A 70-Year-Old with New-Onset Auditory and Visual Hallucinations

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The patient was a 70-year-old man who presented with the chief complaint of new-onset auditory and visual hallucinations (AVH). There were no complaints of confusion, fever, chest pain, abdominal pain, nausea, or vomiting, and there was no change in urinary habits or bowel habits. There was no history of a fall or headaches. His medications included 50 mg of acetaminophen orally (PO) three times per day as needed, 10 mg/d of amlodipine PO once per day, capsaicin cream for pain, 10 mg of cyclobenzaprine PO twice per day, 100 mg of fluconazole PO once per day, 0.05 mg of levothyroxine PO once per day, 40 mg of lisinopril once per day, 50 mg of metoprolol 50 PO twice per day, 20 mg of omeprazole PO once per day, 100 mg of sildenafil PO once per day, and 150 mg of ranitidine PO once per day. His medical history was significant for internal hemorrhoids, diverticular disease, pruritic rash, chronic shoulder pain, hypothyroidism, onychomycosis, hyperlipidemia, hypertension, alcohol dependence, esophageal reflux, and osteoarthritis. No allergies were noted. He consumed two drinks of whiskey daily and had done so for many years. A physical examination and admitting vital signs were normal.

All admission laboratory test results were within normal range other than creatinine (1.3 mg/dL), potassium (6.0 mmol/L), and bronchoalveolar lavage (43 mg/dL). His urine drug screen was negative, and a computed tomography scan of his head was normal.

The patient was admitted to medicine service. All of his outpatient medications except lisinopril were continued as prescribed, and lorazepam at a dose of 1 mg intramuscularly every 6 hours and 0.25 mg orally three times per day was added for possible alcohol withdrawal.

On the second day of admission the patient continued to report AVH without agitation, but was combative with AVH on the same night. He was started haloperidol at a dose of 2.5 mg intramuscularly every 6 hours. His acute renal failure and electrolyte imbalance had resolved with fluid resuscitation and electrolyte replacement.

Psychiatric assessment revealed no past psychiatric history, no past inpatient psychiatric admissions, and no family history of mental illness. His hallucinations included seeing "monsters," "double images," and "people's faces turning into squares" and hearing a voice that he didn't recognize saying "yes" or "no." He reported being overseas with people in the military the previous week, but the trip was not confirmed by his family.

Upon review of his medications, it was noted that he had begun taking the fluconazole and cyclobenzaprine approximately 2 weeks prior to admission. The patient reported that his symptoms started 1 week after starting the new medications. The patient had not exhibited any change in sensorium, confusion, or disorientation, and he had not

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exhibited autonomic instability or other alcohol withdrawal symptoms, making delirium or alcohol withdrawal unlikely as a diagnosis. The psychiatry team recommended discontinuation of the cyclobenzaprine, benzodiazepines, and haloperidol, and initiation of 2.5 mg of olanzapine PO every 6 hours as needed for psychosis.

The patient's symptoms resolved by day 5 and required only 2 doses of olanzapine during this time. He reported only mild diplopia without any AVH, insomnia, or paranoia. The patient was discharged home and was told to discontinue taking cyclobenzaprine and olanzapine. At follow-up 2 weeks later, he did not report any symptoms.

DIAGNOSIS

Medication-Induced Psychosis

PHARMACOLOGY

Cyclobenzaprine, which is closely related to the antidepressant amitriptyline, is used as a skeletal muscle relaxant to reduce pain and tenderness and improve mobility. It is a centrally mediating muscle relaxant. It is extensively metabolized through liver and is highly bound to plasma protein. The drug has a half-life of approximately 1 to 3 days.[1] Cyclobenzaprine exhibits anticholinergic activity, potentiates norepinephrine, and antagonizes reserpine.[2] Review of package information reveals that in one study, the mean steady-state cyclobenzaprine area-under-the-curve values were approximately 1.7-fold higher in elderly (≥65 years) adults than in younger adults.[3] Due to the higher risk in elderly men compared to young men and older women patients, the recommended initial dose is 5 mg, with slow titration.[3] Side effects such as muscle twitching, disorientation, insomnia, depressed mood, abnormal sensations, anxiety, agitation, psychosis, abnormal thinking and dreaming, hallucinations, and excitement have been reported. Elderly patients may also be more at risk for central nervous system adverse events such as hallucinations and confusion.[3]

TREATMENT

The treatment of medication-induced psychosis includes discontinuation of the offending agent, preferably under medical supervision to monitor any withdrawal and associated symptoms. Removing the causative agent treats the symptoms and resolves the psychosis.[1,4,5] We were unable to find any standard guidelines about the use of antipsychotics to treat medication-induced psychosis; however, if antipsychotics are needed, the lowest effective dose should be used. Atypical antipsychotics are generally preferred due to lower anticholinergic side effects.[6]

LITERATURE REVIEW AND CASE DISCUSSION

There have been a few case reports of cyclobenzaprine induced confusion and psychosis.[1,4,5] Elderly patients seem to be more at risk because of changes related to liver and drug metabolism due to aging.[1] Douglass and Levine[1] described a 75-year-old woman who developed confusion and hallucinations when she began taking cyclobenzaprine at a dose of 10 mg four times daily, which is a commonly prescribed dose. The hallucinations resolved after the patient discontinued the medication.[1]

Beeber and Manring[4] described a 38-year-old woman with one past episode of mania leading to hospitalization 3 years prior but nothing thereafter. The patient began taking cyclobenzaprine for back pain 1 week prior to developing manic psychosis. Her symptoms improved within days of discontinuing the medication and resolved completely after 18 days. The authors suggested that cyclobenzaprine's close relation to tricyclic antidepressants makes it important to be cautious about the possibility of mania and psychosis induction in patients with a history of bipolar disorder. This patient had no other signs or symptoms of anticholinergic toxicity.

O'Neil et al.[5] reported a case of a 36-year-old woman without any past psychiatric history but with a history of hyperthyroidism. She was self-medicating for back pain and had taken 23 doses of cyclobenzaprine (10 mg) during the 6 weeks prior to her admission. The patient presented with autonomic dysfunction and psychosis but her thyroid levels were within normal range. The patient improved with loxapine and discontinuation of cyclobenzaprine, making the diagnosis of medication-induced psychosis plausible. Her thyrotoxic-like symptoms and autonomic dysfunction were attributed to the sympathomimetic and anticholinergic side effects of cyclobenzaprine as

well, as the patient was not thyrotoxic prior to taking the medicine.[5]

CONCLUSION

Medications such as cyclobenzaprine can cause new-onset psychotic symptoms because of the anticholinergic side effects, especially in elderly patients. The diagnosis can be tricky, especially if there is contribution from alcohol use or other substance abuse. Careful monitoring of symptoms is required to rule out other causes of psychosis. In this case we were able to identify the cause because of the acute onset of symptoms after the new medication was started. The patient developed symptoms while still consuming two alcoholic drinks per night and denied such symptoms in the past with history of alcohol use. In addition, his symptoms quickly resolved after the cyclobenzaprine was discontinued and with only minimal antipsychotics needed during the hospital stay. He remained symptom-free at follow-up, without a need for any antipsychotic medications.

It can be challenging to pinpoint the exact cause of new-onset psychosis in patients with polypharmacy, alcohol use history, past psychiatric history, and multiple medical issues. Given cyclobenzaprine's anticholinergic and tricyclic antidepressant-like activity, as well as the differences in pharmacokinetics in elderly men, this case report provides an example of how cyclobenzaprine can cause new-onset psychotic symptoms in elderly patients who do not have a past psychiatric history. As a result, it is imperative that cyclobenzaprine be used with caution in elderly patients with or without past psychiatric history. Patient education regarding the potential of such symptoms is critical and can result in timely diagnosis and treatment.

REFERENCES

1. Douglass MA, Levine DP. Hallucinations in an elderly patient taking recommended doses of cyclobenzaprine. *Arch Intern Med*. 2000;160(9):1373.
2. National Center for Biotechnology Information. Cyclobenzaprine. http://pubchem.ncbi.nlm.nih.gov/compound/cyclobenzaprine#section=Drug-and-Medication-Information. Accessed July 5, 2017.
3. Drugs.com. Cyclobenzaprine. http://www.drugs.com/pro/cyclobenzaprine.html. Accessed July 5, 2017.
4. Beeber AR, Manring JM Jr. Psychosis following cyclobenzaprine use. *J Clin Psychiatry*. 1983;44:151-152.
5. O'Neil B, Knudson G, Bhaskara S. First episode psychosis following cyclobenzaprine use. *Can J Psychiatry.* 2000;45(8):763-764.
6. Byrne P. Managing the acute psychotic episode. *BMJ*. 2007;334(7595):686-692. doi: 10.1136/bmj.39148.668160.80.