Chapter 16
Polypharmacy

Melissa Morgan-Gouveia

Case Study

Mr. J is an 84-year-old man referred to your home-based medical care program due to difficulty getting to medical appointments. He has a history of coronary artery disease, congestive heart failure, type 2 diabetes, anxiety, and osteoarthritis of the knees.

He has had several recent falls resulting in emergency department visits. Although he has not sustained significant injuries from his falls, he is having more difficulty walking and is now using his walker all the time. Mr. J's main complaints are of substantial fatigue and intermittent dizziness, especially upon standing. During his most recent emergency department visit, his laboratory testing was notable for a BUN of 30 mg/dl and creatinine of 1.3 ml/dl, for which he received intravenous fluids. His hemoglobin was 12 g/dl, and his hemoglobin A1c was 6.2%.

M. Morgan-Gouveia (✉)
Department of Medicine, Christiana Care Health System, Newark, DE, USA

Division of Geriatrics and Gerontology, Johns Hopkins University School of Medicine, Baltimore, MD, USA
e-mail: MMorgan-Gouveia@ChristianaCare.org

© Springer Nature Switzerland AG 2020
J. L. Colburn et al. (eds.), *Home-Based Medical Care for Older Adults*, https://doi.org/10.1007/978-3-030-23483-6_16

During your initial house call, when you ask what medications he is taking, he hands you a list from the hospital that includes aspirin 81 mg daily, atorvastatin 40 mg daily, furosemide 40 mg daily, glyburide 5 mg daily, lisinopril 20 mg daily, lorazepam 0.5 mg daily at bedtime, metformin 1000 mg twice a day, metoprolol succinate 100 mg daily, and paroxetine 20 mg daily.

When you ask to look at his medications, he reluctantly points you to a large grocery store bag filled with over 25 medication bottles. All the medications on his list are present, but there are several duplicate bottles, and a few are old and past expiration. He admits that he sometimes forgets to take his medications or will skip them if he is not feeling well and that he doesn't have a great method to organize his medications. In addition, there are old bottles of isosorbide mononitrate and hydralazine, which he states he is no longer taking. On the table next to his recliner, there are also several over-the-counter medications including ibuprofen and diphenhydramine, which he takes as needed for arthritis pain and itching, respectively.

On exam, Mr. J looks well. His blood pressure is 110/62 mm Hg and heart rate is 48 per minute. When he stands, his blood pressure drops to 88/56 mm Hg, his heart rate increases to 66 per minute, and he feels dizzy. Heart sounds are regular, and his lungs are clear. The skin on his legs is wrinkled, with no edema, and his mouth is dry.

My Management

Which of the following is the most appropriate next step in the management of Mr. J?

A. Prescribe meclizine for dizziness.
B. Refer him to the emergency department for IV fluids.
C. Prescribe fludrocortisone for orthostatic hypotension.
D. Initiate a medication deprescribing process.

Diagnosis and Assessment

Polypharmacy is common among homebound older adults and associated with poor health outcomes including adverse drug events, drug-drug interactions, drug-disease interactions, increased healthcare costs, medication nonadherence, functional impairment, delirium, and falls. Polypharmacy often results from prescribing cascades, where an adverse effect of one medication is treated with another medication. When a patient presents with a new symptom or concern, consider whether the symptom could be a side effect of a medication.

Mr. J is on several medications that can contribute to fatigue, dizziness, and orthostatic hypotension, which may be compounded by taking duplicate or discontinued medications by mistake due to poor organization of his medications. Therefore, it is important to evaluate whether any of these medications can be discontinued before considering prescribing an additional medication to treat his orthostatic hypotension, such as fludrocortisone. It is also important to assist him with organizing his medications and disposing of discontinued and expired medications to reduce the risk of medication errors.

Similarly, it is not appropriate to treat his dizziness with meclizine as this would not address the underlying cause of dizziness and could generate additional adverse effects. Meclizine is highly anticholinergic and would add to his anticholinergic burden in combination with paroxetine and diphenhydramine. While IV fluids may result in short-term symptomatic improvement, they will not address the underlying polypharmacy and therefore not reduce the likelihood of his symptoms recurring. His medication regimen is complex and requires modification through a deprescribing process.

Management

Home-based medical care providers are in an excellent position to obtain an accurate list of the medications a patient is taking by performing medication reconciliation “at the

kitchen table." Reviewing pill bottles in the home allows for a complete assessment of medications, including over-the-counter medications that may not be on a patient's medication list but have the potential to interact with their prescription medications or exacerbate their medical conditions. House calls allow providers to observe how patients organize and take their medications and identify barriers to adherence. It is not uncommon for patients to hoard old medications, often due to concerns that they may need them again; this can present safety risks if a patient decides to self-medicate or accidentally takes a medication that has been discontinued. Home-based medical care providers can assist with medication organization and disposal of discontinued or expired medications, reducing the risk of medication errors.

Careful medication review can identify potentially inappropriate medications, and providers can initiate a deprescribing process when the risks outweigh the benefits [1]. Prioritize medications that are high risk in older adults and ones that the patient is willing to discontinue, with the goal of reducing drug-related adverse events and improving function. The Beers Criteria is one available tool to identify potentially inappropriate medications in older adults [2]. It is generally best practice to wean or stop one medication at a time to monitor for withdrawal symptoms or disease rebound. Deprescribing is a collaborative process that involves shared decision-making with patients and consideration of an individual patient's values and preferences, comorbidities, functional status, and life expectancy [1].

Outcome

In Mr. J's case, you discontinued his furosemide and referred him for skilled home nursing and physical therapy. The home health nurse helped him set up a medication planner to organize his medications and informed him how to properly dispose of his old, expired medications. Mr. J found it easier to take his medications out of the pill box, and keeping the pill

box on the kitchen table helped him to remember to take his medications daily with his breakfast.

With the nurse's assistance in monitoring vital signs and providing Mr. J with continual education regarding his medications, you were also able, over time, to reduce the dose of his metoprolol and discontinue his glyburide. Further, you switched sertraline for paroxetine, given the substantial anticholinergic effects of the latter. Mr. J's orthostatic hypotension and fatigue both improved. You educated him that non-steroidal anti-inflammatory medications can contribute to fluid retention in heart failure and switched to acetaminophen for his arthritis pain. He also discontinued diphenhydramine after you educated him on the anticholinergic side effects, noting that he doesn't have as much itching now that he is no longer dehydrated and using a moisturizer on his skin like you recommended. His knee pain and walking improved with physical therapy, and he has not had any new falls. He is so pleased with how he is feeling after your deprescribing that he is willing to engage in your other recommendation to attempt to gradually wean off his benzodiazepine.

Clinical Pearls and Pitfalls

- Polypharmacy is common among homebound older adults with multiple chronic conditions and is associated with poor health outcomes.
- Routine home-based medication review and reconciliation are important to identify potentially inappropriate medications, including over-the-counter medications, and to assess medication adherence. The ability to see the actual medications in the patient's home—how they are set up, stored, and organized—can be critical in helping patients with their medication management and adherence.
- Avoid the prescribing cascade, where an adverse effect of one medication is treated with another medication, and always consider non-pharmacologic treatment options before starting a new medication.

- Deprescribing involves shared decision-making with patients and consideration of the potential benefits and harms of a medication in the context of an individual patient's values and preferences, comorbidities, functional status, and life expectancy. Sequential discontinuation of medications with careful observation is advised.

References

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