

Bupropion toxicity with unintentional exposure or abuse: More common than you think

The BC Drug and Poison Information Centre handled 95 cases of bupropion (Wellbutrin, Zyban) exposure in 2013. Eighty-one cases involved adults, with 22 therapeutic errors, 47 cases of suspected suicide, and 9 cases of misuse or abuse. Sixty-four cases were referred to hospital and 22 were admitted to critical care. There was one death. There were 11 exposures in older children and adolescents, including 9 suicide attempts. More than half experienced moderate to severe effects and two patients were admitted to critical care. There were three unintentional exposures in children 5 years and younger; all were referred to hospital for observation.

Pharmacology

Bupropion has antidepressant effects and reduces nicotine craving by stimulating release and blocking reuptake of dopamine and norepinephrine, and antagonizing nicotinic receptors. Bupropion is a cathinone derivative, a class of amphetamine-like chemicals that includes the recreational substances referred to as bath salts.

Unintentional exposures

US poison control centres reported 6000 bupropion exposures over a 7-year period in young children. Tachycardia, irritability, drowsiness, ataxia, hallucinations, lethargy, and tremor were seen with doses of bupropion up to 10 mg/kg.¹ A single patient in this dose range developed seizures. The occurrence of seizures or coma increased with higher doses. Buehler and colleagues recommended referral

to a health care facility if the ingested dose was greater than 10 mg/kg (a single tablet in a small child) or if the dose was unknown.

Frequent adverse effects were agitation, dizziness, tremor, GI upset, drowsiness, and tachycardia

In a review of adult medication errors involving bupropion, the median dose ingested was 300 mg (mostly sustained release).² Frequent adverse effects were agitation, dizziness, tremor, GI upset, drowsiness, and tachycardia, occurring in 6% to 8% of patients, with seizures in 0.8% and hallucinations in 0.4%. Almost 25% of patients were evaluated at a health care facility. Multiple brand names and indications contributed to errors. In one case report, a patient developed confusion, agitation, and a seizure after unknowingly taking Wellbutrin, Zyban, and generic bupropion for a total of 600 mg bupropion per day.³

Bupropion abuse

While bupropion's abuse potential is low for most patients, reports of recreational use by ingestion and insufflation or snorting began appearing on the popular user experience website, Erowid.org, in 2001.⁴ The first report of recreational use of bupropion in medical literature appeared in 2002 and involved ingestion of 600 mg

bupropion.⁵ This was followed soon after by reports of nasal insufflation, with users reporting amphetamine- or cocaine-like highs, and adverse effects ranging from nasal pain to irritability, aggression, hallucinations, and seizures. Most patients had a history of substance abuse.^{6,7} Snorting the substance, referred to as *welbys*, *wellics*, *dubs*, or *barnies* (due to the purple color), has led to the removal of bupropion from some US prison formularies.^{8,9}

Intravenous abuse has also been reported and has resulted in severe skin lesions, vascular complications, and death.¹⁰

Summary

Bupropion toxicity following unintentional exposures in young children and adults or following abuse by insufflation or injection may be more common than previously thought.

If you suspect an overdose, call the BC Drug and Poison Information Centre at 604 682-5050 or 1 800 567-8911.

—Raymond Li, BSc(Pharm), MSc
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This article is the opinion of the BC Centre for Disease Control and has not been peer reviewed by the BCMJ Editorial Board.

If patients have more questions about coconut oil and nutrition they can be referred to HealthLinkBC's registered dietitians at 8-1-1.

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College Library: A support for retirement

Retirement from professional life is a growing phenomenon as the baby boomer bulge comes face to face with advancing age. In this issue of the *BCMJ*, Dr Bob Vroom also addresses the topic in his editorial "Retiring gracefully" on page 426. Retirement for physicians means changes on many levels; however, access to the College Library can remain unchanged.

For \$100 per year, retired physicians can continue with the same level of library service and access to the resources they came to expect during clinical practice. For instance, retired College registrants who subscribe to library services may receive an unlimited number of expert literature searches, request books and copies of articles, be informed of new clinical advances through the Cites & Bytes newsletter (www.cpsbc.ca/library/cites-bytes), and explore electronic resources (online articles, e-books, and point-of-care tools) through the College website (www.cpsbc.ca/library).

With retirement may come an interest in digging deeper into the lit-



erature than a busy practice afforded, and the Finding Medical Evidence workshop (ubccpd.ca/course-group/fme) presented by College librarians in association with UBC CPD will help to improve efficiency and effectiveness with literature searches.

Physicians looking to begin scaling back their practice may be interested in articles about retirement itself. A simple approach would be to search through the PubMed link on the College Library's website to maximize access to full-text articles (www.cpsbc.ca/library/search-materials/databases). PubMed is very accommodating to natural language searching, so try "retirement and physicians," for example. Articles such as the following will be quickly found: "Personal finances for the physician: A primer on maintaining and protecting your earnings" (*J Orthop Trauma* 2014;28(7S):S50-58), "We need to get another life after retirement" (*BMJ* 2013;347:f7173), and "Prolonging a sustainable working life among older rural GPs: Solutions from the horse's mouth" (*Rural Remote Health* 2013;13:2369).



Best of all, when retired, you'll have time to find articles and read them too.

—Karen MacDonell
Director, Library Services

This article is the opinion of the Library of the College of Physicians and Surgeons of BC and has not been peer reviewed by the BCMJ Editorial Board.

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