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Case report

DELUSIONAL INFESTATION DUE TO INTRAVENOUS ABUSE OF BUPROPION - CASE REPORT

Tom Sugnet[1], Suzana Jonovska[1,2] & Vesna Šendula-Jengić[2,3]
[1]Department of Addictions and Psychotrauma, Psychiatric Hospital Rab, Rab, Croatia
[2]Faculty of Health Studies, Rijeka, Croatia
[3]Research Department, Psychiatric Hospital Rab, Rab, Croatia

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INTRODUCTION

In the era of globalization, the boundaries between medications and drugs of abuse are often erased. Many psychoactive substances are susceptible to abuse, especially those with euphoric effects. Although antidepressants have not been considered drugs of abuse until recently, epidemiological studies indicate caution should be taken while prescribing bupropion and tianeptine, to certain populations. These atypical antidepressants, due to their pharmacodynamic properties, may be abused, usually within the syndrome of polydrug abuse. The euphoric effect, one of the signs a drug might be abused, may occur in supratherapeutic doses or in untested routes of administration (intravenous or intranasal, for an oral drug; Langguth et al. 2009). First reports of abuse are frequently obtained from emergency medicine specialists who inspect patients presenting with symptoms of overdose.

BUPROPION OVERVIEW

Bupropion is a noradrenaline and dopamine releasing agent (NDRA) and a noradrenaline-dopamine reuptake inhibitor (NDRI), with dopamine reuptake inhibition (K_i=526 nM) being highest in the prefrontal cortex. After oral ingestion it is rapidly metabolized to hydroxybupropion, a selective noradrenaline reuptake inhibitor (NRI) and nAChR antagonist, without significant dopaminergic activity. During intranasal and intravenous abuse of bupropion, its metabolization to hydroxybupropion is delayed. Bupropion is also a negative allosteric modulator of the 5-HT_{3A}. It is also a non-competitive antagonist of several nicotinic receptors ($\alpha_3\beta_2$, $\alpha_3\beta_4$, $\alpha_4\beta_2$). The action on these nicotinic receptors is also believed to be involved in occurrences of delirium and psychosis. Amphetamine-like features of bupropion are more likely to appear with supratheurapeutic peroral doses or in non-oral routes of administration, irrespective of doses (Kim & Steinhart 2010). They include anxiogenic, epileptogenic, anorectic, and euphoric effects. The most dramatic amphetamine-like effect is a possible occurrence of a stimulant psychosis with paranoid, persecutory delusions (Farooque & Elliott 2010). Bupropion-induced delirium has been depicted as extremely unpleasant, different than delirium caused by sedating drugs (Mori et al. 2013). The most dangerous non-psychiatric side effect of bupropion misuse are seizures, described in up to one third of cases. The risk of seizures increases with increasing doses (with 325 mg being maximum non-epileptogenic dose), but it does not depend on the route of administration.

CASE PRESENTATION

We report a case of a 37-year-old man who developed a clinical picture of delusional infestation, as well as seizures, secondary to intravenous abuse of bupropion. This was patient's third admission to our hospital, but the first one via the emergency department. The patient had a long history of polydrug abuse, including heroin and cocaine. He is married with two children, unemployed, with some high school education. He started taking alcohol and marijuana at the age of fourteen, and heroin and cocaine at the age of seventeen. For more than thirteen years, he was only in sporadic outpatient care, with variable success, stabilized on buprenorphine substitution therapy. His family history is positive for alcohol abuse in his father and epilepsy in his mother.

The patient presented in our emergency department at midnight, for marked disorganized behavior and the chief complaint of new-onset visual hallucinations. Urine drug screen was performed and was positive for buprenorphine, benzodiazepines and amphetamines. Breathalyzer test showed no traces of alcohol. At the time of admission, the patient denied taking any psychotropic drugs, and he claimed he was being bitten by black widow spiders which, according to him, were crawling down his body as he spoke. The physical exam revealed the presence of fresh linear skin punctures in his inguinal area, suspect of drug abuse. Twenty minutes into the exam the patient developed a seizure and was subsequently given intramuscular diazepam. A series of less intense seizures was noted in the following hours. The patient was treated with intramuscular diazepam and with intramuscular promazine. His psychotic symptoms subdued during the night. On the following day, he reported feeling better and no residual psychotic pro-

duction was found. He agreed to continue with oral medication: medium-dose promazine was maintained, while diazepam was gradually removed from his regimen as carbamazepine was added. He continued taking his buprenorphine substitution therapy as well, as usual.

As patient's condition improved, new information was revealed. He denied having taken any drugs besides buprenorphine and benzodiazepines, except for bupropion which he was buying from the illicit market. He reported abusing bupropion for a year, nasally at first and then intravenously, because he liked its effects, describing them cocaine-like. He denied taking amphetamines in the last few months. The patient agreed to enter the rehabilitation program at our hospital. One year after this episode, he seems stable and reports no relapse of bupropion abuse.

CONCLUSION

As the rates of bupropion abuse are on the rise (becoming almost epidemic, in some parts of the world; Steele et al. 2015), we should focus on prevention. Recognizing first signs of potential abuse is crucial. Bupropion abuse may be suspect in patients seeing their doctor, claiming that they have depression and that only bupropion can be helpful to them, and no other antidepressant. Epidemiologists think that much of the legally prescribed bupropion might end up as a street drug (Anderson et al. 2017). Any newly discovered seizure of an unknown cause in an addict may be indicative of bupropion abuse (Reeves & Ladner 2013). Non-healing, deep, purulent wounds may be indicative of the injection of bupropion. In conclusion, we think extreme caution is needed when prescribing bupropion to abuse-prone population, that is, to opioid or polydrug users (Lewis et al. 2014).

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All authors contributed to writing of this paper equally.

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All authors report no biomedical financial interest or potential conflicts of interest.

The publication of this study has been approved by the Ethics Committee of the institution within which the work was undertaken and it conforms to the provisions of the Declaration of Helsinki in 1995 (as revised in Edinburgh 2000).

References

1. *Anderson LS, Bell HG, Gilbert M, Davidson JE: Using Social Listening Data to Monitor Misuse and Nonmedical Use of Bupropion. A Content Analysis. JMIR Public Health Surveill 2017; 3:e6*
2. *Farooque M & Elliott J: Delayed psychosis induced by bupropion in a former cocaine abuser: a case report. Prim Care Companion J Clin Psychiatry 2010; 12*
3. *Kim D & Steinhart B: Seizures induced by recreational abuse of bupropion tablets via nasal insufflation. CJEM 2010; 12:158-61*
4. *Langguth B, Hajak G, Landgrebe M, Unglaub W: Abuse potential of bupropion nasal insufflation: a case report. J Clin Psychopharmacol 2009; 29:618*
5. *Lewis JC, Sutter ME, Albertson TE, Owen KP, Ford JB. An 11-year review of bupropion insufflation exposures in adults reported to the California Poison Control System. Clin Toxicol (Phila) 2014; 52:969-72*
6. *Mori T, Shibasaki M, Ogawa Y, Hokazono M, Wang TC, Rahmadi M et al.: Comparison of the behavioral effects of bupropion and psychostimulants. Eur J Pharmacol 2013; 718:370-5*
7. *Reeves RR & Ladner ME: Additional evidence of the abuse potential of bupropion. J Clin Psychopharmacol 2013; 33:584-5*
8. *Steele LS, Macdonald EM, Gomes T, Hollands S, Paterson JM, Mamdani MM: Rates of anomalous bupropion prescriptions in Ontario, Canada. Ann Fam Med 2015; 13:343-6*

Correspondence:
Suzana Jonovska, MD, PhD
Department of Addictions and Psychotrauma, Psychiatric Hospital Rab
Kampor 224, 51 280 Rab, Croatia
E-mail: suzana.jonovska@gmail.com