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A Case of Dose-Dependent Lamotrigine-Induced Priapism in a Patient with Bipolar Disorder

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ABSTRACT

Introduction: Priapism is defined as a prolonged and persistent erection of the penis without sexual stimulation. Priapism can be caused either by organic factors or as a side effect of drugs. Mood stabilizer induced priapism has been reported less frequently compared to other psychotropic agents. This paper reports a case of lamotrigine induced priapism.

Case: A 24-year-old patient had a diagnosis of bipolar disorder for 4 years. He had been treated with lamotrigine (200 mg/day), sertraline (25 mg/day) and risperidone (2 mg/day) for last year. He developed priapism one week after the lamotrigine dose was increased to 300 mg/day during a depressive episode. Priapism improved the day after the lamotrigine dose was reduced to 250 mg/day.

Conclusion: Epilepsy patients with lamotrigine-induced sexual dysfunction or priapism have been reported previously. In this case, a patient diagnosed with bipolar disorder developed dose dependent lamotrigine-induced priapism. In clinical practice, the possible risk of priapism should be taken into consideration in patients using lamotrigine, especially during dose increases.

Keywords: Bipolar disorder, lamotrigine, priapism

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INTRODUCTION

Priapism is defined as a prolonged and persistent erection of the penis without sexual stimulation. There are two types of priapism: non-ischemic (arterial) and ischemic (veno-occlusive) (1). Although most cases of priapism are idiopathic in general, most cases in the United States are iatrogenic, due to the use of intracavernosal injection (ICI) for the diagnosis and treatment of erectile dysfunction (ED) (2). Priapism may result from other organic reasons, or the side effects of drugs. Drug-induced priapism is associated with antipsychotics, antidepressants, and antihypertensive drugs in approximately 15–41% of all cases. It is most commonly associated with antipsychotic drugs (3,4).

However, priapism is less associated with mood-stabilizing drugs. As reported in the literature, in a few cases, priapism was induced after lithium was added to therapy (5). Previously, priapism as a side effect of lamotrigine was reported in a pediatric patient with epilepsy (6). In this paper, we report a case of lamotrigine induced priapism in a 24-year-old patient with bipolar disorder.

CASE REPORT

Twenty-four-year-old male patient. He had a diagnosis of bipolar disorder (BD) for 4 years and had taken lamotrigine (200 mg/day), sertraline (25 mg/day), and risperidone (2 mg/day) for the last 1 year. The patient had no other chronic diseases and did not use alcohol, substances, or any other drugs. He has suffered from depressive complaints such as reluctance, unhappiness, loss of energy, and anhedonia for the last 1 month. On his psychiatric examination, his Hamilton Depression Scale (HAM-D) score was 24 (moderate depression), and the Young Mania Rating Scale (YMRS) score was 2. In his routine biochemistry and hemogram tests, no abnormal findings were determined. The patient was considered to be in the BD depressive period. In his treatment, lamotrigine was increased to 250 mg/day. In the evaluation made 1 month later, his depressive symptoms partially regressed; his HAM-D score was 15 (mild depression) – and YMRS score was 2. In his treatment, lamotrigine was increased to 300 mg/day. One week after the dose was increased, the patient presented for the first time with the complaint of mild painful spontaneous erection without any sexual stimulation. He said that his complaints had been lasting for about 1–2 hours almost every day for 5 days. He stated that there was no change in his sexual desire, and we thought that he had priapism. The urology consultation was performed. Doppler ultrasound examination revealed no blood flow abnormalities in the penile vessels. No urological intervention was performed. Thus, we concluded that he did not need any treatment; because there was no organic cause, and the cause of priapism was probably the side effect of the drug. This case was evaluated as iatrogenic (due to medical drug) priapismus. Then, the dose of lamotrigine was reduced to 250 mg/day. The patient's priapism symptom regressed 1 day later, and his HAM-D score was 9 after 4 weeks. In the examination performed 3 months later, his HAM-D score was 5 and YMRS score was 2. As the HAM-D score decreases, the severity of depression decreases. His complaint of priapism did not recur during this

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Highlights

- **Lamotrigine might induce priapism in patients with bipolar disorder.**
- **Lamotrigine induced priapism can be dose-dependent.**
- **Patients with bipolar disorder using lamotrigine must be followed-up for priapism risk.**

period, and his mood was considered euthymic. The patient gave written informed consent.

DISCUSSION

Drug-induced priapism can occur at almost any age (7,8). The action mechanism of drug-induced priapism often leads to arteriolar dilatation and increased blood flow through the α1 receptor antagonism. This results in a decrease in venous return, and an increase in the release of nitric oxide, a smooth muscle relaxant, and thus to an increase in erection through the α2 receptor antagonism. This may be due to an increase in parasympathetic tone relative to sympathetic tone (9,10).

Lamotrigine is an antiepileptic drug belonging to the phenyltriazine class used in the treatment of epilepsy and BD. As indicated in many clinical guidelines, lamotrigine is used as a first-line pharmacological agent in the treatment of BD depression (11). Among the proposed action mechanisms of lamotrigine therapy for BD are inhibition of voltage-sensitive sodium channels, reduction of glutamate release and blockage of the calcium channel (12). In some studies, lamotrigine is also demonstrated to have a relationship with α1 and α2 adrenoceptor activation (13).

The literature is contradictory. In several studies, lamotrigine has been demonstrated to improve sexual function or to cause hypersexuality, especially in patients with epilepsy, because it causes hormonal changes less than other drugs; and it does not cause endocrinological changes that may lead to sexual dysfunction since it does not affect the cytochrome P-450 enzyme. There are several cases in which sexual dysfunction is improved when other drugs are replaced with lamotrigine treatment (14,15). However, it is not clear whether lamotrigine has this effect directly, or indirectly by improving epilepsy symptoms. In some studies, lamotrigine-induced sexual dysfunction was reported, and it was stated that this side effect depended on the dose. In a case report, it was reported that a 300 mg daily dose of lamotrigine led to severe sexual dysfunction (decreased libido, impotence, anejaculation/anorgasmia) (16).

In a previous case report, an 11-year-old male patient was first administered lamotrigine 200 mg/day for the treatment of epilepsy, then the drug dose was increased to 300 mg/day, and the patient developed persistent penile erection 4 days after the dose was increased. However, penile erection regressed approximately 1 day after lamotrigine was discontinued, which was reported as a side effect of lamotrigine. In this case, a rapid increase in the dose of lamotrigine was indicated as the cause of priapism (6). As in the literature, this side effect occurred probably due to a rapid increase in the dose, and it was indicated that the symptoms might disappear after a while with a reduction in the dose. It is interpreted that this effect may be related to adrenergic receptors. High doses of lamotrigine may affect erection without affecting sexual desire in male patients. This gives an important idea for clinicians that priapism can occur in cases where lamotrigine is used, especially in rapid increases in dose and at high doses such as 300 mg/day. It is obvious that there is a need for new case reports on the subject.

The limitations of this case report were not using a scale to measure drug side effects, and the patient's antidepressants and antipsychotic use. However, the doses of antidepressant and antipsychotic drugs did not change during the follow-up period.

Informed Consent: The patient gave written informed consent.

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