Olanzapine-Associated Chronic Urinary Retention and Ciliochoroidal Effusion: Rare Adverse Effects of a Commonly Prescribed Antipsychotic

Dear Editor,

Olanzapine, a second-generation antipsychotic, is used for a wide range of psychiatric disorders. Although relatively safe and well-tolerated compared to first-generation antipsychotics, rare adverse effects have been reported. We report a rare case of ciliochoroidal effusion with angle-closure glaucoma and chronic urinary retention with urethral spasm associated with olanzapine, which resolved on discontinuation of the drug.

Case Report

Mr A, a 51-year-old single male from urban, middle socioeconomic background of southern India, presented with gradual onset of psychiatric illness since the age of 25. It was characterized by irritability, suspiciousness, aggression, and sleep disturbance. Mental status examination revealed delusions of persecution and reference and thought broadcasting. The patient had been diagnosed with paranoid schizophrenia. He had comorbid hypertension for seven years and was on 10 mg of cilnidipine. There was history of ischemic heart disease in his father and a second-degree relative, Addison's disease in his mother, leukemia in his elder brother, psychotic illness in a maternal third-degree relative, and alcohol use disorder in a second-degree relative. He has been on 22.5 mg of olanzapine for the past four years. There was a worsening of psychotic symptoms, difficulty in urination, and blurring of vision, and he was referred to our tertiary center for further evaluation. Physical and systemic examinations were within normal limits, with normal blood pressure measurements. Computed tomography of the brain was normal.

Urological Evaluation

The patient had gradual onset of lower urinary tract symptoms, with a poor stream of urine and incomplete sense of voiding for more than a year. Ultrasonography of the abdomen and pelvis revealed a distended urinary bladder with a normal prostate gland volume. Uroflowmetry showed a post-void residual volume of 340 ml, with a peak urine flow rate of <15 mL/s. The possibility of olanzapine-associated chronic urinary retention with urethral spasm was considered. Olanzapine was cross-tapered with aripiprazole, which was gradually increased up to 20 mg/day, with concomitant improvement in psychotic symptoms. Treatment with 8 mg of silodosin and 25 mg of bethanechol was started. Uroflowmetry after one month revealed a post-void residual volume of 200 ml, with an improved peak urine flow rate of 19 mL/s. Application of the Naranjo probability scale indicated a score of 5, which indicates "probable" association between the use of olanzapine and chronic urinary retention and urethral spasm.[1]

Ophthalmological Evaluation

A detailed evaluation revealed an elevated intraocular pressure (IOP) of 40 mmHg. The anterior chamber was shallow in both eyes, and gonioscopy revealed an oppositional angle closure (**Figure S1**). Ultrasound biomicroscopy showed closed angles with prominent anteriorly displaced ciliary bodies in both eyes. Ultrasound B-scan showed shallow choroidal detachment in the posterior segment. The possibility of olanzapine-associated angle closure due to ciliochoroidal effusion was considered. Timolol 0.5% eye drops were initiated, given raised IOP, and topical homatropine to relieve the ciliary body spasm. Two weeks after starting treatment and stopping olanzapine, the depth of the anterior chamber increased (**Figure S1**) and the IOP was 10 mmHg in both eyes. Ultrasound bio-microscopy also showed deepening of the anterior chamber with posterior rotation of the ciliary body. After four months, the IOP was 12 mmHg in both eyes, with a deep anterior chamber. Application of the Naranjo probability scale gave a score of 5, which indicates a "probable" association between the use of olanzapine and angle-closure due to ciliochoroidal effusion.[1]

Discussion

We have described a rare association of chronic urinary retention and ciliochoroidal effusion with olanzapine in a patient who did not have other risk factors. Among atypical antipsychotics, clozapine, olanzapine, and quetiapine have a significant affinity for muscarinic receptors compared to dopamine D2 receptors, leading to significant peripheral and central anticholinergic effects.[2] Urinary incontinence and retention have been commonly reported with nearly all typical antipsychotics but have been rare with atypical antipsychotics. The impacts of olanzapine on several voiding parameters and external urethral sphincter have been demonstrated in an earlier animal model, emphasizing both the central and the peripheral anti-muscarinic activity of the drug.[3] The risk of urinary retention with olanzapine is higher in older adults with comorbid prostate hyperplasia and concomitant medications that can impair micturition.[4,5]

Drugs can precipitate acute angle-closure either by pupillary block mechanism or non-pupillary block mechanisms such as ciliary body or ciliochoroidal effusion.[6] Typical antipsychotics can precipitate acute angle-closure due to muscarinic blockade mediating the pupillary block mechanism.[7,8] Our report contrasts with the earlier report where olanzapine precipitated an acute angle-closure crisis through pupillary block mechanism without evidence of ciliochoroidal effusion.[9] Although there are earlier reports of acetazolamide, topiramate, and other sulfa derivatives precipitating acute angle-closure through similar non-pupillary mechanisms, there has been no report of olanzapine mediating acute angle-closure through ciliary and choroidal effusion.[10] The management of acute angle-closure in the pupillary block and non-pupillary block mechanisms varies significantly. Proper identification and high suspicion are essential in patients with narrow angles who are on antipsychotic medications with concomitant use of antiparkinsonian agents.

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ORCID iDs

Abhiram Narasimhan Purohith https://orcid.org/0000-0002-0265-2147
Podila Satya Venkata Narasimha Sharma https://orcid.org/0000-0001-8409-4785

Informed Consent

Informed consent was obtained from the patient to write and publish this case report.

Abhiram Narasimhan Purohith[1], Priyanka Ramesh[2], Bhuvana Prakash Vaidya[1], Sonia Shenoy[1] and Podila Satya Venkata Narasimha Sharma[1]

[1] Dept. of Psychiatry, Kasturba Medical College, Manipal, Manipal Academy of Higher Education, Manipal, Karnataka, India. [2] Ramesh Eye Clinic and Ophthalmic Microsurgical Centre, Bengaluru, Karnataka, India.

Address for correspondence:

Abhiram Narasimhan Purohith, Dept. of Psychiatry, Kasturba Medical College, Manipal, Manipal Academy of Higher Education, Manipal, Karnataka, India 576104. E-mail: abhiram.pn@gmail.com

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References

1. Naranjo CA, Busto U, Sellers EM, et al. A method for estimating the probability of adverse drug reactions. *Clin Pharmacol Ther* 1981; 30: 239–245.
2. Richelson E and Souder T. Binding of antipsychotic drugs to human brain receptors: Focus on newer generation compounds. *Life Sci* 2000; 68: 29–39.
3. Vera PL, Miranda-Sousa A, and Nadelhaft I. Effects of two atypical neuroleptics, olanzapine and risperidone, on the function of the urinary bladder and the external urethral sphincter in anesthetized rats. *BMC Pharmacol* 2001; 1: 4.. Epub ahead of print 2001. DOI: 10.1186/1471-2210-1-4.
4. Cohen R, Wilkins KM, Ostroff R, et al. Olanzapine and acute urinary retention in two geriatric patients. Am J Geriatr Pharmacother 2007; 5: 241–246.
5. Mirzakhani H, Rahim M, and Mathew J. Expanding our understanding of atypical antipsychotics: acute urinary retention secondary to olanzapine. *Case Rep Psychiatry* 2020; 2020: 6157548.
6. Yang MC and Lin KY. Drug-induced acute angle-closure glaucoma: a review. *J Curr Glaucoma Pract* 2019; 13: 104–109.
7. Jain NS, Ruan CW, Dhanji SR, et al. Psychotropic drug-induced glaucoma: a practical guide to diagnosis and management. *CNS Drugs* 2021; 35: 283–289.
8. Razeghinejad MR, Pro MJ, and Katz LJ. Non-steroidal drug-induced glaucoma. *Eye (Lond)* 2011; 25: 971–980.
9. Achiron A, Aviv U, Mendel L, et al. Acute angle closure glaucoma precipitated by olanzapine. *Int J Geriatr Psychiatry* 2015; 30: 1101–1102.
10. Panday VA and Rhee DJ. Review of sulfonamide-induced acute myopia and acute bilateral angle-closure glaucoma. *Compr Ophthalmol Update* 2007; 8: 271–276.

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Clonazepam in Catatonia: Thinking Beyond the Boundary of Lorazepam: A Case Report

To the Editor,

Catatonia is a neuropsychiatric disorder involving motor and autonomic systems.[1] It is seen in 7% to 15% of acute psychiatric inpatients and needs prompt attention irrespective of its cause, whether functional or organic.[2] Lorazepam and electroconvulsive therapy (ECT) are preferred modalities of treatment.[3,4] In the literature, lorazepam is preferred over other benzodiazepines, without much explanation. Here we present a case who responded to a single dose of clonazepam, which has forced us to think beyond the traditional approach. The informed consent has been taken from the patient to report the case report.

Case Report

A 21-year-old male, educated up to bachelor's degree, previously diagnosed with schizoaffective disorder, was presented to psychiatry emergency service with mutism, immobility, staring, and not taking self-care for the last two months. He discontinued his medications four months back. Bush-Francis Catatonia Rating Scale (BFCRS) score was 23 at admission (**Table 1**). As inj. lorazepam was not available immediately, he was given tablet clonazepam 1 mg. The catatonic symptoms started improving. Within the next 2 h, the BFCRS score dropped to 8, which was maintained for the next 5 h (**Table 1**). At this point, he was injected lorazepam 1 mg intravenously to achieve further improvement, but BFCRS did not reduce beyond 7 even after 5 h of lorazepam as has been mentioned in **Table 1**. Later, the patient was interviewed and started on olanzapine 10 mg as he had earlier maintained well on it. On the next day, he was discharged with a tapering dose of clonazepam and later followed up after two weeks, when he was found to be maintaining well without any catatonic symptoms.

Discussion

Lorazepam is generally accepted as first-line because of its rapid onset of action. The onset of action is 1 min to 3 min if administered intravenously, 15 min to 20 min if given intramuscular, and 2 h if given orally.[5] There are very few studies on other benzodiazepines like diazepam and clonazepam, which were also found to be effective. Huang used a modified treatment strategy in which 14 patients with catatonic