BEYOND THE BASICS

Club Drugs

What are club drugs?[1,2]

Club drugs are a variety of dangerous drugs often used by youth and young adults at all night dance parties, dance clubs, bars, concerts and parties to enhance the "rave" experience. Users of these drugs believe the drugs enhance their experience by affecting their sensory perception of the events. The most commonly used drugs for this purpose include:

- methylenedioxymethamphetamine (MDMA), commonly referred to as "ecstasy," "XTC," "X," "adam," "clarity" and "lover's speed."
- methamphetamine, commonly known among users as "speed," "ice," "chalk," "meth," "crystal," "crank," "fire" and "glass."
- lysergic acid diethylamide (LSD), also known as "acid," "boomers" and "yellow sunshines."
- gamma-hydroxybutyrate (GHB), also known as "grievous bodily harm," "G," "liquid ecstasy" and "georgia home boy."
- ketamine, also known by users as "special K," "K," "vitamin K" and "cat valium."
- Rohypnol®, known as "roofies," "rophies," "roche" and "forget-me pill."

Club drugs have become more common in recent years as they are readily available and are relatively inexpensive. Some of these drugs, specifically Rohypnol®, GHB and ketamine, are used to commit sexual assaults because of their anesthetizing and amnestic effects.

This document deals specifically with the club drugs GHB, ketamine and Rohypnol® which have, in very limited circumstances and in countries other than Canada, been used medically. For detailed information on the other drugs identified within this group, please refer to Additions Foundation of Manitoba's Beyond the Basics sheets on Ecstasy, Methamphetamine and LSD/PCP.

Medical Use[1]

GHB is a central nervous system (CNS) depressant used with very strict controls in the United States for the treatment of narcolepsy. It has also been used in other countries to treat alcohol withdrawal.

Ketamine is a dissociative anesthetic, used primarily in veterinary practice.

Rohypnol® is a benzodiazepine (chemically similar to Valium®) that has been used in some countries as a preoperative anesthetic for sedation and for treatment of insomnia. It is not approved for medical use in Canada or the United States.

Prevalence of Use[1]

The 2008 Canadian Alcohol and Drug Use Monitoring Survey (CADUMS)[2] reported an overall increase in hallucinogen use since the 2004 Canadian Addiction Survey (CAS)[3] – from 0.7% in 2004 to 2.1% in 2008. This may in part be the result of the inclusion of additional hallucinogenic drugs in the 2008 survey. Neither the 2004 nor the 2008 survey specifically questioned the use of GHB, ketamine or Rohypnol®. Research from the United States has consistently identified youth and young adults as being the main users of club drugs. According to the National Institute of Drug Addiction website, in the 2007 Monitoring the Future (MTF) survey 0.7% of students in the eighth grade reported past-year use of GHB, as did 0.6% and 0.9% of students in grades 10 and 12, respectively. This is consistent with use reported in 2006.[1]

Past-year use of ketamine did not change significantly from 2006 to 2007 – use was reported by 1.0% of eighth-graders, 0.8% of 10th-graders, and 1.3% of 12th-graders in 2007.

There was no significant change in the illicit use of Rohypnol® from 2006 to 2007, according to the MTF survey results. Annual prevalence of use stands now at around 0.5% in all three grades surveyed.[1]

It should be noted that Rohypnol® is also popular among heroin and cocaine users as the drug is considered to decrease some of the unpleasant side effects of withdrawal commonly referred to as a "crash" phase.[4]

Date Rape Drugs

GHB, ketamine and Rohypnol® have each been implicated in the execution of "date rapes," where they have been used deliberately to perpetrate sexual assaults.

Pharmacokinetics[5]

GHB is available as a colourless, odourless liquid, a crystalline powder or capsule that is usually swallowed. Effects of GHB are usually experienced within 10 to 20 minutes of ingestion and can last up to four hours.

Ketamine is a non-barbiturate anesthetic used mostly with animals (previous use with humans decreased as a result of hallucinations occurring during recovery). It is available in liquid, capsule, crystal or powder form. It is often smoked with tobacco or cannabis and can also be snorted and injected. Effects generally begin with a rush that is felt within five to 20 minutes and usually last from one to six hours.

Rohypnol® is a tranquillizer from the benzodiazepine class of CNS depressants. It is available as a small, white tablet. It is colourless, tasteless and odourless. Effects can be felt in about 20 minutes and last from eight to 24 hours, depending on the dose.

Pharmacodynamics[1]

GHB is a CNS depressant and is also a metabolite of the inhibitory neurotransmitter gamma-aminobutyric acid (GABA).

It is understood that GHB acts on the GABA-B receptor at a specific GHB binding site. Rohypnol®, like other benzodiazepines, acts at the GABA-A receptor. Its use can produce anterograde amnesia, whereby individuals may not remember what happened to them or around them while they were under the influence of the drug.

Ketamine is a dissociative anesthetic that at specific doses distorts perceptions of sight and sound and produces feelings of detachment from the environment and self. Ketamine acts on a type of glutamate receptor (NMDA receptor) to produce its effects, which are similar to those of the drug phencyclidine (PCP or "angel dust").

Short-term Effects

GHB produces euphoric and sedative effects. At lower doses, it produces effects similar to alcohol and can make a person feel relaxed, happy and sociable. In addition, users often report increased libido. High doses of GHB cause anesthetic effects as well as nausea, vomiting, headache, loss of coordination, inhibited reflexes, amnesia, seizure and possibly death due to decreased breathing or heart rate.[5,6]

Ketamine use produces a relaxed and dream-like or dissociative state with hallucinations. At higher doses, ketamine can cause vomiting, confusion, anxiety, depression, insomnia, slurred speech and high-blood pressure.[5,6]

Rohypnol® seriously affects short-term memory, rendering users unable to remember events that occurred while under the influence of the drug. Users report a loss of inhibitions and feelings of intoxication, relaxation, drowsiness and sedation. Higher doses can cause low blood pressure, dizziness, confusion, headaches, slurred speech, difficulty walking and possibly blackouts and amnesia. Occasionally, aggressive behaviour may be experienced by Rohypnol® users.[5]

Long-term Effects

There is not adequate evidence regarding the effects of long term use of GHB or ketamine; however, withdrawal symptoms have been reported after chronic use of either drug.[7]

As with other benzodiazepines, chronic Rohypnol® use may result in impairment in thinking, memory and judgment, confusion, disorientation and impaired motor coordination. Excessive use over an extended period of time may increase aggressiveness in some individuals.[5]

Toxic Effects

Coma and seizures can occur following use of GHB and are not uncommon. Use of GHB with other drugs, including alcohol, can result in breathing difficulties and unconsciousness. GHB abuse has been linked to poisonings, overdoses, sexual assaults and deaths.[1,6]

Ketamine, in high doses, can cause impaired motor function, high blood pressure and potentially fatal respiratory problems.[1,6] High doses of ketamine can also cause psychosis, temporary paralysis, blackouts and flashbacks.[5]

Rohypnol® may be lethal when mixed with alcohol and/or other CNS depressants.[1]

Tolerance and Dependence

GHB can cause severe physical addiction with frequent use.[5]

Ketamine is psychologically addictive. With regular use, tolerance develops.[5]

Rohypnol® is physically and psychologically addictive. Tolerance to Rohypnol® occurs after repeated use over a period of time. Stopping use of the drug suddenly may result in significant withdrawal symptoms.[5,7]

Withdrawal [5]

GHB withdrawal may result in serious symptoms such as insomnia, anxiety, tremors, chest pain, muscle and bone aches, tremors, paranoia, hallucinations and high blood pressure. These symptoms appear more intensely when use of the drug is suddenly stopped. Therefore, it may be necessary to seek medical advice for a plan to assist in tapering off the drug.

Ketamine may lead to a craving for the desired effects. There is little evidence to support withdrawal symptoms caused by physical dependence.

Rohypnol® is associated with withdrawal symptoms such as headache, muscle pain, hallucinations, seizures, anxiety, confusion, restlessness and irritability.[5]

Illegal Production

Many of the club drugs are made in illegal laboratories so there are no regulations that ensure their purity and strength. Users cannot be certain about the quality of the drugs, the chemicals used to manufacture the drugs, nor the concentration of the drug present in its final form, making it extremely difficult to predict toxicity and the potential consequences of use.[1,7]

Legal Issues

The use of GHB, ketamine and Rohypnol® is governed in Canada by the *Controlled Drugs and Substances Act*. It is illegal in Canada to produce, distribute or possess for the purpose of use, export or import GHB or Rohypnol®. Ketamine requires a prescription for human or veterinary use as an anesthetic. Rohypnol® is available by prescription outside of Canada.[7]

In addition, the Criminal Code of Canada contains offenses related to driving while impaired by alcohol or other drugs. Manitoba has also enacted legislation to address drug-impaired driving.[7]

Risks & Other Harms

GHB, ketamine and Rohypnol® can all be used to limit the ability of an individual to resist or even remember a sexual assault. These drugs incapacitate the individual who ingests the drug unknowingly, and the results can be emotionally and physically devastating.

In addition, abusers who inject the drug expose themselves to other risks, including contracting human immunodeficiency virus (HIV), hepatitis B and C and other blood-borne viruses.

As is the case in any abuse of licit and illicit drugs, there are potential adverse consequences related to the law, a person's financial situation, family relationships, and generally putting oneself at risk by participating in unsafe behaviours while under the influence of the drug.[7]

Pregnancy & Lactation

Benzodiazepine-type drugs, including Rohypnol®, cross the placenta and are distributed to the fetus. Fetuses exposed in the uterus may experience withdrawal symptoms following birth.[7]

There have been studies linking benzodiazepine use with increased risk of malformations, including oral cleft; however, the results have not been determined to be conclusive.[8]

Little research has been conducted on the effects of club drug use on the fetus during pregnancy. One study examined 42 women who took club drugs in early pregnancy. Of the babies born to these women (39 live births including one set of triplets), one had a congenital cardiac malformation. However, because some of the mothers had used other substances while pregnant, it is not clear what specifically harmed the fetus. Another study found no increased risk for major malformations or spontaneous abortions after exposure of fetuses to club drugs.[8]

Since it is not clear that club drugs are safe in pregnancy and lactation, it is recommended women not use club drugs during pregnancy or when breastfeeding.

Interventions [1]

There is very little research with regard to treatment for abuse of, or dependence on, club drugs. Emergency rooms do not have tests to detect GHB, and as a result many GHB incidents go undetected unless the patient or someone accompanying them is able to articulate GHB use. Individuals who abuse GHB present both a mixed picture of severe problems upon admission to hospital and good response to treatment, which may include residential treatment services.

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Patients presenting with ketamine overdose are best managed through supportive care for acute symptoms, with special attention to cardiac and respiratory functions.

Treatment for Rohypnol® abuse follows accepted protocols for any benzodiazepine. This may consist of an inpatient detoxification program with intensive medical monitoring and management of withdrawal symptoms, since withdrawal from benzodiazepines can be life-threatening.

Any treatment strategy used with those abusing prescription drugs must take into account the specific needs of the individual, as well as the particular substance being abused. This principle is the same for treatment of those who abuse both legal and illegal substances.

Substance Use & Mental Health

- Substance use and mental health problems can often occur together. This is commonly referred to as a co-occurring disorder.
- Substance use may increase the risk of mental health problems.
- People with mental health problems are at higher risk of developing substance abuse problems:
  - Sometimes they use alcohol and other drugs in an attempt to relieve themselves from mental health symptoms.
  - For most people alcohol and other substance use only covers up the symptoms and may make them worse.

Sources

1. National Institute on Drug Abuse. *NIDA InfoFacts: Club Drugs*, 2008. Available at http://www.drugabuse.gov/infofacts/Clubdrugs.html (accessed April 2010).
2. Health Canada. *Canadian Alcohol and Drug Use Monitoring Survey, Summary Results for 2008*, 2008. Available at http://www.hc-sc.gc.ca/hc-ps/drugs-drogues/stat/_2008/summary-sommaire-eng.php (accessed April 2010).
3. Canadian Centre on Substance Abuse. *Canadian Addiction Survey Highlights*, 2004. Ottawa. Available at http://www.ccsa.ca/ 2004% 20CCSA%20Documents/ccsa-004804-2004.pdf (accessed April 2010).
4. Addictions Foundation of Manitoba (AFM). *Fast Facts on Drugs*, 2004.
5. Get up on it website, Newfoundland Labrador. *Club Drugs – The Full Story*, 2009. Available at http://www.getuponit.ca/upload_files/club%20drugs.pdf (accessed April 2010).
6. Echeverry, J. J. & Nettles, C. D. in *Pharmacology and Treatment of Substance Abuse Evidence and Outcome-Based Perspectives*, ed. L. M. Cohen (et al), Routledge Taylor and Francis Group, New York, 2009, p. 419-438.
7. Health Canada. *Straight Facts about Drugs and Drug Abuse*, 2009. Available at http://www.hc-sc.gc.ca/hc-ps/pubs/adp-apd/straight_facts-faits_ mefaits/tables-tableaux-eng.php#chart (accessed April 2010).
8. Centre for Addiction and Mental Health (CAMH). *Exposure to Psychotropic Medications and Other substances During Pregnancy and Lactation: A Handbook for Health Care Providers*, 2007.

Remember: A person's experience with any drug can vary. Here are a few of the many things that may affect the experience: the amount and strength of the drug taken, the setting, a person's mood and expectations before taking the drug, gender, overall health, past experience with that drug and whether more than one drug is being used at the same time. Using alcohol and other drugs at the same time can also be dangerous.

The Addictions Foundation of Manitoba (AFM) offers a broad range of prevention and treatment services for alcohol, other drugs and gambling. These are designed to meet the needs of all Manitobans and include harm reduction and abstinence-based programs.

For more information, contact your local AFM office or visit our website: www.afm.mb.ca.