

MDMA INGESTION (Methylenedioxymethamphetamine)

AKA: Ecstasy

DRUG PROPERTIES:

1. *Pharmacokinetics*

- Chemically similar to the stimulant amphetamine and the hallucinogen mescaline
- Typical tablet contains 50-150 mg of MDMA
- Mechanism of action not fully understood, however most evidence suggests MDMA causes increase release of serotonin primarily and possibly dopamine/norepinephrine to a lesser degree
- **ONSET OF ACTION (ORAL):** 20-40 min. with a peak at 60-90 min.
- **DURATION:** effects typically last 2-6 hrs. with serum half-life of 6-8 hrs.

2. *Initial Effects*

- Feelings of euphoria, emotional warmth, heightened empathy ("hug drug")
- Disorientation
- Tingling & spasmodic jerking
- Perceptual distortion
- Tachycardia & elevated BP

3. *Adverse Effects/Clinical Manifestations*

- Trismus (tightening of jaw muscles)
- Bruxism (jaw clenching)
- Nausea
- Diaphoresis & chills
- Tremors
- Nystagmus
- Blurred vision
- Dizziness, vertigo, ataxia

4. *Potential Rebound Effects (may continue for 1-2 days after ingestion)*

- Generalized fatigue
- Muscle aches
- Confusion

- Anxiety
- Insomnia
- Depression

5. *Long Term Effects*

- Psychologic dependence
- Memory deficits
- Heightened impulsivity
- Sleep disturbances
- Depression
- Anorexia
- Paranoid psychosis
- Panic Attacks
- Recurring visual hallucinations

COMPLICATIONS OF ACUTE INGESTION:

(MDMA related deaths linked to malignant hyperthermia, sever dehydration, DIC, stroke, and liver failure)

1. *MDMA Overdose Poses Danger Of:*

- Acute delirium & anxiety reactions
- Malignant hyperthermia
- Rhabdomyolysis
- Renal Failure
- SIADH
- Cardiovascular abnormalities
- Seizures
- Cerebral edema
- Coma
- Death

2. *Key Points of Overdose Complications*

- Hyperthermia particularly important since it can lead to sz/coma; contributing factors here are hydration, physical exertion, alcohol consumption, heat
- Also possible for pt. to present as over hydration (rave promoters advocate drinking plenty of water to prevent overheating); increase risk of hyponatremia-induced cerebral edema & SIADH

DETECTING MDMA TOXICITY

1. Signs & Symptoms

- Common/Nonspecific- tachycardia, agitation, tremor, mydriasis, diaphoresis
- Jaw clenching & muscle tension
- Hyperthermia observed in approximately 1/3 of users

2. Tox Screens

- 1/3 of current urine immunoassays won't detect MDMA (although some crossreactivity with amphetamines may occur if MDMA level is high)
- Best is special request for detection done on 1st urine specimen since MDMA may disappear from the urine in as little as 16 hours post-ingestion

TREATMENT CONSIDERATIONS

1. ABC's/PALS

2. Vascular Access and Blood Chemistries

- Evaluate electrolyte abnormalities (special attention to Na⁺ levels)
- Treat dehydration (NS or 3% NaCl as guided by lab values)

3. Maintain Normothermia

- Cooling blankets, acetaminophen, & benzodiazepines for hyperthermia
- In severe cases: paralysis & intubation to reduce muscle thermogenesis

4. Reverse Hypertension

- Sedation alone often effective
- Nipride or other vasodilator if HTN persistent

5. Activated Charcoal Only If Ingestion Occurred Recently (within past few hours)

6. Urine Acidification/Alkalinization Both Contraindicated

- Acidification may promote metabolic acidosis or myoglobin precipitation in renal tubules
- Alkalinization reduces the rate of MDMA excretion