

Polypharmacy in the Hospital

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Story From the Front Lines

A man in his 60s with bipolar disorder, anxiety, post-traumatic stress disorder, and neuropathy presented to the hospital for elective lumbar decompression surgery. At the time of presentation, he was taking duloxetine, prazosin, lamotrigine, quetiapine, and trazodone. Prior to surgery he was independent of all activities of daily living and had no difficulty with ambulation. In addition to his prior-to-admission medicines, he was started sequentially on hydrocodone, oxycodone, diphenhydramine, diazepam, and zolpidem for a series of symptoms that arose post-operatively during the hospitalization.

His post-operative course was complicated by urinary retention requiring placement of a foley catheter. He subsequently experienced delirium, which delayed the time it took for him to start working with physical and occupational therapy. Once he began rehabilitation, he was noted on multiple occasions to be unsteady on his feet. A mechanical fall and several other near falls further complicated his hospitalization. Due to slow progress with rehabilitation, primarily from an unsteady gait and an increased fall risk, he was discharged to a skilled nursing facility for additional care.

Teachable Moment

Polypharmacy is a significant problem, particularly for those who are hospitalized and eventually discharged to nursing homes or rehabilitation facilities. This is further magnified in the elderly (defined as age over 65), who are at increased risk of multiple complications from polypharmacy.¹ There are data to suggest that decrements in physiologic endpoints such as walking speed and grip strength are independently associated with polypharmacy (defined as ten or more medications) in the elderly.² More concerning are data tying polypharmacy to increased risk of falls³ and increased mortality.⁴

This particular patient met polypharmacy criteria from centrally acting medications alone (additional medications omitted for this report). While it can't be proven that his urinary retention, delirium, mechanical fall, or delayed rehabilitation are attributable to the above medications, these are known adverse effects of these medications and they are likely at least partially responsible for these complications. More importantly, all of the other potential harms this patient was exposed to – foley catheters are associated with urinary tract infections, delirium with prolonged hospitalization and thus nosocomial infections, and mechanical falls with hip fractures – are independent predictors of mortality, placed the patient at significant risk of harm, and are known adverse effects of these medications.

The bigger issue at hand is whether this patient needed all of those medications, and if these were the most appropriate medications to manage his symptoms. There are good data to suggest that a methodical approach to medication

review and discontinuation is appropriate in the elderly and that the BEERS criteria are a good place to start.⁵

¹ Maher, R. L. (2014). Clinical Consequences of Polypharmacy in Elderly. *Expert Opin Drug Saf*, 13(1), 1-11.

² Sganga, F. (2014). Physical performance measures and polypharmacy among hospitalized older adults: results from the CRIME study. *J Nutr Health Aging*, 18(6), 616-621.

³ Bor, A., Matuz, M., Csatornai, M. et al. (2017). Medication use and risk of falls among nursing home residents: a retrospective cohort study. *Int J Clin Pharm*.

⁴ Kragh, E.A. (2016). Do fall-risk-increasing drugs have an impact on mortality in older hip fracture patients? A population-based cohort study. *Clin Interv Aging* 29(11), 489-496.

⁵ Lucchetti, G. (2017). Inappropriate prescribing in older persons: A systematic review of medications available in different criteria. *Arch Gerontol Geriatr* 68, 55-61.