+ individuals on HAART (18 with NCI) and 24 HIV-negative controls. We used the NanoString nCounter platform to evaluate 933 probes targeting inflammation, interferon and stress responses, energy metabolism, and central nervous system-related genes. Viral loads were measured using single-copy assays. Compared to HIV- controls, HIV+ individuals exhibited increased expression of genes related to interferon, MHC-1, and stress responses, myeloid cells, and T cells and decreased expression of genes associated with oligodendrocytes and energy metabolism in white matter. These findings correlated with increased white matter inflammation and myelin pallor, suggesting interferon (IRFs, IFITM1, ISG15, MX1, OAS3) and stress response (ATF4, XBP1, CHOP, CASP1, WARS) gene expression changes are associated with decreased energy metabolism (SREBF1, SREBF2, PARK2, TXNIP) and oligodendrocyte myelin production (MAG, MOG), leading to white matter dysfunction. Machine learning identified a 15-gene signature predictive of HIV status that was validated in an independent cohort. No specific gene expression patterns were associated with NCI. These findings suggest therapies that decrease chronic inflammation while protecting mitochondrial function may help to preserve white matter integrity in older HIV+ individuals.

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Middle-aged and older men who have sex with men (MSM) are one of the most underestimated populations with regard to HIV/AIDS infection, despite the worldwide trend of increasing prevalence in recent years. This population also has low rates of testing, although rare studies are done exclusively with middle-aged and older MSM assessing the factors associated with this prevalence. Thus, based on data from an exclusive online survey with middle-aged and older MSM who use geolocation-based dating applications, the purpose of the study was to analyze factors associated with not taking the HIV test among middle-aged (50 years old) and older MSM in Brazil. Using a modification of time-location sampling adapted to virtual reality, 412 volunteers were approached in Grindr(R), Hornet(R), SCRUFF(R), and Daddyhunt(R). The multivariate logistic regression model was adopted to produce adjusted odds ratios (ORa), considering a significance level at .05. There were factors associated with not taking the test: being in a relationship (ORa: 0.24; 95% CI [0.10, 0.53]); knowing partner through the applications (ORa: 1.84; 95% CI [1.07, 3.15]); not knowing the serological status (ORa: 5.07; 95% CI [1.88, 13.67]); ejaculating outside of anal cavity (ORa: 1.79; 95% CI [1.04, 3.05]); practicing sex without penetration (ORa: 2.30; 95% CI [1.17, 4.50]); not taking the test as a form of prevention (ORa: 2.83; 95% CI [1.05, 7.68]); and rarely using Viagra in sexual intercourse (ORa: 1.91; 95% CI [1.20, 3.65]). There is a blind spot in the prevalence of HIV testing in older MSM because this population is not being covered by services, which compromises the overall response to HIV, the goals set for universal health coverage.

The number of older adults living with HIV (OALHIV) is increasing rapidly due to effective antiretroviral therapy. The current research describes sexual behavior, attitudes toward sex, and HIV transmission risk among OALHIV. Participants were HIV-infected persons aged 50 years and older enrolled from community hospitals in Chiang Mai Province, Northern Thailand. Of the 328 participants, 57.6% were women, and the average age was 58.8 years. The majority of participants (93.9%) had undetectable viral load. Most participants (77.1%) thought that it is ok/acceptable for PLHIV to have sex. About one-third of OALHIV participants were sexually active. Being male, younger, married, a previous smoker or a non-smoker, having a positive attitude toward sex, and not having a chronic health condition were independent predictors of having had sex in the last 12 months. Risk of HIV sexual transmission was likely low due to consistent condom use, undetectable viral load, and low instances of extramarital sex.

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BACKGROUND: Knowledge of health-related quality of life (HRQOL) of patients receiving opioid substitution treatment (OST) is limited and fragmented. The present study examines the HRQOL of a large national sample of OST patients in Germany and sociodemographic and clinical correlates. METHODS: Cross-sectional data on the HRQOL of 2176 OST patients was compared with German general population norms. Patients were recruited from 63 OST practices across Germany. To identify correlates of HRQOL, as measured with the SF-12, we performed bi- and multivariate analyses with sociodemographic and clinical variables, including patient- and clinician-reported outcomes on physical and mental health.

RESULTS: Patients' HRQOL was significantly poorer than in the general population, especially their mental HRQOL. Factors associated with lower physical HRQOL were older age, longer duration of opioid dependence, hepatitis C virus infection, and HIV infection. Benzodiazepine use was associated with lower mental HRQOL, and amphetamine use with higher physical HRQOL, compared to non-use of these substances. For both mental and physical HRQOL, the factor with the strongest positive association was employment and the factors with the strongest negative associations were physical and mental health symptom severity, psychiatric diagnosis, and psychopharmacological medication. CONCLUSIONS: Compared to the general population, we found substantially lower HRQOL in OST patients, especially in their mental HRQOL. OST programs can benefit from further improvement, particularly with regard to mental health services, in order to better serve their patients' needs. Clinicians may consider the use of patient-reported outcome measures to identify patients' subjective physical and psychological needs. Further research is needed to determine if employment is a cause or consequence of improved HRQOL.

TRIAL REGISTRATION: ClinicalTrials.gov: NCT02395198, retrospectively registered 16/03/2015.
OBJECTIVES: Men who have sex with men (MSM) are a highly neglected population in the current recommendation of girls-only human papillomavirus (HPV) vaccination programmes in many countries. To better assess the cost effectiveness of HPV vaccination among men requires data on the prevalence of HPV infection in MSM using a community sample, which is still sparse in several regions. We examined the prevalence of and factors associated with anogenital HPV infection among MSM in Taiwan. METHODS: MSM 20 years of age and older were recruited from the community and social media in Taiwan in 2015-2016 and screened for HPV infection to detect 37 genotypes. MSM were seen at baseline and were/will be seen at 6, 12, 24 and 36 months. Men completed a questionnaire regarding their sexual experiences. Multivariable regression analyses were conducted to identify associated behavioural risk factors using the baseline data. RESULTS: A total of 253 MSM were recruited; 87 % were below 35 years of age. Diagnosis of HIV was reported in 4% of men; just over 20% had three or more anal sex partners in the past year. The prevalence of any tested HPV type was 29.4% at the anal site and 11% at the penile site. One quarter of MSM were infected with any of the 9-valent vaccine HPV types. Anal HPV detection was associated with having three or more receptive anal sex partners in the past year (adjusted odds ratio (aOR)=2.92, 95% CI 1.29 to 6.61) and having older sex partners (aOR=2.51, 95% CI 1.07 to 5.90). CONCLUSIONS: Our data provide the base to calculate the reproductive rate for HPV transmission in a low-risk community sample and cost-effectiveness to include men in HPV vaccination policies. Adding evidence from a community sample adds comprehensiveness for future estimates of disease transmission and vaccine effectiveness.


BACKGROUND: HIV-infected persons have an increased risk of atherosclerosis relative to uninfected individuals. Inflammatory processes may contribute to this risk. We evaluated the associations of 10 biomarkers of systemic inflammation (CRP, IL-6, sTNF-alphaR1 and 2), monocyte activation (CCL2, sCD163, sCD14), coagulation (fibrinogen, D-dimer), and endothelial dysfunction (ICAM-1) with subclinical carotid atherosclerosis among participants in the Multicenter AIDS Cohort Study (MACS). METHODS: Carotid plaque and intima media thickness (IMT) in the common carotid (CCA-IMT) and bifurcation region were assessed by B mode ultrasound among 452 HIV-infected and 276 HIV-uninfected men from 2010-2013. Associations between levels of each biomarker and presence of focal plaque and IMT were assessed by logistic and linear regression models, adjusting for demographics, risk behaviors, traditional cardiovascular disease (CVD) risk factors, and HIV disease characteristics. RESULTS: Compared to HIV-uninfected men, HIV-infected men had significantly higher levels of 8 of the 10 biomarkers. Overall, men with sCD163, CCL2, IL-6, and CRP levels in the highest quintile had approximately 2 times the odds of carotid plaque relative to those with levels in the lowest quintile, independent of demographic and CVD risk factors. Fibrinogen levels were positively associated with CCA-IMT while ICAM-1, CCL2, and sTNF-alphaR1 levels were positively associated with bifurcation-IMT. Among HIV-uninfected men, higher levels of sTNF-alphaR2 were positively associated with CCA-IMT, fibrinogen with bifurcation-IMT and carotid plaque, and ICAM-1 with carotid plaque. CONCLUSION: In addition to greater levels of systemic inflammation, heightened monocyte activation (sCD163, CCL2) may contribute to the burden of atherosclerosis among HIV-infected persons.


Context: Nursing care on the spiritual aspect is focusing on the patients' acceptance of their diseases; thus, people living with HIV (PLWH) are able to accept their diseases and are able to take the lesson. PLWH do not only deal with the condition of the disease but also by discriminative social stigma. Aim: The aim of this study was to explore, describe, and interpret the experience of spirituality to self-acceptance in patients with HIV/AIDS. Research Methodology: This research is a qualitative approach by descriptive phenomenology of participants involving as many as 10 people, consisting of 5 men and 5 women. All participants are muslim with the education level range from junior high school to university. The ages ranged from 29 to 46 years. Results: This research identified the two themes which are: (1) being able to take the lesson from their diseases, and (2) self acceptance as people living with HIV/AIDS. There were 10 participants participated in this study. A method of in-depth interviews and observation is a help of data collection. Data analysis used was Creswell method. Conclusion: Results of the study suggested the patients to get motivated and to develop aspects of spirituality so that it can help to ease in the process of self acceptance, as getting closer to God through pray, read the Quran, fasting, etc.
PURPOSE OF REVIEW: To summarize the state of chronic, treated HIV infection and its contribution to accelerated aging.

OBJECTIVE: Individuals with HIV treated with antiretroviral therapy can expect to reach average life span, making them disease.” Neuropsychology


OBJECTIVE: Individuals with HIV treated with antiretroviral therapy can expect to reach average life span, making them susceptible to combined disease and aging effects on cognitive and motor functions. Slowed processing speed in HIV is a concern for cognitive and everyday functioning and is sensitive to declines in aging. We hypothesized that information processing (IP) deficits, over and above that expected with normal aging, would occur in older HIV patients similar to those observed in Parkinson's disease (PD) patients, with both conditions affecting frontostriatal pathways. METHOD: Groups comprised 26 individuals with HIV infection, 29 with mild-to-moderate PD, and 21 healthy controls (C). Speed of IP was assessed with the oral version of the Symbol Digit Modalities Test and the color naming condition of the Golden Stroop Task. RESULTS: The HIV group was impaired on speed of IP tasks compared with both the C and PD groups. Even after controlling for normal aging effects, older age in the HIV group correlated with IP slowing. Slower IP speed was associated with poorer general cognitive ability and more extrapyramidal motor signs in older HIV-infected individuals. CONCLUSIONS: The notable effects of impaired IP speed, over and above neurotypical age-related declines, indicate that older HIV-infected individuals may have an enhanced vulnerability for developing nonmotor and motor symptoms despite antiretroviral therapy. Assessing for oral IP speed may provide the unique opportunity to identify early signs of progressive clinical declines in HIV. (PsycINFO Database Record (c) 2019 APA, all rights reserved).


PURPOSE OF REVIEW: To summarize the state of chronic, treated HIV infection and its contribution to accelerated aging, and to evaluate recent research relevant to the study and treatment of aging and senescence. RECENT FINDINGS: Chronic treated HIV-1 infection is associated with significant risk of end-organ impairment, non-AIDS-associated malignancies, and accelerated physiologic aging. Coupled with the chronicologic aging of the HIV-1-positive population, the development of therapies that target these processes is of great clinical importance. Age-related diseases are partly the result of cellular senescence. Both immune and nonimmune cell subsets are thought to mediate this senescent phenotype, a state of stable cell cycle arrest characterized by sustained release of pro-inflammatory mediators. Recent research in the field of aging has identified a number of 'senotherapeutics' to combat aging-related diseases, pharmacologic agents that act either by selectively promoting the death of senescent cells ('senolytics') or modifying senescent phenotype ('senomorphics').
SUMMARY: Senescence is a hallmark of aging-related diseases that is characterized by stable cell cycle arrest and chronic inflammation. Chronic HIV-1 infection predisposes patients to aging-related illnesses and is similarly marked by a senescence-like phenotype. A better understanding of the role of HIV-1 in aging will inform the development of therapeutics aimed at eliminating senescent cells that drive accelerated physiologic aging.

BACKGROUND: Approximately 25% of elite controllers (ECs) lose their virological control by mechanisms that are only partially known. Recently, immunovirological and proteomic factors have been associated to the loss of spontaneous control. Our aim was to perform a metabolomic approach to identify the underlying mechanistic pathways and potential biomarkers associated with this loss of control. METHODS: Plasma samples from EC who spontaneously lost virological control (Transient Controllers, TC, n=8), at two and one year before the loss of control, were compared with a control group of EC who persistently maintained virological control during the same follow-up period (Persistent Controllers, PC, n=8). The determination of metabolites and plasma lipids was performed by GC-qTOF and LC-qTOF using targeted and untargeted approaches. Metabolite levels were associated with the polyfunctionality of HIV-specific CD8(+) T-cell response. FINDINGS: Our data suggest that, before the loss of control, TCs showed a specific circulating metabolomic profile characterized by aerobic glycolytic metabolism, deregulated mitochondrial function, oxidative stress and increased immunological activation. In addition, CD8(+) T-cell polyfunctionality was strongly associated with metabolite levels. Finally, valine was the main differentiating factor between TCs and PCs. INTERPRETATION: All these metabolomic differences should be considered not only as potential biomarkers but also as therapeutic targets in HIV infection. FUND: This work was supported by grants from Fondo de Investigacion Sanitaria, Instituto de Salud Carlos III, Fondos FEDER; Red de Investigacion en Sida, Gilead Fellowship program, Spanish Ministry of Education and Spanish Ministry of Economy and Competitiveness.

OBJECTIVE: Despite viral suppression and immune response on antiretroviral therapy, people with HIV infection experience excess mortality compared with uninfected individuals. The Veterans Aging Cohort Study (VACS) Index incorporates clinical biomarkers of general health with age, CD4 cell count, and HIV-1 RNA to discriminate mortality risk in a variety of HIV-positive populations. We asked whether additional biomarkers further enhance discrimination. DESIGN AND METHODS: Using patients from VACS for development and from the Antiretroviral Therapy Cohort Collaboration (ART-CC) for validation, we obtained laboratory values from a randomly selected visit from 2000-2014, at least 1 year after antiretroviral therapy initiation. Patients were followed for 5-year, all-cause mortality through September 2016. We fitted Cox models with established predictors and added new predictors based on model fit and Harrell's c-statistic. We converted all variables to continuous functional forms and selected the best model (VACS Index 2.0) for validation in ART-CC patients. We compared discrimination using c-statistics and Kaplan-Meier plots. RESULTS: Among 28 390 VACS patients and 12 109 ART-CC patients, 7293 and 722 died, respectively. Nadir CD4, CD8, and CD4 : CD8 ratio did not improve discrimination. Addition of albumin, white blood count, and BMI, improved c-statistics in VACS from 0.776 to 0.805 and in ART-CC from 0.800 to 0.831. Results were robust in all nine ART-CC cohorts, all lengths of follow-up and all subgroups. CONCLUSION: Addition of albumin, white blood count, and BMI, improved discrimination and is highly transportable to external settings.

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CONCLUSION: VACS Index 2.0, adding albumin, WBC, and BMI to version 1.0 and using continuous variables, provides
improved discrimination and is highly transportable to external settings.


Male sex workers are marginalized in most societies due to intersectional stigma between prostitution and homosexuality. In
Zimbabwe, a proliferation of male sex workers in major cities such as Harare and Bulawayo has been reported. However, there is
a shortage of studies that explore their lives. The current qualitative study aims to describe the practices of sex work, life contexts,
and HIV risks and vulnerabilities based on in-depth interviews among 15 male sex workers in Bulawayo. Our studies suggest that the stigma against male sex workers comes from diverse sectors including culture ("homosexuality is un-African, introduced by the Whites"), religion ("same sex is a sin before the God"), law and police ("homosexuality is illegal in Zimbabwe. Engaging in it can send one to prison"), media ("the media is hostile to sex workers particularly men as we are regarded as abnormal and unclean"), and their family ("should they get to know about it, they will disown me"). In this context, male sex workers were excluded from national HIV prevention and treatment programs. They had limited
knowledge and many misconceptions about HIV. The stigma and discrimination from health-care providers also
discouraged them from health seeking or HIV testing. The non-disclosure to female partners of convenience and sexual
relations further increased their vulnerabilities to HIV infection and transmission. Current efforts to address the HIV
epidemic should pay attention to male sex workers and tackle the intersecting stigma issues. male sex workers need
support and tailored HIV prevention and treatment services to improve their HIV prevention practices, health, and well-
being.

cells.

Provided herein are immunogenic compositions (vaccines) and methods for immunizing a subject with the immunogenic
compositions for inducing an adaptive immune response directed specifically against senescent cells for treatment and
prophylaxis of age-related diseases and disorders, and other diseases and disorders associated with or exacerbated by the
presence of senescent cells. The immunogenic compositions provided herein comprise at least one or more senescent cell-
associated antigens, polynucleotides encoding senescent cell-associated antigens, and recombinant expression vectors
comprising the polynucleotides for use in administering to a subject in need thereof.

Van de Ven, N. S., et al. (2019). "Impact of musculoskeletal symptoms on physical functioning and quality of life among treated

BACKGROUND: Musculoskeletal symptoms in people living with HIV (PLWH) such as pain, joint stiffness, and fatigue are
commonly reported. Prevalence rates of up to 45%, 79% and 88% respectively have been reported. However, very little is
known about differences in prevalence and impact of musculoskeletal symptoms on physical functioning and quality of life
of PLWH on effective combined antiretroviral treatment (cART) in high and low-resource settings. METHODS: A cross-
sectional study of PLWH on effective cART enrolled from two large urban clinics in the UK and Zambia was conducted in
2016. Eligible participants had no history of trauma to the joints within 4 weeks of recruitment, or documented evidence of
previous rheumatic disease. Current musculoskeletal symptoms, functional ability, and health-related quality of life were
evaluated using the health assessment (HAQ) and quality-of-life short form (SF-36) self-reported questionnaires. RESULTS:
214 patients were enrolled (108:UK and 106:Zambia). Participants from Zambia were younger (47 vs 44 years) and had
significantly lower CD4 counts (640 vs 439 cells/mL p = 0.018) compared to those from the UK, while the UK group had lived
with HIV longer (11 vs 6 years; p<0.001) and reported more comorbidities than the Zambian group (66% vs 26%; p<0.001).
Musculoskeletal pain was common in both groups (UK:69% vs Zambia:61% p = 0.263) but no significant differences in
physical functional capacity between the groups were observed. However, the UK group had significantly worse quality of
life measurements (general health, vitality, mental health, emotional, and social functioning) associated with

Purpose of review: To summarize global efforts to accelerate access to simpler, safer and more affordable antiretroviral drugs and how this has shaped HIV treatment policy over the last decade, and outline future priorities. Several expert consultations aimed at aligning opportunities for optimization of antiretroviral drugs have been convened by WHO in partnership with academic institutions, international agencies, innovators and manufacturers. The increased access to lifelong treatment for people living with HIV also brings about new challenges in the long-term use of antiretrovirals (ARVs).

Recent findings: The article describes the evolution of global research agenda on ARV optimization ascribing the characteristics of a target product profile, the importance of sequencing of first-line and second-line regimens, the role of programmatic data when looking at policy transition for new ARVs, inclusion of more subpopulations living with HIV, as well as the challenges in identifying what improvements can be made in an era where drugs are already safe, tolerable and efficacious. SUMMARY: Within a framework of evolving treatment harmonization and simplification, future therapeutic options in development must take into consideration safety and efficacy across a range of patient populations as well the mode of administration in the context of lifelong therapy.


Combination antiretroviral therapy has completely changed the landscape of HIV infection through the control of viral replication of the virus, the restoration of the immune system damage, and the reduction of the complications associated with immunodeficiency. As a consequence, the average age of people living with HIV has been increasing progressively, with a high proportion of diagnosed, as well as newly diagnosed, HIV-infected patients being older than 50 years throughout the world. With the longer life expectancy, characteristics commonly observed in aging are occurring in people with long-term HIV infection, including multiple chronic diseases, changes in cognitive and physical abilities, and the use of multiple medications. HIV-related specific factors, as well as a higher prevalence of environmental, classical factors, increase the risk of comorbidities in the aging HIV-infected population. A close collaboration between different specialists (HIV specialists, geriatricians, primary care physicians, and other specialists) is required to manage the clinical problems that older HIV-infected patients may present. [ABSTRACT FROM AUTHOR]

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Background: Alcohol use disorders (AUDs) are highly prevalent in people living with HIV (PLWH) and are associated with increased HIV risk behaviors, suboptimal treatment adherence, potential interaction with medication pharmacodynamics, and greater risk for disease progression. Preclinical studies show that chronic binge alcohol administration accelerates disease progression and aggravates pathogenesis in the simian immunodeficiency virus (SIV)-infected rhesus macaque model despite viral suppression by antiretroviral therapy. Methods: To translate preclinical findings in the rhesus macaque model of chronic binge alcohol administration and SIV infection and to address areas of uncertainty surrounding the biological mechanisms and socioenvironmental modifiers that contribute to the relationship between alcohol use and HIV-associated comorbidities, precocious aging, and disease progression, we designed a translational multiproject, longitudinal, cohort study, and the New Orleans Alcohol Use in HIV (NOAH) Study. The NOAH Study is led by a multidisciplinary team of scientists, with a research focus on the interaction of AUD and HIV. The overarching hypothesis is that alcohol use will play a role in determining well-being and quality of life of PLWH with musculoskeletal symptoms.
our cohort. Results: Three-hundred and sixty-five participants completed the baseline testing. The cohort is predominantly male (69%) and African American (83.5%). The majority of participants report incomes below 200% of the federal poverty level. CD4 counts <200 cells/μl were found in 12.8% and viral loads <50 copies/ml were found in 73.6%. These HIV status variables did not differ based upon alcohol use. Conclusions: The NOAH Study facilitates bidirectional translational investigation of alcohol’s impact on PLWH. Translation of preclinical findings to PLWH permits confirmation of basic biological mechanisms in humans and also allows incorporation of sociobehavioral factors that may affect biology but are challenging to replicate in preclinical models. The NOAH Study is led by a multidisciplinary team of scientists at LSUHSC, with a research focus on the interaction of AUD, HIV, and cART. This clinical study translates preclinical findings in the rhesus macaque model of chronic binge alcohol administration and SIV infection and facilitates bidirectional translational investigation of alcohol’s impact on PLWH. Studies address areas of uncertainty surrounding the biological mechanisms and socioenvironmental modifiers that contribute to the relationship between alcohol use and HIV-associated comorbidities, precocious aging, and disease progression. [ABSTRACT FROM AUTHOR]

HIV/AIDS-related (HAR) stigma is an ongoing problem in Sub-Saharan Africa that is thought to impede HIV preventive and treatment interventions. This paper uses a systematic sample of households (Level 1) nested within near-neighbor clusters (Level 2) and communities (Level 3) to examine multilevel relationships of HAR stigma to health service barriers (HSBs) and HIV outcomes in KwaZulu-Natal, South Africa, thereby addressing methodological and conceptual gaps in the literature from this context. Findings suggest differential patterns of prediction at Level 1 when examining two different dimensions of stigma: more highly stigmatizing attitudes predicted more household health service barriers; and perceptions of greater levels of community normative HAR stigma predicted higher household HIV ratios. Level 2 findings were similarly dimension-differentiated. Cross-level analyses found that near-neighbor cluster-level (setting level) consensus about (standard deviation) and level of (mean) community normative HAR stigma significantly predicted household-level HSBs and HIV ratio, controlling for household-level community normative HAR stigma. These differential patterns of prediction suggest that HAR stigma is a multi-level construct with multiple dimensions that relate to important outcomes differently within and across multiple ecological levels. This has important implications for future research, and for developing interventions that address setting-level variation in stigma.