

Polypharmacy in HIV and Aging

**Aroonsiri Sangarlangkarn, MD, MPH, Jonathan S. Appelbaum, MD,
FACP**

Educational Objectives

By the end of the session, learners will be able to:

1. Describe one feature that distinguishes polypharmacy in HIV-infected patients from that in the general population.
2. Outline two adverse effects of polypharmacy on the health of HIV-infected patients.
3. Apply a systematic approach to the evaluation and management of polypharmacy in HIV-infected patients.

Suggested reading:

1. American Academy of HIV Medicine (online). Drug-drug interactions and Polypharmacy in HIV and aging. Available at: <http://hiv-age.org/wp-content/uploads/2014/02/13.-Drug-drug-Interactions-and-Polypharmacy-in-HIV-and-Aging.pdf>. Accessed August 1, 2014.
2. Edelman EJ, Gordon KS, Glover J, et al. The Next Therapeutic Challenge in HIV: Polypharmacy. *Drugs Aging* 30 (2013):613-628.

CASE ONE:

Mrs. Pill is a 70-year-old woman with chronic HIV infection who recently moved to your town and comes with her daughter to establish care with you as her new HIV provider. She has a history of non-traumatic hip fracture, hypertension, hyperlipidemia, coronary artery disease s/p stent placement 5 years ago, and chronic kidney disease (CKD) stage II (creatinine clearance (CrCl) of 65 mL/min).

Her daughter brings up a concern that Mrs. Pill takes too many medications and she believes her mother often forgets to take all of them as prescribed since she often finds extra pills around the house.

Questions:

1. How many pills are considered too many? What is polypharmacy?
2. How is polypharmacy different in HIV-infected patients compared to the general population?

3. How common is polypharmacy in HIV-infected patients? What is the effect of polypharmacy on their health?
4. How would you address the daughter's concern?

CASE ONE CONTINUED:

The daughter brought all of Mrs. Pill's bottles from home. Her medications include: lisinopril 20mg daily, amlodipine 10mg daily, furosemide 40mg on Monday/Tuesday/Friday, simvastatin 20mg daily, aspirin 325mg daily, clopidogrel 75mg daily, esomeprazole 40mg daily, abacavir 600mg daily, lamivudine 300mg daily, atazanavir 300mg daily, ritonavir 100mg daily. She does not take any over-the-counter medications or herbal supplements. However, she has multiple bottles of expired medications, including a bottle of lorazepam 1mg, which she has been taking on and off as a sleep aid.

Mrs. Pill states that she started taking clopidogrel after her stent placement 5 years ago. She also mentions that she started developing leg swelling after she started amlodipine. The heart doctor put her on furosemide to try and reduce the swelling, although she does not notice an improvement.

5. After reviewing her medication list in a systematic manner, how would you adjust Mrs. Pill's medications?

CASE ONE CONTINUED:

You made adjustments to Mrs. Pill's regimen, but the daughter is still concerned that her mother will not be able to sort through her pill bottles and remember to take all of them.

6. How would you address her daughter's concern? What questions would you ask to help you formulate a plan that increases compliance?

CASE ONE CONTINUED:

The daughter states that patient lives alone and manages her own medications, although when asked, the patient seems unclear about the timing and the purpose of her medications. The patient feels bad throwing medications away, so she has multiple bottles of expired medications stashed away in the same cabinet as her current pills. The daughter is not convinced that the patient is taking medications

appropriately, because she often finds leftover pills in bottles and on the floor of the apartment. The patient agrees that taking medications has been challenging and would like some help.

7. What options do you have to increase medication compliance at home?

CASE ONE CONTINUED:

Mrs. Pill's daughter volunteers to prepour medications in a pillbox and to stop by Mrs. Pill's apartment everyday to make sure that the medications are taken correctly.

At 3 months follow-up, you discover that Mrs. Pill's CKD has worsened. Her CrCl is now 30mL/min.

8. What would you do at this point?

Additional reference:

1. Ferner RE, Aronson JK. Communicating information about drug safety. *BMJ* 333.7559 (2006):143.
2. Gnjjidic D, Hilmer SN, Blyth FM, et al. Polypharmacy cutoff and outcomes: five or more medicines were used to identify community-dwelling older men at risk of different adverse outcomes. *J Clin Epidemiol* 65.9 (2012):989–95
3. Hasse B, Ledergerber B, Furrer H, et al. Morbidity and aging in HIV-infected persons: the Swiss HIV cohort study. *Clin Infect Dis* 53.11 (2011):1130–9.
4. Atkinson MJ, Petrozzino JJ. An evidence-based review of treatment-related determinants of patients' nonadherence to HIV medications. *AIDS Patient Care STDS* 23.11 (2009):903–14.
5. Gandhi TK, Weingart SN, Borus J, et al. Adverse drug events in ambulatory care. *N Engl J Med* 348.16 (2003):1556–64.
6. Erlandson KM, Allshouse AA, Jankowski CM, et al. Risk factors for falls in HIV infected persons. *J Acquir Immune Defic Syndr* 61.4 (2012): 484–9.
7. Jyrkka J, Enlund H, Lavikainen P, et al. Association of polypharmacy with nutritional status, functional ability and cognitive capacity over a three-year period in an elderly population. *Pharmacoepidemiol Drug Saf* 20.5 (2011): 514–22.
8. Rochon, P, Gurwitz JH. Drug Therapy. *The Lancet* 346 (1995):32.
9. Hirsch, JD, et al. Evaluation of the first year of a pilot program in community pharmacy: HIV/AIDS medication therapy management for Medi-Cal beneficiaries. *Journal of managed care pharmacy* 15 (2009):32-41.
10. American Geriatrics Society 2012 Beers Criteria Update Expert Panel. American Geriatrics Society updated Beers Criteria for potentially inappropriate medication use in older adults. *J Am Geriatr Soc* 60 (2012):616-31.
11. Gallagher P, Ryan C, Byrne S, et al. STOPP (Screening Tool of Older Person's Prescriptions) and START (Screening Tool to Alert doctors to Right Treatment). Consensus validation. *Int J Clin Pharmacol Ther* 46 (2008):72-83.