A Case of Priapism Associated With Rapid Increase in Risperidone Dose

To the Editor: In Greek mythology, a son of Aphrodite and fertility god named Priapos was best noted for his permanently large and erect penis,[1] which gave rise to the medical term *priapism*. Priapism is defined as a genital organ tumescence or rigidity, with or without pain, that persists without any sexual purpose.[2] Psychotropic medications can cause this rare side effect by blocking the α_1 receptor; among the atypical antipsychotics, risperidone has one of the highest affinities for the α_1-adrenergic receptor.[3] We report a case of a 21-year-old man who developed priapism after risperidone was restarted and the dose rapidly increased. Early recognition of priapism is emphasized.

Case report. Mr A, a 21-year-old Asian-American single man with a 12th-grade education, was admitted to the psychiatric inpatient unit for increasing psychosis and schizophreniform disorder. Initially, the patient reported outpatient compliance on his sole medication of risperidone 2 mg twice daily. On admission day 1, the patient was prescribed risperidone 2 mg orally twice daily. On day 3 of his hospitalization, the risperidone dosage was increased to 3 mg orally twice daily. On the morning of day 4, the patient complained of a persistent and painful erection lasting for 2 hours. Through patient re-interview, it was discovered that the patient was noncompliant with risperidone treatment for approximately 3 days prior to admission.

Prior to this event, the patient had no history of priapism, penile trauma, or sexual dysfunction. He had no family history of sickle cell trait or disease. His medical history was significant for cigarette smoking, recreational alcohol and marijuana use, and one instance of smoking methamphetamine months prior to admission; his urine drug screen was negative on admission. He was not taking any other medications. His physical examination was without abnormalities except for penile erection. Laboratory workup results revealed no significant abnormalities.

Mr A was given 10 mg of terbutaline orally, and within 1 hour there was complete detumescence and no further treatment was necessary. Risperidone was discontinued, and he was started on asenapine 5 mg twice daily. On follow-up 3 weeks later, no further priapism nor sequelae of sexual dysfunction were reported.

Risperidone is an atypical antipsychotic effective against both positive and negative symptoms of schizophrenia. It is generally used due to its characteristically fewer extrapyramidal side effects as compared with typical antipsychotics. Initial dosing is generally 2 mg/d with increases of 1 to 2 mg/d every 24 hours.[4] Risperidone 4–8 mg/d is the recommended dose range for schizophrenia.[4] Risperidone has a high affinity for the dopamine D_2, 5-$HT_{2A/2C}$, α_1/α_2-adrenergic, and histamine H_1 receptors.[5] Time to steady state for risperidone ranges from 1 to 7 days with a mean elimination half-life of approximately 19 hours.[5] Despite speculation, the most commonly accepted theory for drug-induced priapism is the characteristic α_1-adrenergic antagonism leading to decreased sympathetic tone and little to no blood flow in the corpora cavernosa of the penis. Although the mechanism of action of terbutaline is unclear, it is a β_2-adrenergic agonist thought to relax the smooth muscles of the corpora cavernosa.[6]

Approximately 30% of all priapism cases are drug-induced, some of which are from psychotropic medications.[7] Without urgent intervention, priapism can lead to fibrosis of tissue leading to permanent impotence. Due to its emergent nature, early patient education is crucial to provide immediate treatment on presentation of symptoms.

The uniqueness of this case involves an association of priapism with rapidly restarting risperidone at a medium dose. Physicians should be aware, especially early in the course of therapy, of this rare but potentially serious side effect of risperidone.

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Potential conflicts of interest: None reported.
Funding/support: None reported.
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Published online: September 20, 2012.
Prim Care Companion CNS Disord 2012;14(5):doi:10.4088/PCC.12l01365