

Case Report

Acute Dystonia After Single Dose of Bupropion

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ABSTRACT

Bupropion is an antidepressant that is effective in the treatment of major depressive disorders, smoking cessation, and sexual side effects of selective serotonin reuptake inhibitors. Acute dystonia is characterized by prolonged muscle contraction often represented by spasms of the head and neck muscles as well as occasional jaw clenching and temporomandibular joint syndrome. Although it is believed that dystonia is the result of an abnormality of the basal ganglia, its pathophysiology is still unclear. A few cases of dystonia resulting from bupropion have been reported in prior research papers. This case report discusses a patient who had a neck spasm painful enough to wake him up and dystonic distortion after taking only one dose of 75 mg bupropion. The patient was a young 34-year-old man with a diagnosis of obsessive-compulsive disorder treated with 60 mg fluoxetine. Bupropion was added to his medications because of sexual side effects caused by the fluoxetine. It seems that we must be careful to watch for dystonic symptoms when bupropion is mixed with other drugs that affect serotonin reuptake. Although dystonia is a rare side effect of bupropion, physicians should be aware of it and manage it if it occurs.

Key words: Antidepressant, bupropion, dystonia

INTRODUCTION

Bupropion consists of dopamine and noradrenaline reuptake inhibitors and is also used as a drug for the treatment of major depressive disorders and nicotine dependency.^[1]

Acute dystonia is determined by abnormal posture and twisting involuntary movements caused by long-term contraction of opposing muscle groups. Symptoms typically occur several hours to several

days after beginning, increasing, or decreasing drug dose. Acute dystonia is common with first-generation antipsychotics with a high potency, as well as other drugs.^[2,3]

There are several case reports about acute dystonia resulting from bupropion.^[4-6] There is also a report of acute dystonia after discontinuation of bupropion.^[7]

A patient may suffer from acute dystonia symptoms after a single dose of bupropion.

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How to cite this article: Elyasi F, Mahtiyani E. Acute dystonia after single dose of bupropion. Indian J Psychol Med 2016;38:460-2.

Access this article online	
Website: www.ijpm.info	Quick Response Code 
DOI: 10.4103/0253-7176.191384	

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CASE REPORT

The patient is a 34-year-old man with eight class education. He was referred to a psychiatrist on behalf of his company because of decreased job performance due to obsessive behavior.

The patient was diagnosed with obsessive-compulsive disorder (OCD) in Axis I and border intelligence in Axis II accordance with Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition diagnostic criteria. Fluoxetine began with a 10 mg daily dose and had reached 60 mg/day 5 months later. Symptoms of OCD showed an appropriate response to treatment, but the patient complained of decreased libido, so bupropion was added to the treatment at a dose of 75 mg daily.

The next morning, about 11 h after reception of the first dose of bupropion, the patient referred to the emergency room while complaining of muscle contractions in the right side of the face, neck, and shoulder. Biperiden was intramuscularly injected to the amount of 5 mg, and the patient was referred to a psychiatrist due to lack of response. The patient's head was in a state of extension. During the spasms episode, his eyes turned upward and the patient was unable to make eye contact. There were no other signs such as fever, and neurological tests were normal. There was no family history of head trauma, seizure or substance abuse, or family history of psychiatric disorders and movement disorders. With respect to previous psychiatric history and the diagnostic check, neither conversion nor malingering disorder was raised for the patient. Secondary acute dystonia diagnosis was connected to bupropion, and an abnormal involuntary movement scale (AIMS) was done. The AIMS score was 22. Thus, biperiden was intramuscularly injected to the patient to the amount of 7.5 mg and the patient's symptoms were resolved after about 30 min. Bupropion treatment was halted.

Tests were run

Complete blood count, Vitamin B12 level, folic acid level, ferritin, biochemistry, and screening for Wilson's disease were performed. Cranial magnetic resonance imaging was performed to rule out secondary causes of dystonia and showed no pathologic point. At follow-ups 24 h, 2 weeks, 4 weeks, 8 weeks, and 12 weeks later, no recurrence of symptoms of dystonia occurred. Treatment and follow-up of the patient in the outpatient clinic still continue, and the patient is under treatment with fluoxetine up to 50 mg/day.

DISCUSSION

This case shows that acute dystonia due to bupropion can occur even with low doses and after a single dose. In

limited studies in this field, bupropion at doses higher than 150 or 300 mg daily was administered. It is said that bupropion strengthens dopaminergic and noradrenergic activity. *In vitro*, it has a stronger effect on inhibiting dopamine uptake by synaptosomes together with less impact on the uptake of norepinephrine.^[8] In addition, bupropion has no effect on the uptake of serotonin.

Dystonia to be caused by stimulation of serotonin on dopaminergic pathways in the central nervous system.^[4] It is well known that the side effects of several drugs affect dopamine concentrations including antipsychotics and selective serotonin reuptake inhibitors (SSRIs).^[9] Acute drug-induced dystonia can be a side effect of treatment with antipsychotic drugs, antidepressants, antiemetics, and other medications. Risk factors include male gender, young generation, high dosage, high potency antipsychotics, and parenteral administration of antipsychotics.^[10-14]

The serotonergic system has many problematic interactions with a variety of different receptor subtypes such as gamma amino butyric acid and the cholinergic system. Toxic inhibitory effects on dopaminergic function via serotonergic neurons in the brainstem and impaired dopamine/acetylcholine balance, justifies SSRIs as a cause of acute dystonia.^[15] Several reports of acute dystonia are caused by antidepressants.^[15-17]

Fluoxetine is associated with extrapyramidal symptoms (EPS) and link more than other SSRIs, but it is known that other SSRIs including paroxetine, fluoxetine, and sertraline also create several motor impairments.^[18-20] It is shown that any increase in levels of serotonin suppresses the dopaminergic neurons.^[21] It is observed that the increase in serotonergic concentrations leads to suppression of the dopaminergic system.^[22]

Concurrent use of bupropion with a drug that affects serotonin reuptake such as buspirone or an SSRI is likely to cause acute dystonia. Both buspirone and bupropion interact with the dopaminergic and serotonergic systems.^[4] In one report, together with bupropion, the patient received St. John's wort which is an herbal drug that inhibits serotonin, norepinephrine, and dopamine. The patient underwent prolonged dystonia after taking the drug. This patient's condition reinforces the fact that caution must be used when prescribing bupropion together with other drugs that affect serotonin reuptake. Side effects may be due to additive effects of two drugs such as fluoxetine and bupropion that have the same effect on serotonin reuptake.

People who are supposed to be experiencing acute dystonia must be checked in terms of tetanus, Wilson's disease, encephalitis, hypocalcemia, catatonia, and conversion and malingering disorders.^[23]

In treating EPS that occur as side effects of the drug, anticholinergic drugs such as biperiden, diphenhydramine, and benztropine are used. Improvement is often observed within 30 min. For some patients, repeated doses are needed, but long-term treatment is rarely required.^[23]

CONCLUSIONS

Acute dystonia, a painful side effect of bupropion, is terrifying and sometimes life-threatening. It can also lead to dysfunction in the relationship between doctor and patient. Early detection and proper management of this potentially dangerous side effect is important.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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