

## **Parkinsonism in an elderly patient**

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### **Story from the Front Lines**

An elderly man with a history of diabetes, hypertension, gastroesophageal reflux disease, intermittent nausea and vomiting, and recent diagnosis of Parkinsonism was admitted after sustaining a fall at his independent living facility (ILF); he hit his head but did not lose consciousness. The patient noted subjective confusion and dizziness contributing multiple falls over the past week. He was unsure of any recent medication changes but noted taking one medication at a new time before lunch. He denied alcohol use or other illicit substances. On exam he was A&Ox3 with a MoCA of 26, subtle ataxia was noted on finger-nose exam. Initial orthostatic vital signs were positive with a drop in systolic blood pressure of 25 mm Hg. The remainder of his initial exam was unremarkable though gait was not assessed. Studies including CT Head, EKG, TSH, CBC, CMP were unremarkable.

The patient was given two liters of intravenous normal saline over the following 24 hours and orthostasis resolved. Telemetry was remarkable only for occasional PVCs and a transthoracic echo was normal. Just prior to discharge physical therapy noted the patient to have an ataxic gait requiring one-person assist and recommend skilled nursing facility (SNF) placement rather than discharge to ILF. On review of his home medication list we observed 17 different medications and, notably, he was put on carbidopa/levodopa a month prior to admission for parkinsonism, which came on several months after starting metoclopramide 10mg daily for diabetic gastroparesis. Both of these medications were stopped. During his stay in the SNF the patient experienced dramatic improvement in his gait and dizziness and eventually returned to his ILF. A follow-up appointment with neurology revealed no lingering signs or symptoms of parkinsonism.

### **Teachable Moment**

Polypharmacy is an issue particularly prevalent and dangerous in the elderly. Older patients are more likely to have multiple medical conditions. Additionally, elderly patients are more likely to experience adverse drug events (ADEs) due to natural changes in physiology that occur with age. These changes include a proportional increase in body fat relative to muscle leading to a larger volume of distribution in the body along with a decrease in kidney function leading to decreased drug clearance (1). Thus, a larger volume of medication will be absorbed with slower clearance in these patients. Past studies have suggested 28% of hospital admissions for the elderly in the United States are a result of drug-related problems, with up to 70% of these attributed to ADEs (2).

This particular case demonstrates a concept known as a “prescribing cascade,” in which clinicians fail to recognize an ADE and then treat the symptoms with another medication (3). In this case, the patient developed parkinsonism due to metoclopramide use. The patient’s presentation reveals some of the common adverse effects associated with carbidopa/levodopa, including symptomatic orthostasis, ataxia, and abnormal gait. A study within the New Jersey

Medicaid program showed that patients 65 years or older taking metoclopramide were three times more likely to begin using a drug containing levodopa (4). Polypharmacy and ADEs correlate to increased spending in health care. Another 1995 study estimated annual drug related morbidity and mortality in outpatient clinics to cost up to \$76.6 billion, a figure that has no doubt increased with an aging population (5).

Awareness of polypharmacy and ADEs should be a focal point at every visit particularly for new complaints that aren't readily explained. A practitioner's approach in any patient should include a thorough medication reconciliation with exploration of ADEs that may contribute to any symptoms. The necessity of medical therapies should always be considered and meds that are not clearly having salutary effect should be discontinued. Particularly in the elderly, clinicians should consider reducing the dose of medications to the minimum requirement for desired effect.

#### References:

1. Rowe, J. W., Andres, R., Tobin, J. D., Norris, A. H., & Shock, N. W. (1976). The Effect of Age on Creatinine Clearance in Men: A Cross-sectional and Longitudinal Study. *Journal of Gerontology*, 31(2), 155-163. doi:10.1093/geronj/31.2.155
2. Col, N. (1990). The role of medication noncompliance and adverse drug reactions in hospitalizations of the elderly. *Archives of Internal Medicine*, 150(4), 841-845. doi:10.1001/archinte.150.4.841
3. Rochon, P. A., & Gurwitz, J. H. (1997). Optimising drug treatment for elderly people: The prescribing cascade. *Bmj*, 315(7115), 1096-1099. doi:10.1136/bmj.315.7115.1096
4. Avorn, J. (1995). Increased incidence of levodopa therapy following metoclopramide use. *JAMA: The Journal of the American Medical Association*, 274(22), 1780-1782. doi:10.1001/jama.274.22.1780
5. Johnson, J. A. (1995). Drug-Related Morbidity and Mortality. *Archives of Internal Medicine*, 155(18), 1949. doi:10.1001/archinte.1995.00430180043006