UNIVERSITY OF WATERLOO
FACULTY OF SCIENCE
School of Pharmacy

WaterlooRegion
Integrated Drugs Strategy

MDMA OVERDOSE:

Quick Reference for Health Care Professionals

GENERAL INFORMATION

MDMA (3,4 -methylenedioxy-methamphetamine) is a serotonergic amphetamine which is often used recreationally among youth and adults to increase feelings of connectedness, euphoria, excitement and heightens sensations. It is most commonly taken orally as pills or capsules, but also powders or solutions. Less commonly it may be injected or administered rectally.

Common Names: Ecstasy, Molly (crystalized/powered form), M, E, X, Adam, Beans

Common contaminants: Drugs sold as MDMA may contain other stimulants or entactogens. Other drugs often found in MDMA pills include amphetamine, piperazine, MDA, ketamine. However, a lot of the time the active ingredient is not identified.

Onset: 30 minutes

Duration: Ranges 3 to 5 hours. Average peak effects at 2 hours. Hangover-like symptoms can persist up to 5 days.

Metabolism: Liver and Kidneys

Side Effects:
-Increased sweating
-Dilated pupils
-Agitation
-Psychosis
-Tremors
-Trouble sleeping
-Increased heart rate and palpitations
-Decreased appetite
-Jaw clenching

AT THE FESTIVAL

- Information and resources about drugs, harm reduction support, including risks for overdose and naloxone kits, will be available inside the main entrance of the festival

- Information about 'What to do if you think someone has overdosed' can be found in washrooms and around the event.

- Call 911 immediately if someone is presenting with the following symptoms:
  - >headache
  - >nausea
  - >vomiting
  - >lethargy
  - >altered mental status
  - >seizure

- Over hydration can lead to a life-threatening condition called hyponatremia. Avoid giving too much water.

Good rule of thumb is to give 500 ml of water (one bottle) every hour.

MEDICAL EMERGENCY

Relocation to Emergency Department Required:

- Core temperature of >38.5 Celsius
- Abnormal heart rate (HR) and blood pressure (SBP/DBP)
- Altered mental status
- Nausea and/or vomiting
- Lethargy
- Confusion
- Syncope
- Seizures

AT THE HOSPITAL

EVALUATION OF PATIENT

Emergency Medical Services

- Vital signs and body temperature
- Psychological status

Emergency Department

- Finger prick glucose
- Electrocardiogram
- Acetaminophen and aspirin levels
- Pregnancy test when applicable
- Sodium and Creatinine levels
- Liver function tests in severely ill patients

For a recent ingestion (less than one hour) of MDMA, a single dose of activated charcoal (1 g/kg; maximum dose 50 g) may be administered

SYMPTOM MANAGEMENT

Hyperthermia? Initiate cooling procedure. Temperature > 41 Celsius may require an ice bath. Antipyretics will not be effective at reducing temperature.

Agitation/seizure? Benzodiazepines can be used to increase seizure threshold (lorazepam 1 to 2 mg IV push or midazolam 3 to 5 mg IM, repeat as needed). DO NOT give, butyrophenones (e.g. haloperidol) can interfere with heat dissipation, may prolong the QTc, and may reduce the seizure threshold.

Psychosis? Olanzapine, risperidone, aripiprazole can be considered for patient.

Chest Pain? Give oxygen, aspirin and nitroglycerin if chest pain does not respond to benzodiazepines. DO NOT administer selective beta blocker (e.g. metoprolol, esmolol, propranolol) as it may lead to unopposed alpha-adrenergic stimulation, may exacerbate coronary artery vasospasm.

Hyponatremia? Asymptomatic or mild hyponatremia can be managed with fluid restriction alone. Severe hyponatremia (serum sodium <115 mEq/L) can lead to neurologic symptoms, cerebral edema, brain herniation and ultimately death. If patient presents with moderate to severe hyponatremia administer 100 ml of 3% hypertonic saline IV bolus.

Hyponatremia with persistent seizure? Administer lorazepam 1 to 2 mg IV push or midazolam 3 to 5 mg IM, repeat as needed; hypertonic saline (3% or 513mEq/L), if serum sodium 115 mEq/dL or less, give 100 ml as IV bolus; if seizures persist, give one or two additional doses of 100 ml, with each dose given over 10 min. DO NOT give additional hypertonic or normal saline; monitor serum sodium closely.

Hypertension/Tachycardia? Benzodiazepines have a modest effect on lowering blood pressure but can be tried as initial therapy. Hypertension can also be treated with peripheral agents like sodium nitroprusside (standard-dose). Selective beta blockers should not be used. The evidence is mixed for non-selective beta blockers. Labetalol IV or carvedilol can be considered for severe or unresponsive hypertension. Tachycardia is not an appropriatevsurrogate endpoint for dehydration, as many patients with MDMA toxicity are tachycardic due to the sympathomimetic effects of the drug. Consider NOT using calcium channel blockers although,they have a lowering effect on SBP and DBP, they can also cause
reflex tachycardia.

Serotonin Syndrome? Defined as a rapid onset of confusion, cardiovascular instability, diaphoresis, myoclonus, with increased muscle tone and rigidity. More likely if patient is taking additional serotonergic drugs (e.g. MAOIs/SNRIs). DO NOT give drugs that can precipitate serotonin syndrome (e.g. cyclobenzaprine).

Drug Interactions? MDMA is mainly metabolized via CYP2D6 and minimally metabolized by CYP1A2, 2B6, and 3A4. Inhibitors of these pathways will raise the blood concentration of MDMA which may increase adverse effects or mortality and thus should be avoided. The use of monoamine oxidase (MOA) inhibitors or antidepressants may precipitate serotonin syndrome. The risk of serotonin syndrome is minimal with SSRIs.

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