

## FIVE THINGS TO KNOW ABOUT ...

## "Bath salts"

Tony Antoniou BScPhm PharmD, David N. Juurlink MD PhD

**"Bath salts" are not really bath salts**

Bath salts are synthetic derivatives of cathinone, a naturally occurring stimulant found in the khat plant (*Catha edulis*) of eastern Africa and the Arabian Peninsula.<sup>1,2</sup> Although many cathinones have been synthesized for recreational use, mephedrone and 3,4-methylenedioxypyrovalerone (MDPV) account for most reports of toxicity.<sup>1,2</sup> The most common routes of administration are nasal insufflation and oral ingestion.<sup>2,3</sup> These drugs are commonly sold as white- or tan-coloured crystalline powders that are labelled as "bath salts" and marked as "not for human consumption" to avoid detection and regulation by authorities.<sup>1,2</sup>

**Toxicity is consistent with a sympathomimetic toxidrome**

Because synthetic cathinones are structurally and pharmacologically similar to amphetamines, adverse effects associated with these compounds resemble those of other sympathomimetics (Appendix 1, available at [www.cmaj.ca/lookup/suppl/doi:10.1503/cmaj.121017/-/DC1](http://www.cmaj.ca/lookup/suppl/doi:10.1503/cmaj.121017/-/DC1)).<sup>1,2</sup> The most common features of sympathomimetic toxicity seen among users of synthetic cathinones presenting to emergency departments were agitation (38.9%), palpitations (25.0%), hypertension (13.9%) and tachycardia (36.1%).<sup>2</sup> Life-threatening hyponatremia and hyperthermia are uncommon but have been associated with death.<sup>1,2</sup>

Because basic drug screens do not detect synthetic cathinones, a high index of suspicion for these compounds is required when evaluating patients showing signs of a sympathomimetic toxidrome with negative urine toxicology results. Some cathinones can be detected with chromatographic techniques.<sup>2</sup>

**Treatment is supportive**

No specific antidote exists for synthetic cathinone toxicity.<sup>1,2</sup> Benzodiazepines are used to treat agitation, seizures and hypertension.<sup>1,2</sup> Persistent hypertension should be managed with  $\alpha$ -adrenergic antagonists or peripheral vasodilators;  $\beta$ -adrenergic blockers should be avoided because they may intensify the stimulation of  $\alpha$ -receptors.<sup>1</sup> Hyperthermia (a poor prognostic sign) warrants aggressive cooling.<sup>1</sup> Hyponatremia will often respond to water restriction, although hypertonic saline may be required in severe cases complicated by seizures.<sup>1</sup>

**References**

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**Use of synthetic cathinones is increasingly reported in Canada**

Although first reported by hospital emergency departments and withdrawal management centres in the Maritime provinces, the use of synthetic cathinones has recently been seen in other provinces.<sup>4</sup> The desired effects of the drug include increased energy, sociability and libido.<sup>1,2</sup> Coingestion of additional recreational drugs, such as  $\gamma$ -hydroxybutyrate, amphetamines or cocaine, is common.<sup>2</sup>

**Dependence and withdrawal can occur**

In a survey of people who use mephedrone, 44.3% described the drug as being at least as addictive as cocaine, and nasal insufflation was associated with more frequent use of larger amounts of the drug compared with oral ingestion.<sup>3</sup> In another study, 22.4% of users of mephedrone reported strong cravings for continued use.<sup>5</sup> Withdrawal symptoms after abruptly stopping use of the drug are rarely dangerous and include depression, anergia and drug craving.<sup>2,3</sup>

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**Affiliations:** From the Department of Family and Community Medicine (Antoniou), St. Michael's Hospital, Toronto, Ont.; Leslie Dan Faculty of Pharmacy (Antoniou), University of Toronto, Toronto, Ont.; Institute for Clinical Evaluative Sciences (Juurlink), Toronto, Ont.; and the Department of Medicine (Juurlink), Sunnybrook Health Sciences Centre, Toronto, Ont.

**Correspondence to:** Tony Antoniou, [tantoniou@smh.ca](mailto:tantoniou@smh.ca)

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