Just the Berries

Ecstasy

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Since the "rave" culture has moved into North America (yes, even to small-town Canada), it behooves us to learn about the drugs ingested at these events. The most popular drug used at raves is ecstasy, also known as E, X, XTC, and, pharmacologically, as 3,4-methylendioxymethamphetamine (MDMA). Its popularity is due to its main effect of increasing emotional and sensual awareness, enabling users to be more "sociable." The small added amphetamine effect also provides energy for all-night dancing.[1] For this article, MEDLINE was searched using the search term "ecstasy."

Ecstasy affects serotonin and catecholamine levels. Release of serotonin and inhibition of its uptake causes the desired positive mood changes. Less desirable side effects are muscle aches, jaw clenching, and, occasionally, severe anxiety. Users sometimes suffer from depression a few days later. Ecstasy's noradrenergic effects cause the physical signs of dilated pupils, increased systolic blood pressure, and increased heart rate.

As ecstasy use becomes more widespread, physicians should have a high index of suspicion with patients exhibiting these signs and symptoms. A urine drug screen is worthwhile because urine might test positive for amphetamines (50% sensitivity), and the test will rule out other substances ingested at the same time. Unfortunately, not only are blood levels hard to ascertain, but also they do not correlate with symptoms.[2]

Most deaths seem to occur after very little drug is ingested (one to three tablets). A rave setting of prolonged vigorous exertion with high internal and ambient temperatures is a precipitating factor for morbidity. Death by ecstasy usually resembles heatstroke or malignant hyperthermia, with ensuing rhabdomyolysis, diffuse intravascular coagulation (DIC), and renal failure.

In the United Kingdom, 53 deaths due to ecstasy were reported by 1997.[1] In Canada, the media reported ecstasy as being related to 14 deaths in 1999.[3] Morbidity also arises from hyponatremia, cardiac arrhythmias, hepatic necrosis, and autonomic instability. Ecstasy is increasingly being recognized as a cause of liver failure in North America. Severe hepatotoxicity can occur acutely as part of the heatstroke presentation or weeks later, especially with chronic users. In Spain, ecstasy was the second most common cause of liver failure (after viral hepatitis) in those younger than 25 years.[4] Prenatal exposure carries an increased risk of congenital anomalies, particularly of the cardiovascular and musculoskeletal systems.[5]

Treatment is based on level 3 evidence. Hyperthermia is an emergency in these patients. All efforts must be made to cool and rehydrate patients as quickly as possible (including rapid sequence intubation and dantrolene to decrease muscle thermogenesis in temperatures >39°C). Cool intravenous fluids and bladder and even peritoneal irrigation should be considered. Of course, the ABCs (airway, breathing, circulation) should be of concern; laboratory tests should be done to assess co-ingestants, electrolytes,

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and renal and liver function; and a DIC screen should be performed. Rhabdomyolysis and DIC often accompany hyperthermia so, along with intravenous hydration, urine should be alkalinized, furosemide or mannitol used for diuresis, and output monitored closely. Dialysis might be necessary if renal failure ensues. Seizures and cardiac arrhythmias should be treated as per protocol, and intravenous lorazepam is recommended for extreme agitation.

Long-term subtle effects on the nervous system are suspected because there is some evidence of serotonin neurotoxicity. There are limited data (level 5 evidence) suggesting use is associated with motor vehicle accidents because of increased risk-taking behaviour.[6] Despite its reputation as a "safe" drug often used at social occasions without alcohol, ecstasy, even in small doses, can have devastating effects on healthy teenagers and young adults.

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