Letter to the Editor

Priapism During Treatment With Olanzapine, Quetiapine, and Risperidone in a Patient With Schizophrenia: A Case Report

To the Editor: Priapism has now been associated with most of the second-generation antipsychotics, but little emphasis has been placed on the stabilizing antipsychotic after this reaction initially occurs. Priapism is defined as a persistent, often painful penile erection not associated with sexual stimulation. Although relatively uncommon, priapism represents a urologic emergency, because without prompt recognition and treatment, it can result in urinary retention, cavernosa fibrosis, impotence, or even gangrene.[1] Approximately 40% to 50% of patients who develop priapism become impotent, even after surgical interventions.[2] Priapism caused by drugs accounts for 25%–40% of all cases, with the most commonly associated categories of drugs being antipsychotics and antihypertensives.[2] To our knowledge, there are infrequent case reports of priapism following administration of risperidone (23), olanzapine (14), and quetiapine (6). Very few of these reports provide information on the stabilizing agent after the priapism. As illustrated in the following case, priapism is an idiosyncratic reaction that is an often underappreciated side effect because of its infrequency.

A PubMed search for the years 1966–2009 (inclusive) with the keyword *priapism* in combination with the individual agents (*olanzapine*, *quetiapine*, *risperidone*) was performed. The olanzapine search was then refined for English so that the reports could be reviewed for a stabilizing antipsychotic.

Case report. Mr A, a 21-year-old African American man, was admitted to our acute inpatient psychiatric stabilization unit in February 2009 because of acute psychotic decompensation in the context of medication noncompliance. He carried a *DSM-IV-TR* diagnosis of schizophrenia, paranoid type, and his primary symptoms at the time of admission included worsening paranoid delusions, public nudity, and excessive irritability. Mr A was overall in good physical health. With the exception of cannabis abuse, there was no past history of alcohol or illicit drug abuse or medical conditions that could lead to priapism or any family history of priapism. The patient was not taking any medication prior to hospitalization. Vital signs and results of physical examinations were within normal limits. Mental status examination was significant for paranoid delusions, social withdrawal, self-talking, and a constricted affect. Complete blood count, electrolytes, liver function test, and urine analysis revealed no abnormalities, and rapid plasma reagin and urine drug screen findings were negative.

In reviewing the chart from his previous admission, it was noted that, in April 2007, the patient had developed priapism related to monotherapy treatment with risperidone at the state psychiatric hospital. He had been stabilized and discharged on olanzapine 5 mg po qam and 10 mg po qhs in July 2007. Our consultation-liaison psychiatrist started Mr A on olanzapine 10 mg in February 2009, 2 days before he presented to our inpatient stabilization unit. As he showed some improvement, his dosage was titrated up to 15 mg qhs after 1 week. In the morning 4 days after his dosage was increased, he developed priapism. After he failed to respond to diphenhydramine and oral phenylephrine, he was immediately taken back to the emergency room. Mr A was then taken to the operating room, where blood was evacuated and phenylephrine was injected. Symptomatic relief was provided with oral analgesics and eventual detumescence of the penis. Olanzapine was discontinued.

Still actively psychotic, the patient began a trial of quetiapine 25 mg qhs 2 days after the emergency room visit. He subsequently developed priapism in the hospital 2 days later, which required surgical intervention. Quetiapine was discontinued. Due to his continued psychosis and active court petition, he was transferred to the state hospital 2 days after that for further treatment. At the state hospital, he continued to have recurrent episodes of priapism, and the urologic consultation recommended leuprolide injections. Eventually, he was stabilized on loxapine treatment and standing pseudoephedrine. He was discharged from the state hospital in late July 2009.

In reviewing the 14 case reports of priapism related to olanzapine, only 6 commented on the stabilizing antipsychotic. Quetiapine was reported to be beneficial in 2 cases,[3,4] whereas haloperidol,[5] perphenazine,[6] risperidone,[7] and thiothixene[8] each had 1 report.

The ultimate common pathway in the pathophysiology of priapism is decreased venous outflow from the corpora cavernosa of the penis. Antipsychotics' blocking of the sympathetic α_1 receptor appears related to penile detumescence. It has been proposed that psychotropic-induced priapism is caused by the α_1-adrenergic antagonism of these medications. The propensity of individual antipsychotics to induce priapism has been presumably estimated on the basis of α_1-adrenergic blockade affinities.[2] However, given our review of the case reports, this appears debatable. Of the atypical antipsychotics, risperidone has greater α_1-adrenergic affinity and has the most associated case reports of priapism of the atypicals with 23. Olanzapine, which has the lowest affinity for α_1, has 14 associated case reports. Quetiapine has only 6 associated case reports despite having the relatively stronger affinity for the α_1 receptor. The fewer reports may be due in part to length of time on the market and relative market share.

Drug-induced priapism is not associated with either the dose or the duration of treatment.[2] The lack of association between the dosage and duration of antipsychotic treatment with the onset of priapism, as well as the delay in the patient's reporting priapism, makes priapism difficult to predict. It is therefore important to be aware of priapism during a clinical examination and to address the issue. Patient education about the risk of priapism is essential to prevent complications including impotence and potential for penile gangrene. If the patient develops priapism, urologic consultation should be obtained immediately.

We believe it is important for clinicians to appreciate the fact that any second-generation antipsychotic can induce priapism in part because of its α_1-adrenergic blocking capacity. Immediate recognition is necessary to prevent permanent urologic sequelae. When publishing case reports of priapism, it may be useful to document the stabilizing antipsychotic for future clinicians.

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