Ziprasidone-Induced Ischemic Priapism Requiring Surgical Intervention: A Case Report

To the Editor: This is a case of ischemic priapism necessitating surgical intervention for a patient on ziprasidone treatment.

Case report. Mr A, a 50-year-old white man with bipolar I disorder (*DSM-IV* criteria), had been treated with a combination of ziprasidone and divalproex sodium for the last 6 years. The dose of ziprasidone was 60 mg in the morning and 80 mg at night, which had been his regimen for several years. The patient received advice from his psychiatrist that he should coingest ziprasidone with food to improve the bioavailability. However, the following day (that is, following an ingestion of 80 mg at bedtime and 60 mg in the morning of ziprasidone with food), he presented with a persistent painful penile erection lasting 10 hours.

Mr A was treated with corpora cavernosal drainage and irrigation with phenylephrine injection. Owing to lack of improvement, a proximal Winter shunt with corpora cavernosal drain instillation and a second phenylephrine injection was attempted; however, this was unsuccessful. Spontaneous flaccidity was obtained after 3 days. Urologists recommended balloon pump implantation after 6 to 12 months for ischemia-induced impotence. They concluded ziprasidone as the likely etiology of the ischemic priapism.

The patient had a history of erectile dysfunction treated with as-required sildenafil 100 mg. The last dose was taken 72 hours prior to the onset of priapism. Subsequent to this treatment with sildenafil, the patient had normally functioning erection, ejaculation, and ensuing flaccidity of his penis following sexual activity. Additionally, the patient reported a 2-hour episode of priapism 5 months prior to the current episode, which resolved spontaneously and was unrelated to sildenafil use.

Priapism is a urologic emergency, with some patients developing impotence despite medical interventions.[1] PubMed search with terms *ziprasidone* OR *Geodon* AND *priapism* found only 1 previous report concerning ziprasidone use and ischemic priapism requiring surgical intervention.[2] Priapism, though uncommon, is referenced as a possible side effect with ziprasidone.

Ziprasidone has an antagonist action on α_1 receptors,[3] and this action is ostensibly culpable in priapismic reactions. There can be up to a 2-fold increase in bioavailability when ziprasidone is ingested with food, and, hence, patients are normally advised to ingest this medication with at least a 500-calorie dietary intake for better absorption.[4] This patient had a prolonged history of fasted-state ziprasidone administration, which upon correction elicited a rapid dose-dependent α_1-mediated ischemic-priapismic reaction to amplified drug concentrations, mandating emergent surgical interventions.

Phosphodiesterase inhibitors, too, can cause prolonged erection[5]; in this patient's case, sildenafil is unlikely to have been the cause for 2 primary reasons. Firstly, sildenafil has a short half-life of 3 to 4 hours,[6] and the duration between sildenafil use and priapism onset was 72 hours. Secondly, there was a return to normal flaccidity following the sexual act when sildenafil was last used. Up to 50% of patients with priapism have a history of prolonged erection.[7] In this case, an episode of self-resolving prolonged erection was followed by ischemic priapism 5 months later.

We recommend that clinicians educate patients and monitor for sexual side effects not only following initiation and dose increments of ziprasidone, but also during any conditions that promote bioavailability. From this case, we suggest close follow-up or medication switching in those patients who experienced an episode of self-resolving priapism on ziprasidone treatment to prevent adverse reactions such as ischemic priapism and its associated morbidities.

REFERENCES

1. Sood S, James W, Bailon MJ. Priapism associated with atypical antipsychotic medications: a review. *Int Clin Psychopharmacol*. 2008;23(1):9–17.
2. Kaufman KR, Stern L, Mohebati A, et al. Ziprasidone-induced priapism requiring surgical treatment. *Eur Psychiatry*. 2006;21(1):48–50.
3. Andersohn F, Schmedt N, Weinmann S, et al. Priapism associated with antipsychotics: role of alpha1 adrenoceptor affinity. *J Clin Psychopharmacol*. 2010;30(1):68–71.
4. Lincoln J, Stewart ME, Preskorn SH. How sequential studies inform drug development: evaluating the effect of food intake on optimal bioavailability of ziprasidone. *J Psychiatr Pract*. 2010;16(2):103–114.
5. Aoyagi T, Hayakawa K, Miyaji K, et al. Sildenafil induced priapism. *Bull Tokyo Dent Coll*. 1999;40(4):215–217.
6. Nichols DJ, Muirhead GJ, Harness JA. Pharmacokinetics of sildenafil after single oral doses in healthy male subjects: absolute bioavailability, food effects and dose proportionality. *Br J Clin Pharmacol*. 2002;53(suppl 1):5S–12S.
7. Thompson JW Jr, Ware MR, Blashfield RK. Psychotropic medication and priapism: a comprehensive review. *J Clin Psychiatry*. 1990;51(10):430–433.

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Potential conflicts of interest: None reported.
Funding/support: None reported.
Published online: *February 14, 2013.*
Prim Care Companion CNS Disord 2013;15(1):doi:10.4088/PCC.12l01443