Correspondence

The NBOMe Series: A Novel, Dangerous Group of Hallucinogenic Drugs

Dear Editor:

Since the 2000s, there has been a proliferation of "legal highs" available in "head" or "smart" shops and on the Internet. Often referred to as "research chemicals" and sold as "not for human consumption," these legal synthetic substances mimic the effects of illicit drugs. However, unlike their illegal counterparts, many of these chemicals have no pharmacological or toxicological effects profiles. Research chemicals include "bath salts" (i.e., synthetic cathinones) and synthetic cannabinoids (e.g., Spice), which have led to an increase in calls to U.S. poison-control centers by the thousands as well as an increase in emergency department visits (Jerry et al., 2012). As a result of the rapid increase in available synthetic compounds and their inherent danger, it is crucial for clinicians, physicians, researchers, and emergency medical personnel to be informed of the novel drugs that substance users may be consuming.

Throughout 2013, a new series of hallucinogenic drugs called NBOMe has gained prominence. In the past few months, there has been an emergency announcement in Europe regarding the dangers of NBOMe (European Union: Nightlife Empowerment & Well-being Implementation Project, 2013). All substances in the NBOMe class have been outlawed in various countries and/or specific states in the United States (Erowid, 2013d), and it has been discovered that drugs in the NBOMe class were being counterfeited as lysergic acid diethylamide (LSD) (European Union: Nightlife Empowerment & Well-being Implementation Project, 2013). Since June 2012, 11 fatalities have been reported to be the result of the ingestion of substances in the NBOMe class (Erowid, 2013a,b,c), and recently attention has been drawn to a small group of hospital patients who experienced clinical toxicity because of NBOMe ingestion (Hill et al., 2013). An article has also been published describing methods of testing for NBOMe in serum (Poklis et al., 2013). These articles have focused specifically on 25I-NBOMe or 25C-NBOMe, the most common substances within this series. However, there remains a dearth of information on the topic and little awareness of these compounds in the field. There is an obvious need, especially in the United States, for a brief report summarizing the effects, dangers, and possible solutions to this novel class of substances.

All substances in the NBOMe series are phenethylamine derivatives of the 2C class of hallucinogens (Hill et al., 2013). The NBOMe class is a potent agonist of the human 5HT2A receptor (Zuba et al., 2013). The effects of ingestion of NBOMe include euphoria and open and closed eye visuals. Negative acute effects can include nausea, fear, and panic (Erowid, 2012), and overdose effects may include seizure and acute renal injury (Hill et al., 2013). In 2013, drugs in the NBOMe class were found in blotters being sold as LSD (European Union: Nightlife Empowerment & Well-being Implementation Project, 2013). Just this month, Erowid Center, a nonprofit educational organization that provides information about psychoactive substances, published a report documenting methods of differentiating LSD from substances in the NBOMe series in field tests (Erowid and Erowid, 2013), which indicates the extent to which such counterfeiting has infiltrated the substance-using community. Results from the 2013 Global Drug Survey, which consists of a primarily drug-using sample and is the largest drug survey ever conducted (Global Drug Survey, 2013), show that, in the past 12 months, 44.3% of respondents from the United States and 14.5% of respondents from the United Kingdom reported that they had taken LSD (Mixmag, 2013). Thus, a large percentage of substance users consume LSD, and some percentage of these individuals may be unwittingly ingesting dangerous and possibly lethal NBOMe instead of LSD. Because of the inexpensiveness of procuring NBOMe (Ralston and Davies, 2013) and the ease of counterfeiting it as LSD, every use of "LSD" could be a dangerous experience. As a result, health care professionals, addictions treatment facilities, and emergency medical personnel should caution drug-using patients about this growing public health threat and should be vigilant of acute negative effects purported to be the result of "LSD" consumption. This vigilance is particularly recommended because LSD has never produced a documented death by pharmacological overdose (Passie et al., 2008), and, as a result, treatment of LSD intoxication suggests using a calm, stress-free environment with the use

of benzodiazepines as needed for agitation (Rega et al., 2012). In contrast, negative effects related to acute NBOMe intoxication are far more dangerous than those of LSD and may include seizures, metabolic acidosis, elevated creatine kinase, acute renal injury (Hill et al., 2013), and death (Erowid 2013a, 2013b, 2013c). As such, we suggest that emergency medical personnel who presume that a patient ingested some hallucinogenic substance consider treating the patient for the accidental ingestion of a drug in the NBOMe series, which necessitates more intensive care than would otherwise be assumed (Caldicott et al., 2013). Because of the increase in NBOMe use and its unique physical dangers, we also recommend that the NBOMe series be added to common urine drug toxicology tests used in emergency departments and other drug treatment facilities.

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