

CASE REPORT

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Pack in or go on: Topographic disorientation induced by bupropion sustained release tablet

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Abstract

The mechanism of effect of bupropion is unknown. The authors report a case of bupropion-associated topographic disorientation during bupropion treatment for smoking cessation. A 44-year-old female patient with a history not knowing where she is, the inability to recognize the surrounding buildings was admitted to neurology department. During her admission, her symptoms disappeared and she did not continue her medication. There was no abnormality in the investigation. It was concluded that the onset of symptoms was dose dependent. Bupropion may cause unusual neuropsychiatric behaviors. This case suggests that topographic disorientation may be the primary symptom of bupropion toxicity.

Keywords: Bupropion, topographic disorientation, smoking cessation

Introduction

Bupropion, a monocyclic phenylbutylamine in the aminoketone group, is an antidepressant that is structurally related to amphetamine. Bupropion inhibits noradrenergic and dopaminergic reuptake in the brain. There is a minimum effect on serotonin withdrawal and there is no anticholinergic property or effects on monoamine oxidase activity [1].

Bupropion is used to major depressive disorder, seasonal affective disorder, bipolar disorder related depression, Attention Deficit Hyperactivity Disorder (ADHD), panic disorder and aid in smoking cessation [1].

Extended-release, film-coated tablets (e.g., Zyban), administer orally once daily for the first 3 days, then usually increase to twice daily administration with 8 or more hours separating the doses. Common adverse events of bupropion include dry mouth, insomnia, nausea, headache, rash, dizziness, tremor, constipation, drowsiness, agitation, insomnia, tachycardia, hallucination, allergic reactions, and altering of the seizure threshold [2].

We report a case in which a patient topographic disorientation within a week of beginning sustained-release bupropion for the management of smoking cessation.

Case

A 44-year-old right hand woman, engineer and officer, with graduated from a university, used sustained-release bupropion tablet in dose 150 mg twice a day since one week for cessation of smoke. Six days after starting of therapy, she suddenly disoriented. During the attack she was not at home and suddenly forgot where she was. She was conscious but she didn't know where it was, lost her way in a familiar environment. She couldn't remember which way she had gone. She hasn't been complained of nausea, vomiting, headache, fever, vomiting and seizure at the meantime. Her symptoms resolved and she was returned to the normal state after 2-3 hours. Patient admitted to neurologists at next day. She has been smoking cigarette since the age of 20. There was no history of psychiatric disorders, epilepsy or migraine. She didn't use any concomitant medication. It had nephrectomy by trauma in her story. Bupropion was discontinued on hospital admission and her neurologic examination revealed no abnormalities. Additional investigations (hematologic, chemical and hormonal investigation of blood, magnetic resonance imaging of the

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brain, electroencephalogram) revealed no abnormalities. Magnetic resonance imaging (MRI) of the brain was done which was read as normal including “normal temporal lobes, no intracerebral masses, no evidence of hippocampal atrophy, and no extracerebral collections.” Her Mini Mental State Examination (MMSE) score was normal (29/30; attention and calculation 4/5.). Beck Depression Inventory score suggested depression (21/63). Whereby the disorientation was thought to be associated to the use of bupropion, treatment was stopped.

Discussion

Disorientation is a loss of sense of direction, place, time or surroundings, as well as mental confusion regarding one's personal identity. Topographic disorientation happens when person it cannot find its way in a familiar environment [3]. Our patient couldn't remember where she was, and from where she came from.

However, it should be kept in mind that this disorientation may be caused by delirium, amnesia, dizziness, transient ischemic attack. Skripuletz et al. reported a case with retrograde amnesia associated with the use of bupropion at the treatment dose [4]. Whereas, it was impossible to attribute this disorder to our patient's amnesia, since the elements she could not recognize or identify were well known for years.

Hummer and Swims had reported symptoms of transient ischemic attacks during bupropion treatment for smoking cessation [5]. With the emergence of the duration of the symptoms of our patients and then start using a new medication suggests ischemic attack. But we did not found significant findings in the examination for the diagnosis.

Preskorn reported that delirium, psychosis and extrapyramidal side effects of central nervous system toxicity in bupropion treatment were associated with an increase in plasma level of the main substance or metabolites [6]. Dager and Hertich were assumed to reflect the dopaminergic effects of bupropion instead [7]. Bupropion for smoking cessation, especially the use of immediate-release products, can lead to side-effect reactions.

Bupropion mechanism of effect is unclear; however studies suggested that bupropion increased dopaminergic and noradrenergic activity. Bupropion similar to that stimulant amphetamine was investigated. Authors accomplished that bupropion unlikely effect amphetamine-like abuse type 3.

We report the first case of topographic disorder as one of the neuropsychological symptoms associated with bupropion use. All patients being treated with bupropion for smoking cessation treatment should be observed for neuropsychiatric symptoms. Bupropion seems to be yielding in ameliorating symptoms of smoking withdrawal, but doctors should be given attention that there is an enhanced risk for disorientation.

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Ethical approval

Ethics committee approval was obtained.

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