

Prescribing Cascade in an Older Adult with Bipolar Disorder

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ABSTRACT

The prescribing cascade begins when medication side effects are misinterpreted as new symptoms, leading to the addition of new drugs.

This case involves a 75-year-old female with a history of Parkinson's disease, dementia, bipolar disorder, and diabetes. She presented with complaints of bradykinesia, difficulty walking, and inability to move independently. The patient had been on long-term antipsychotic treatment (olanzapine) for bipolar disorder, leading to parkinsonian symptoms, which were mistakenly diagnosed as dementia. Consequently, the patient was prescribed donepezil, an antidementia medication. During this period, she developed depression and urinary incontinence, for which duloxetine and fesoterodine fumarate were added to her treatment. The patient's functionality and quality of life further deteriorated due to inappropriate medication use and polypharmacy.

After evaluation, a decision was made to gradually discontinue several of the patient's medications, including memantine, fesoterodine fumarate, and donepezil, while reducing the olanzapine dose. Following these adjustments, her mobility improved, appetite increased, and overall condition stabilized.

This case highlights the need to closely monitor older adults with mental health problems taking multiple medications for adverse drug reactions. The frequency of monitoring should be individualized according to the patient's risk factors and treatment response. It also contributes to increased awareness among healthcare professionals and caregivers of the prescribing cascade among these individuals.

Keywords: Prescribing cascade, Older patient, Antipsychotic medications

INTRODUCTION

The definition of inappropriate medication use is a comprehensive term that includes unnecessary drug use, overuse or underuse of clinically indicated drugs, and polypharmacy.^{1,2} One in every four hospital admissions of older adults is due to medication-related problems. Nearly 70% of these admissions are attributed to adverse drug reactions.³ The concept of the prescribing cascade is in the category of inappropriate medication use. The prescribing cascade often begins when the side effects of a medication are misinterpreted as new symptoms of an illness, leading

to the addition of another medication to the patient's regimen. Although the exact prevalence of the prescribing cascade is unknown, it poses significant morbidity and mortality risks, particularly for older patients.

Therefore, more attention is required when initiating and prescribing medications to older patients to prevent the prescribing cascade. In this study, we present a case in which the prescribing cascade, resulting from inappropriate medication use, negatively affected functionality and quality of life.

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CASE REPORT

A 75-year-old female patient with a history of Parkinson's disease, dementia, bipolar disorder, and diabetes mellitus was admitted to our geriatric outpatient clinic with complaints of bradykinesia and inability to walk. The patient was accompanied by her daughter and arrived in a wheelchair. The patient had been diagnosed with bipolar disorder for ten years, Parkinson's disease for five years, diabetes mellitus for five years, and dementia for four years. She had been experiencing difficulty walking for about two years and was unable to move independently without assistance from her relatives. For about two years, her introverted behavior, lack of motivation, and refusal to eat and drink worsened every three or four weeks and then somewhat improved. On physical examination, the patient was introverted, oriented, and cooperative. Neurological examination revealed no lateralizing findings, resting tremor, cogwheel rigidity, or bradykinesia. She exhibited a blank stare, but responded when spoken to. She was assisted to perform a few small steps with support. The Katz Index of Independence in Activities of Daily Living (ADL) score was 0 out of 6.⁴ The Lawton-Brody Instrumental Activities of Daily Living Scale (IADL) score was 0 out of 8.⁵ The patient's relatives reported no memory complaints but mentioned that she had become increasingly withdrawn and did not want to talk to others. The patient had been taking olanzapine 10 mg/d for ten years, haloperidol drops 0.5-1 mg/d as needed, memantine 10 mg/d for four years, donepezil 5 mg/d for two years, duloxetine 60 mg/d for two years, fesoterodine fumarate 8 mg/d for two years, and metformin 1000 mg/d for five years. After being diagnosed with bipolar disorder ten years ago, she was started on olanzapine and the dose was gradually increased from 5 mg/d to 10 mg/d. About five years ago, she was diagnosed with Parkinson's disease and started on antiparkinsonian medication, but it was discontinued due to vomiting, sleep disturbances, and confusion. Four years ago, following complaints of hallucinations, inability to recognize relatives, and disorientation within the house, she was diagnosed with dementia and started on memantine 10 mg/d. Concurrently, due to the development of depression, duloxetine was initiated. During this period, the patient was able to move indoors with the aid of a walker. Two years ago, donepezil was added to the dementia regimen. The patient had urinary incontinence despite mobilization with a walker, attributed to functional

limitations. Other etiological causes were excluded. Two months after the initiation of donepezil, an increase in urinary incontinence was observed. Subsequently, fesoterodine fumarate was prescribed.

The laboratory tests did not reveal any abnormalities. Her blood glucose level was 122 mg/dL and her HbA1c level was 5.8% while on metformin. A previously performed brain magnetic resonance imaging (MRI) showed ischemic-gliotic foci and atrophy consistent with age. The Mini-Mental State Examination (MMSE) score was 22 out of 30, and the Yesavage Geriatric Depression Scale (YGDS) score was 11 out of 15.^{6,7} After this extensive workup, bipolar depression and a prescribing cascade were considered in the patient. Gradual discontinuation of inappropriate medications was planned. During the first evaluation, memantine, haloperidol drops used as needed, fesoterodine fumarate, and metformin were discontinued. The olanzapine dose was reduced to 5 mg/d, and donepezil and duloxetine were continued. After one week, no clinical changes were observed, and donepezil was discontinued. One week after discontinuing donepezil, the patient's appetite slightly improved, and her gaze became more attentive. She was able to walk with the support of her relatives. Olanzapine was reduced to 2.5 mg/d, and duloxetine was continued. Two weeks later, during reassessment, the patient was observed to be walking with a walker. Her appetite and mood improved, and she had a more attentive gaze. She was more engaged in conversations. The ADL score increased 4 out of 6 (independent on transfer with a walker, feeding, dressing, and toileting; dependent on bathing and urinary continence), and her IADL score remained 0 out of 8.^{4,5} The patient, who was followed up in our outpatient clinic for six months, did not experience any issues related to medications, and despite the olanzapine dose not being increased, the psychiatric symptoms associated with bipolar disorder remained stable.

DISCUSSION

BMS poses a diagnostic and therapeutic challenge. In this case, we aimed to highlight the effects of inappropriate medication use and the prescribing cascade in an older adult with bipolar disorder. Older patients are often at the highest risk of experiencing a prescribing cascade due to multimorbidity.⁸ In particular, the medical management of mental illnesses, which become more prevalent with age, may lead to this inappropriate

medication use.

Long-term use of high-dose antipsychotic medications is associated with an increased risk of falls and death in the older population.⁹ Additionally, individuals with bipolar disorder, regardless of age, are at an increased risk of adverse effects from antipsychotic medications and may be exposed to a prescription cascade.¹⁰ This case exhibited Parkinsonian symptoms as a consequence of prolonged, high-dose antipsychotic exposure. Long-term use of antipsychotic medications has been associated with the potential for cognitive impairment. Studies suggest that prolonged exposure to antipsychotics, particularly at higher doses, may contribute to deficits in cognitive domains such as memory, executive functioning, and attention.¹¹ Additionally, structural brain changes, such as reductions in cortical and subcortical volumes, have been reported in some patients on chronic antipsychotic therapy, further raising concerns about their impact on cognition.¹²

The concurrent cognitive and functional decline associated with chronic high-dose antipsychotic use led to a misdiagnosis of dementia, resulting in the inappropriate administration of memantine, an anti-dementia drug, and donepezil, a cholinesterase inhibitor. These drugs are effective in managing symptoms of dementia and are associated with several common side effects in older patients, including nausea, vomiting, loss of appetite, insomnia, hallucinations, depression, agitation, anxiety disorders, and frequent urination.¹³ Because of these side effects, it is necessary to closely monitor patients after initiating cholinesterase inhibitors in this population. In our case, depression and urinary incontinence developed after initiating the anti-dementia medication. To address these symptoms, duloxetine and fesoterodine fumarate were prescribed, and then the patient experienced severe functional impairment. The side effects of these drugs in this case were mistaken as signs of diseases, and treatment with other medications led to polypharmacy. As a result, physicians need to pay close attention to adverse drug reactions when prescribing new agents, especially in older adults with mental disorders.

This case highlights the need to closely monitor older adults with mental health problems taking multiple medications for adverse drug reactions. The frequency of monitoring should be individualized according to the patient's risk factors and treatment response. It also contributes to increased awareness among healthcare professionals and caregivers of the prescribing cascade among these individuals.

Author Contributions:

Concept – SG,MC,MIN; Design – SG, MC,; Supervision – MIN; Resources - SG; Materials – SG,MC,MIN; Data Collection and/or Processing – SG,MC; Analysis and/or Interpretation - SG,MC,MIN; Literature Search – SG,MC; Writing Manuscript - SG,MC,MIN; Critical Review - SG,MC,MIN;

Conflict of Interest

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Ethical Statement

In accordance with ethical standards, all patient information was anonymized, and no formal ethics approval was necessary..

REFERENCES

1. Wyles H, Rehman HU. Inappropriate polypharmacy in the elderly. *Eur J Intern Med.* 2005 Sep;16(5):311-3. doi: 10.1016/j.ejim.2005.02.006. PMID: 16137542.
2. Mortazavi SS, Shati M, Keshtkar A, et al. Defining polypharmacy in the elderly: a systematic review protocol. *BMJ Open* 2016;6:e010989. doi:10.1136/bmjopen-2015-010989
3. Halter, Jeffrey B., et al., editors. *Hazzard's Geriatric Medicine and Gerontology*. 6th ed., McGraw-Hill, 2009.
4. Katz, S., Down, T.D., Cash, H.R., & Grotz, R.C. (1970) Progress in the development of the index of ADL. *The Gerontologist*, 10(1), 20-30.
5. Lawton MP, Brody EM *Gerontologist*. 1969;9(3):179-186.
6. *Journal of Psychiatric Research*, 12(3): 189-198, 1975.
7. GDS.Retrieved July 2, 2012, from <http://www.stanford.edu/~yesavage/GDS.html>.
8. Aggarwal P, Woolford SJ, Patel HP. Multi-Morbidity and Polypharmacy in Older People: Challenges and Opportunities for Clinical Practice. *Geriatrics (Basel)*. 2020;5(4):85. Published 2020 Oct 28. doi:10.3390/geriatrics5040085
9. Hammond T, Wilson A. Polypharmacy and falls

- in the elderly: a literature review. *Nurs Midwifery Stud.* 2013 June;2(2):171-5. doi: 10.5812/nms.10709. Epub 2013 Jun 27. PMID: 25414854; PMCID: PMC4228551.
10. Ayani N, Morimoto T, Sakuma M, Kikuchi T, Watanabe K, Narumoto J. Antipsychotic Polypharmacy Is Associated With Adverse Drug Events in Psychiatric Inpatients: The Japan Adverse Drug Events Study. *J Clin Psychopharmacol.* 2021;41(4):397-402. doi:10.1097/JCP.0000000000001416
 11. Husa, A. P., Moilanen, J., Murray, G. K., et al. (2014). Lifetime antipsychotic medication and cognitive performance in schizophrenia at age 43 years in a general population birth cohort. *The British Journal of Psychiatry*, 205(1), 45–50.
 12. Vita, A., De Peri, L., & Sacchetti, E. (2015). Antipsychotics, brain volume, and neurocognition: A systematic review and meta-analysis of magnetic resonance imaging findings. *Psychological Medicine*, 45(3), 515–528.
 13. Singh R, Sadiq NM. Cholinesterase Inhibitors. [Updated 2023 Jul 17]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2024 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK544336>

