Polypharmacy and Falls in the Elderly Population

Mr. Smith is an 80 year-old male who is admitted from the Emergency Department after falling at his independent living facility. His daughter-in-law reported over 30 falls in the past month alone. Mr. Smith’s daughter-in-law has witnessed two of his falls in which he suddenly loses balance and falls to the ground without losing consciousness. Mr. Smith is not worried about the falls as he does not remember them. Mr. Smith and his family also reveal that he is beginning to become more forgetful, losing car keys, grocery lists, and paying bills twice. The patient does note episodes of hypoglycemia during which he experiences sweating, dizziness, and palpitations. Worried, his daughter-in-law insists that he move to higher level of care. Mr. Smith, a retired aerospace engineer, refuses to move and feels he does not need additional care. He wants to continue to pay his bills at home, read avidly, and complete his crossword puzzles at record speed.

Mr. Smith has diabetes, benign prostatic hyperplasia, hypertension and gastroesophageal reflux disease. His medication list includes glyburide, metformin, glipizide, rosiglitazone, doxazosin, finasteride, ranitidine, oxybutynin, tramadol, hydroxyzine, simvastatin, and lisinopril. His hemoglobin A1c is 6.0, but his daughter-in-law’s log of his blood glucose levels reveals erratic sugars ranging from 40 to 250.

His blood pressure is 115/60 and orthostatic vitals reveal a drop in blood pressure from sitting to standing to 100/52, with a corresponding heart rate from 60 to 75. His mini-mental status exam reveals a score of 26/30, and physical exam, including neurological exam, is within normal limits. CT brain showed no acute abnormalities. He does not use a walking aid at home, but in the hospital, requires one-person assistance, and the physical therapist highly recommends a front-wheel walker.

After observing his blood sugars and other vital signs in the hospital, many of his medications are discontinued in order to decrease the complexity and eliminate medications contributing to his hypoglycemia and falls. His ranitidine, oxybutynin, tramadol, hydroxyzine, doxazosin, glyburide and rosiglitazone are all discontinued. The family also decides to bring him home with 24-hour supervision.

Two weeks later, the primary medical team checks in with Mr. Smith and his family. Mr. Smith’s blood sugars are now well under control and he has not experienced any further episodes of hypoglycemia. He is able to take all of his medications without an issue and has not fallen since discharge. He is currently taking metformin, glipizide, simvastatin, finasteride and lisinopril. His blood pressure is 130/85, is no longer orthostatic, and his family reports an improvement in his mental status.

Over 33% of patients over the age of 65 have fallen in the last one year.\(^1\) Although polypharmacy has not been directly correlated with falls, medications including

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hypoglycemic agents, serotonin-reuptake inhibitors, tricyclic antidepressants and other drugs with anticholinergic properties have been linked to falls. Polypharmacy is an often-overlooked problem in the elderly population. Most patients over the age of 80 are on 5-8 medications, many of which are in accordance to medical guidelines. However, the elderly population should be approached differently than the average middle-aged male with unstable angina who should ideally be on a beta-blocker, statin, and aspirin.

While our intentions are good and we attempt to follow the most up-to-date guidelines for our patients, many of these guidelines must be individualized for our elderly patients. Mr. Smith, for example, was on four oral diabetic agents. Two of these medications – glyburide and rosiglitazone – can together cause severe hypoglycemia. He was also on a myriad of medications that have well-established anti-cholinergic effects and are on Beer’s list – ranitidine, oxybutynin, doxazosin, tramadol and hydroxyzine. Any and all of these medications could have been contributing to his frequent falls. A majority of these medications are of little benefit to Mr. Smith, and discontinuing them clearly made a large difference in his day-to-day life.

During my month on the geriatrics service, I have learned that caring for elderly patients is an art in which doing less and minimizing further interventions can have great and long-lasting benefit. We can help so many patients by reviewing their medication lists and discontinuing those that are at high risk of causing harm. In doing so, we are able to help our elderly patients regain control over their lives.

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