

# Dose Dependent Amitriptyline Induced Sexual Dysfunction in a Migraine Patient

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## ABSTRACT

Amitriptyline is a tricyclic antidepressant. It is one of the preferred first linedrug for prophylactic treatment of migraine. Here we report a case of amitriptyline induced sexual dysfunction in a 40 year old male patient who was diagnosed with Migraine without aura.

**Key words:** Amitriptyline, Migraine, Sexual dysfunction.

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## INTRODUCTION

Migraine is a chronic neurovascular disease affecting 10% of the population worldwide.<sup>[1]</sup> The prophylactic therapy of migraine depends on frequency and severity of migraine attacks and extent of functional disability associated with these effects.<sup>[2]</sup> Amitriptyline is a tricyclic antidepressant which has been used in the prophylactic treatment of migraine.<sup>[3]</sup>

Erectile dysfunction has been reported in association with variety of antidepressant drugs. But only small number of cases have been reported with any individual drug. It is defined as an inability to achieve or to maintain erection sufficient to allow satisfactory sexual intercourse. Also, there is little detailed information on the prevalence of drug-induced sexual dysfunction.<sup>[4]</sup>

Drug-induced sexual dysfunction is a problem which occurs during the treatment of various illnesses like depression, hypertension and diabetes mellitus.<sup>[5]</sup> Drugs which are reported to cause sexual dysfunction are antidepressants like amoxapine, trazodone, antihypertensives like hydrochlorothiazide, spironolactone,<sup>[6]</sup> methyl dopa, and antipsychotics like chlorpromazine, haloperidol, etc.<sup>[7]</sup>

Sexual dysfunction is categorized into main phases like decreased libido, priapism, impotence or erectile dysfunction and delayed ejaculation.<sup>[5]</sup> Etiology of erectile dysfunction may be vascular, hormonal, neurologic, drug induced or psychogenic.<sup>[8]</sup>

Studies have shown that amitriptyline use in migraine is associated with adverse effects like weight gain, constipation, blurring of vision, dryness of mouth etc.<sup>[9]</sup> But rarely is it associated with sexual dysfunction as an adverse effect in the treatment of migraine. Prevalence of amitriptyline induced sexual dysfunction is 7%.<sup>[10]</sup>

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There are few reports of sexual dysfunction associated with amitriptyline use in migraine. Here we report a case of amitriptyline induced erectile dysfunction in a 40 year old male patient who was taking oral amitriptyline for migraine for one year.

### CASE REPORT

A 40 year old male patient presented to the neurology OPD of Vydehi Institute of Medical Sciences & Research Centre with symptoms of migraine. He was a known case of migraine who was on treatment for the past one year. He was on oral amitriptyline 75 mg once daily. His migraine attacks decreased but he developed erectile dysfunction within 4 days of starting the drug. So his dose was decreased to 50 mg and as he complained of the same problem with 50 mg amitriptyline also, his dose was further reduced to 25 mg. But even at 25 mg amitriptyline, he continued to have erectile dysfunction. So he had stopped taking amitriptyline on his own, which led to the resolution of erectile dysfunction immediately after stopping the drug. But the frequency and severity of migraine attacks increased. Then he presented to the neurology OPD with the symptoms of migraine.

His systemic examination was normal. He had no history of hypertension, hypercholesterolemia or diabetes and also he was not on any other treatment. He was responding well to amitriptyline in the past in terms of decreasing frequency and severity of migraine attacks. Therefore, the patient was advised again to take the lowest dose of amitriptyline i.e. 10 mg once daily.

After 3 months of follow up, patient had no complaint of erectile dysfunction and the frequency and severity of migraine attacks also decreased. The patient had no other systemic complaints.

There are many causes and risk factors for erectile dysfunction that include hypertension, diabetes, depression and drug-induced etc.<sup>[11]</sup> In this case the patient did not have hypertension, diabetes or depression and his sexual life was normal in the past. So with the absence of a past history of erectile dysfunction and the rapid onset of erectile dysfunction in the context of use of 75 mg/50 mg/25 mg of amitriptyline and also resolution of erectile dysfunction after reducing the dose of amitriptyline to lowest dose of 10 mg, suggests that amitriptyline was the causative agent and it was a dose dependent adverse effect.

Causality assessment was done using the Naranjo scale.<sup>[12]</sup> The causal analysis showed that this is an adverse reaction with amitriptyline, definitely.

### DISCUSSION

Amitriptyline is a tricyclic antidepressant which is commonly used to treat depression. It has also been used in the prophylaxis of migraine. It reduces frequency and severity of migraine attacks by reduction of cortical excitation. It has been postulated that the mechanism of action of amitriptyline involved in inducing sexual dysfunction is the inhibition of reuptake of serotonin and norepinephrine at the presynaptic terminal, resulting in increased neurotransmitter availability at the synapse. Studies have found that increased central serotonergic activity is involved in causing sexual dysfunction.<sup>[5]</sup>

Studies have shown that amitriptyline use in migraine is associated with adverse effects like weight gain, constipation, blurring of vision, dryness of mouth, etc. But it is rarely reported that its use is associated with sexual dysfunction as an adverse effect in the treatment of migraine.<sup>[9]</sup>

The diagnosis of drug-induced sexual dysfunction is warranted only if the problem starts after drug therapy begins or after a dose change. Treatment strategies include decreasing the dose of current pharmacologic therapy, switching to another class of drugs, or adding another agent.<sup>[11]</sup>

In this case the patient's sexual life was normal and he did not have erectile dysfunction in the past. After starting prophylactic treatment of migraine with amitriptyline he had a complaint of erectile dysfunction. It has been observed that the rapid onset of erectile dysfunction in the context of use of 75/50/25 mg of amitriptyline and the resolution of the same after discontinuation of 25 mg amitriptyline suggests that amitriptyline was the causative agent.

Also it has been observed that there was no complaint of erectile dysfunction when patient was on 10 mg of amitriptyline. This proves that this was a dose dependent adverse effect of amitriptyline.

There are few reports of sexual dysfunction on long term use of amitriptyline in migraine. It can have significant impact on the person's quality of life, quality of relationships and self-esteem.<sup>[5]</sup> Hence a regular monitoring of adverse reactions in patients who are on long term drugs is needed. Since most of these adverse effects are reversible, it is important

to identify clinical manifestations related to drug toxicity and to manage them appropriately.

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