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Gamma Hydroxy Butyrate Use -- New York and Texas, 1995-1996

Gamma hydroxy butyrate (GHB) is a central nervous system depressant approved as an anaesthetic in some countries; however, with the exception of investigational research, it is not approved for any use in the United States. Primary groups using GHB include party and nightclub attendees and bodybuilders. In addition, GHB is one of several agents characterized as a "date rape" drug. During August 1995-September 1996, poison control centers in New York and Texas received reports of 69 acute poisonings and one death attributed to ingestion of GHB. This report describes two cases and summarizes the investigations of GHB use in Texas and New York. The findings of these investigations underscore the health hazards associated with use of GHB. Texas

At 12:30 p.m. on August 5, 1996, a 17-year-old girl with no previous history of drug or alcohol use was admitted to an emergency department (ED) because of cardiac arrest with cardiopulmonary resuscitation in progress. She was pronounced dead at 12:40 p.m. On the night of August 4, she had been at a local dance club, where she was reported to have ingested soft drinks. An autopsy was performed; multiple toxicologic screens of blood and bile samples did not detect alcohol or other drugs. However, on September 13, a test on previously obtained serum detected a serum level of 27 mg/L of GHB.

From November 14, 1995, through September 30, 1996, the Texas Department of Health received reports of 57 persons who had adverse health effects attributed to ingestion of GHB, including the one death described in this report. Of the 57 reports, 30 were received from the Dallas Poison Control Center, and 26 were received from the Galveston Poison Control Center. The death was reported by the Assistant Medical Examiner in Harris County, who listed the death as a homicide as the result of GHB toxicity. Of the 56 reports from the poison

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control centers, 34 involved males; 10 reports involved teenagers aged 16-18 years. Nineteen persons were treated in and released from hospital EDs, and 25 were admitted to intensive-care units with severe clinical symptoms, including coma (15), respiratory depression (three), and agitation (one); six required intubation. Of the 56 reports, 12 included ingestion of both alcohol and GHB, and three included the use of GHB with other drugs. New York

On October 30, 1996, a 20-year-old man who was unresponsive after several episodes of vomiting was taken to an ED 2 1/2 hours after ingesting a mixture of GHB and sodium hydroxide. He was intubated and admitted to the intensive-care unit, where a bronchoscopy indicated friable lung tissue that was attributed to aspiration of gastric contents containing sodium hydroxide. He developed bilateral pneumothoraces and had generalized seizures and was transferred to a third hospital for possible extracorporeal membrane oxygen therapy and lung transplant. However, his condition improved, and he was extubated and placed on supportive care and recovered.

During August 27, 1995-October 30, 1996, the Long Island Regional Poison Control Center received reports of 13 persons with exposure to GHB. All 13 were evaluated in hospital EDs. Four of the 13 also consumed ethanol. All five persons initially had altered mental status, including coma (three), stupor (one), and inebriation (one). Eight of the 13 persons had prepared GHB at home using sodium hydroxide and butyrol lactone; of the eight, three required admission to a hospital.

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Editorial Note

Editorial Note: GHB increases dopamine levels in the brain and has effects through the endogenous opioid system; most GHB is excreted during the first hours after ingestion (1). Manifestations of acute GHB toxicity include coma, seizures, respiratory depression, and vomiting. Other documented effects of GHB include amnesia and hypotonia (associated with doses of 10 mg/kg body weight); a normal sequence of rapid eye movement (REM) and non-REM sleep (doses of 20-30 mg/kg body weight); and anesthesia (doses of approximately 50 mg/kg body weight). Doses of greater than 50 mg/kg body weight can decrease cardiac output and produce severe respiratory depression, seizure-like activity, and coma (2); coma and respiratory depression may be potentiated by concomitant use of alcohol (3). There is no antidote for GHB overdose, and treatment is restricted to nonspecific supportive care. Patients in New York and Texas have required ED care; many of those hospitalized have required ventilatory support and intensive care.

In the United States, GHB has been produced clandestinely in widely varying degrees of purity. GHB has been marketed as a liquid or powder and has been sold on the street under names such as "Grevious Bodily Harm," "Georgia Home Boy," "Liquid Ecstasy," "Liquid X,"

"Liquid E," "GHB," "GBH," "Soap," "Scoop," "Easy Lay," "Salty Water," "G-Riffick," "Cherry Menth," and "Organic Quaalude." Improper preparation of GHB can result in a mixture of GHB and sodium hydroxide that can be severely toxic because of the combined effects of the GHB and the direct caustic effects of sodium hydroxide.

In Dallas, GHB use has been associated with events at which several persons have been found comatose. Some persons who have sustained adverse effects of GHB have reported being given the drug surreptitiously (e.g., having it slipped into their drink), while others have admitted to intentional use. The Drug Enforcement Administration (DEA) is examining the distribution and abuse of GHB in the United States; although distribution has been documented in 27 states, GHB use is highly prevalent in California, Florida, Georgia, and Texas.

In the United States, GHB is under specific Food and Drug Administration exemptions for investigational research protocols for the treatment of narcolepsy. Although possession of GHB is not illegal under federal law, its manufacture and sale is prohibited under the Food, Drug, and Cosmetic Act. In Georgia and Rhode Island, state controlled substances acts have classified GHB into Schedule I *, and other states are considering similar action. In addition, the DEA is gathering information and considering a scheduling review for possible control of GHB under the Federal Controlled Substances Act **. Public health officials should report episodes of adverse effects of GHB use to DEA, telephone (202) 307-7183.

References

1. Vayer P, Mandel P, Maitre M. Gamma-hydroxy butyrate, a possible neurotransmitter. *Life Sci* 1987;41:1547-57.
2. CDC. Multistate outbreak of poisonings associated with illicit use of gamma hydroxy butyrate. *MMWR* 1990;39:861-3.
3. Mamelak M. Gammahydroxybutyrate: an endogenous regulator of energy metabolism. *Neurosci Biobehav Rev* 1989;13:187-98.
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