Quetiapine-Induced Priapism in an Adolescent Patient

Principal Author: Raheel Chaudhry MD

Abstract

•**Introduction:**

•Quetiapine is a FDA-approved atypical antipsychotic used to treat schizophrenia, bipolar disorder, major depressive disorder, and generalized anxiety disorder. Quetiapine is also regarded as an effective and safe treatment for patients with delirium. Quetiapine can be associated with increased risk of priapism so we aimed to investigate the association between quetiapine exposure and priapism.

•**Case Report:**

•We present a case report on a 17-year-old patient who acquired priapism 2 days after starting Quetiapine and discuss on how to avoid its medical consequences of cavernositis and erectile dysfunction.

•**Search Terms:** We proceeded with the literature review using Cochrane, PubMed, Embase, Clinical Key, Medline, Web of science. The literature review was done using the following search terms; quetiapine induced priapism, quetiapine induced prolonged erection, quetiapine and Priapism, seroquel and Priapism. seroquel induced priapism, antipsychotic use and priapism.

•**Conclusion:**

•Through this case discussion and review of current literature, we present information on the possible mechanism by which quetiapine can lead to this complication of priapism. The literature supports a strong positive correlation between quetiapine causing priapism.

Case Presentation

- A 17-year-old adolescent male patient who was hospitalized because of Bipolar depression after worsening depression and suicidal ideation. He had been previously hospitalized before due to suicidal ideas and insomnia. During his hospitalization he was started on Prozac 20 mg once daily and quetiapine 100 mg at bedtime which was increased to 200 mg at bedtime.
- Four days after the initiation of quetiapine, his first long lasting and painless spontaneous erection occurred and subsequently he had similar priapism episodes every night for the next 2 days lasting from 1 to 2 hours. On day 3 of this adverse effect, after a urology consultation and ice compression quetiapine treatment was stopped. His laboratory work-up was unremarkable; including negative urine toxicology and brain CT scan. The patient responded well to discontinuation of quetiapine and priapism resolved within the next few days.

Background/Introduction

- Priapism is a state of extended, pathological erection after or without sexual arousal. It is generally divided into ischemic (low-flow, veno-occlusive) and non-ischemic (high-flow, arterial) forms. Priapism is an uncommon alteration that mainly affects the corpora cavernosa, resulting in a persistently erect penis with or without sexual stimulation, lasting for 6 hours or more.
- With increasing diagnosis and treatment of psychiatric disorders, there is an increase in the use of medications to treat these disorders, thus an increase in related rare adverse drug reactions.
- Priapism an emergency that may lead impotence, urinary retention and gangrene as long-term devastating consequences. 40–50% of the patients may have subsequent erectile dysfunction due to ischemia and fibrosis of the cavernous body, even with proper treatment.

Conclusion

- After quetiapine treatment, the patient complained of long lasting and painless spontaneous erection. Priapism became recurrent as a result of standard doses of quetiapine after first use and with multiple subsequent uses. It was a low flow priapism which is characteristic of psych trophic medication. All diagnostic tests and all other causes of priapism were rule out and after discontinuation of the culprit quetiapine his priapism resolved.
- We recognize a need for increased awareness among physicians to the possibility of increased risk of priapism with atypical antipsychotics.
- It is important to inform the patient regarding the risk of such side effect and monitor patients taking antipsychotics. Monitoring should include screening for sexual side effects of antipsychotics. The clinician should be aware of the history of prolonged and painless erections as a predictor of priapism.

Photos

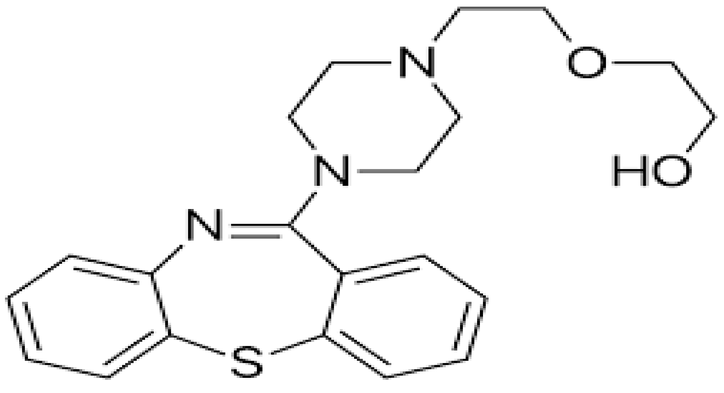


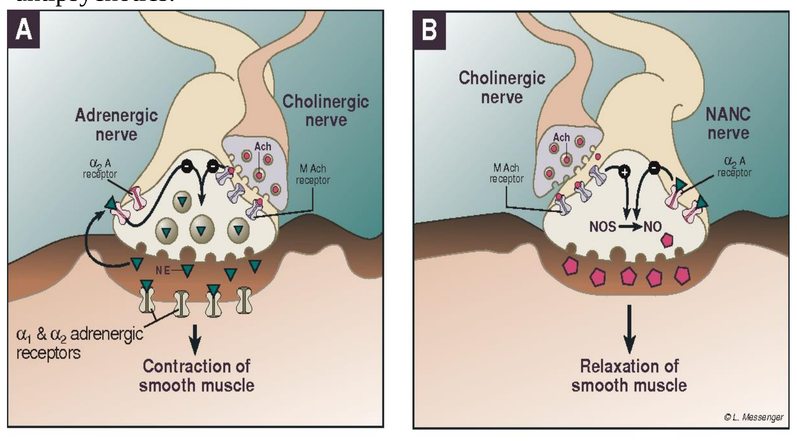
Figure 1. Molecular Structure of Quetiapine.

Discussion

- Various drugs have been implicated in priapism. Diagnosis of drug-induced priapism depends upon a strong association between a history of drug therapy and the onset of priapism. To ensure accurate diagnosis, other organic causes of priapism must be excluded. Although it is rare but priapism is a well-known side effect that occurs with first generation antipsychotics and a few cases have also been reported with second generation antipsychotics. The main mechanisms are listed below:

1. Neural and vascular factors are involved in penile erection. It has been suggested that priapism associated with antipsychotics occurs through the alpha-1 adrenergic blockade in the cavernous body resulting in parasympathetic arterial dilation as well as inhibition of sympathetic system which leads to tumescence. This causes intracavernous stasis by obstruction of subtunical veins with resultant hypoxia, acidosis and pain.
2. Alpha-2 adrenergic blockade exacerbates alpha-1 mediated priapism by stimulating the release of a nitric oxide-like substance, a potent muscle relaxant. So mainly priapism is attributed to the blockade of alpha-1 adrenergic receptors in corpus cavernosum.

- Antipsychotic medications have varying affinities for adrenergic receptors. Ziprasidone and risperidone have the highest affinity, followed by clozapine and quetiapine for adrenergic receptors.
- This side effect has been also reported in patients taking ziprasidone, risperidone, clozapine, quetiapine, aripiprazole and olanzapine. The affinity of these drugs to alpha-1 adrenergic receptors vary significantly and affinity of quetiapine is intermediate compared to other antipsychotics.



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