H172 Three Deaths in Tarrant County, Texas, Related to the Use of 25H-NBOMe, 25B-NBOMe, or 25I-NBOMe

Tasha Zemrus Greenberg, MD, Tarrant County Medical Examiner's Office, Fort Worth, TX 76104-4919; Robert D. Johnson, PhD, Tarrant County Medical Examiner's Office, Fort Worth, TX 76104; Richard C. Fries, DO, Fort Worth, TX 76104; Susan J. Roe, MD, Tarrant County Medical Examiner's Office, Fort Worth, TX 76104*

Learning Overview: After attending this presentation, attendees will understand the clinical presentations of NBOMe intoxication after review of three cases from the Tarrant County Medical Examiner's Office (TCME).

Impact on the Forensic Science Community: This presentation will impact the forensic science community by educating medical examiners and toxicologists about behaviors associated with NBOMe drugs and by helping identify cases in which these drugs should be considered.

The recent increase in the use of NBOMe compounds, variants of the 2C-X series of psychoactive phenethylamines with significantly greater potency, have resulted in numerous deaths around the world as well as Emergency Department (ED) admissions by individuals suffering from erratic and dangerous behavior.[1] The NBOMe compounds act via the 5-HT2A receptors, leading to intense hallucinations with actions that can be self-directed or focused on other individuals. The effects last between four and ten hours, and users report euphoria, mental/physical stimulation, feelings of empathy, alterations in consciousness, and hallucinations. ED staff may be faced with individuals who are very difficult to control. Medical examiners may receive a decedent with a history of bizarre behavior prior to death.

Case 1 involved a 20-year-old male who became unresponsive after taking a capsule. Emergency Medical Services (EMS) found him in convulsions. Two other young men at the scene also became unresponsive. All were transported to the hospital for suspected overdoses. The first man expired. The friends recovered and told a detective that they had ingested gel caps filled with a white powder called NBOMe. Postmortem toxicology testing was positive for 25B-NBOMe at 47.9ng/mL and 25H-NBOMe at 0.030ng/mL in hospital blood, as well as THC, oxycodone, hydrocodone, and hydromorphone in hospital urine. The death was attributed to NBOMe toxicity.

Case 2 involved a 22-year-old male found lying supine on the living room floor of a home that was in extensive disarray. There was copious blood throughout the residence and surrounding the decedent. A window in the dining room was broken from the inside with blood and hair on it. The decedent's girlfriend revealed that four days prior, they had taken "hits of acid" with two male acquaintances; the decedent took four doses. After several hours, he became aggressive and demanded the males leave. They returned hours later and found him lying "bloody" and unresponsive on the floor, although they did not report it. The girlfriend was not at the residence; however, she presented to an ED with an orbital fracture and concussion, sustained in an altercation with the decedent.

At autopsy, he had multiple injuries, including sharp force injury of the right ear with a portion of the pinna absent, as well as reduced livor mortis and organ pallor consistent with acute blood loss. Initial toxicological examination on biological specimens was negative. Case circumstances directed subsequent testing for novel psychoactive drugs. 25H-NBOMe NBOMe [2-(2,5-dimethoxyphenyl)-N-(2-methoxybenzyl) ethanamine, monohydrochloride] and 25B-NBOMe [4-bromo-2,5-dimethoxy-N-[(2-methoxyphenyl)methyl]-benzeneethanamine] were identified. The death was attributed to exsanguination due to sharp force injury of the ear, with drugs considered a contributory factor to his behavior.

Case 3 involved a 20-year-old male seen on surveillance video at a car dealership jumping on and smashing a windshield, then driving his vehicle through a glass window. When confronted by police, he behaved erratically and ignored commands. One officer discharged his Taser®, and another discharged his firearm, both striking the decedent. He died due to gunshot wounds to the neck, chest, and abdomen. Toxicology testing was positive for 25I-NBOMe [2-(4-iodo-2,5- dimethoxyphenyl)-N-[(2-methoxyphenyl) methyl]ethanamine] at 0.76ng.mL and THC at 3.1ng/mL in femoral blood, and 25H-NBOMe in urine. The drugs were considered a contributory factor to his behavior.

The extreme behavior demonstrated in two of these cases is not unusual, as agitation and aggression are often reported in cases involving the NBOMe compounds. Extreme behaviors may be dose dependent. Some individuals may not measure the drugs correctly and/or may not know what they are ingesting.

Due to the lack of literature available for these specific NBOMe compounds, it is difficult to interpret the concentrations seen in these cases. As the prevalence of these drugs continues to rise, it is important to publicize the dangerous and often lethal side effects of these compounds.

Reference(s):

1. C. Kyriakou, E. Marinelli, P. Frati, A. Santurro, M. Afxentiou, S. Zaami, and F.P. Busardo. NBOMe: New Potent Hallucinogens—Pharmacology, Analytical Methods, Toxicities, Fatalities: A Review. *European Review of Medical and Pharmacological Sciences* 19 (2015): 3270-3281.

NBOMe Fatalities, Psychoactive Phenethylamines, Hallucinogens