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PRESENTATION
Drug Induced Psychosis: Keys to Overdose Management and RSI Induction

DESCRIPTION
This presentation highlights how to recognize symptoms of a psychotic episode secondary to illicit drug use. You will learn tips and tricks to managing airway, resuscitation and behavioral issues that arise in the emergency department secondary to common and uncommon community substance use.

OBJECTIVES
• Recognize psychosis secondary to specific illicit substances used in the community.

• Learn targeted strategies to assist with management of airway, resuscitation and behavioral issues that arise in the emergency department.

DISCLOSURE
No significant financial relationships to disclose.
Substance Induced Psychosis: Keys to Resuscitation and Management

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Dissociatives
**Signs and Symptoms of PCP Use:**
- Aggression
- Psychomotor agitation
- Nystagmus
- Hypoglycemia
- Hypertension
- Seizure
- CNS activation or depression
- Diminished pain sensation
- Rhabdomyolysis
- Hyperthermia
- Coma

**Keys to resuscitation for suspected PCP OD:**

A: Questionable risk of laryngospasm
B: Respiratory depression possible
C: Usually hypertensive

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**Benzos benzos benzos!**

Lorazepam (Ativan) 4mg IV
Diazepam (Valium) 5-10mg IV
Repeat q 8-10 minutes

Severe: 5mg IM Midazolam (Versed) and 10mg IM droperidol

Decrease sensory stimuli: lights off

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5mg haldol or 2.5mg droperidol may be used as adjunctive therapy if refractory to benzos. Try benzos first!

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1. 1.2% of PCP patients needed intubation in large case series

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Avoid succinylcholine for intubation:
Can exacerbate hyperthermia and psychomotor agitation/rhabdomyolysis related hyperkalemia

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*“Angel dust, embalming fluid, killer weed, peace pill, horse tranquilizer, hog”*
**Ketamine**

“K, Special K, Kit Kat, Vitamin K, Ket, Super K”

**Signs and Symptoms of Ketamine Use:**
- Impaired consciousness
- Mild agitation/hallucinations
- Mild tachycardia and hypertension
- Vertical or rotary nystagmus possible
- Coma
- Laryngospasm and heavy salivation

**Psychomotor agitaiton treat with:**
- benzodiazepines: IV diazepam 5-10 mg or lorazepam 1-2 mg
- **Haloperidol/Droperidol should not be used** for agitation with isolated ketamine use

**Keys to resuscitation for suspected Ketamine OD:**

**A:** Laryngospasm and secretions (infants more common)

**B:** Respiratory depression is rare

**C:** mild tachycardia and hypertension (if at all) from psychomotor agitation.

**Effects of ketamine last 15 minutes to a few hours,** observation is usually enough

**Rarely requires intubation**

**Treat salivation with atropine 0.1 mg** (0.01 to 0.02 mg/kg) q 5 mins or glycopyrrolate 5 mcg/kg
Stimulants
**Signs and Symptoms of MDMA Use:**
- Euphoria, empathy, excitement
- CNS agitation
- Hyperthermia
- Euvolemic Hyponatremia
- Seizure
- Inhibition
- Serotonin Syndrome
- Hypertension
- Obtunded

**Keys to resuscitation** for suspected MDMA OD:
- **A**: Hyponatremia frequently produces obtundation
- **B**: Oxygenation usually normal
- **C**: Hypertension can be severe from sympathetic activation

**Standard agents for rapid sequence intubation (RSI) may be used.***

- **Treat HTN:**
  - lorazepam 1 to 2 mg IV push
  - Nitroprusside or Phentolamine or nicardipine

**Lorazepam (1 to 2 mg IV)** Very high doses (greater than 10 mg of lorazepam) may be required.

**Do NOT give:**
- Phenytoin: ineffective for MDMA seizures
- Haloperidol: worsen hyperthermia/seizures

**Na <120, Seizures, Encephalopathy:** Start 3%NaCl

- **First:** Bolus 100cc 3%NaCl IV over 10-15 mins (up to 3 times)
- Then start 3% NaCl (1L=513 mEq/L) IV followed by 0.9% NaCl (1L=154 mEq/L)

**Goal:** Correct Na by 4 to 6 mmol/L, prevent herniation

Do not exceed increase in over 8mEq/L during first 24 hrs

Less than 1 hour: give a **single dose of activated charcoal** (1 g/kg; maximum dose 50 g)

“X, E, Molly, Vitamin E, Vitamin X, Egg rolls, Candy, Scooby Snacks, Skittles, Adam, Beans”
**Methamphetamine**

“Speed, Crank, Chalk, Tina, Christina, White Cross, Party and Play, Tweaking, Spun, Rocket Fuel”

**Signs and Symptoms of Methamphetamine Use:**
- Agitation
- Delirium
- Tachycardia
- Hypertension
- Mydriasis
- Diaphoresis
- Aggression
- Hyperthermia

**Benzos!**
- 4 mg IV lorazepam q 8 mins
- 5-10mg IV diazepam q 8 mins
- 5-10 mg IM midazolam q 10 mins

**HTN management:**
- Nitroprusside: 0.25-0.5 mcg/kg/min
- Phentolamine: 2-5 mg IV

**AVOID pure beta blockers**

**Caution with physical restraints**
Can suffer **sudden cardiac arrest** due to
1. Dehydration
2. Depletion of adrenergic neurotransmitters
3. Metabolic acidosis

**Keys to resuscitation** for suspected Methamphetamine OD:
- A: Usually intact
- B: Tachypnea
- C: Cardiac arrest, Hypertension from sympathetics

**IVF resuscitation**
Consider bicarb in severe acidosis

**Avoid Succinylcholine** as RSI medication (hyperthermia, rhabdo)

**Do not give antipyretics:** cool patient with cooling blankets and ice
Signs and Symptoms of Methamphetamine Use:
- Agitation
- Mydriasis
- Tachycardia
- Hypertension
- Respiratory Distress
- Headache
- Chest Pain, Myocardial Ischemia
- Euphoria

Diazepam 5-10mg IV or Lorazepam 1mg IV
Phentolamine 1-5 mg IV

Do NOT give Beta Blockers
Observe 9-12 hrs if chest pain associated cocaine toxicity

Aspirin 325 mg
Nitroglycerin 0.4 mg SL
Phentolamine 2.5-5 mg IV with SBP >100
If wide QRS: Sodium Bicarb 1-2 mEq/kg
SVT: Diltiazem 20mg IV
Torsades: Magnesium
Cardiac toxicity: consider lipid emulsion therapy start at 1.5 mL/kg IV over 2 mins (max 10mL/kg)

Recommend Rocuronium 1mg/kg instead of succinylcholine for RSI:

Plasma cholinesterase (PChE) metabolizes both succinylcholine and cocaine: coadministration can prolong the effects of cocaine and the paralysis from succinylcholine.

Preferred induction agents to use: etomidate, benzos or propofol

Keys to resuscitation for suspected Cocaine OD:

A: Usually intact
B: “Crack lung”
C: Hypertension, Myocardial Ischemia

“Snow, blow, coke, 8 ball, crack, rock”
Hallucinogens
LSD & Psilocybin (Mushrooms)

Signs and Symptoms of LSD Use:
“Trips” or “Flashbacks”
Fear
Synesthesia
Euphoria or Dysphoria
Heightened sensory input
Panic
Distortion of time
Confusion
Nausea/GI upset (Psilocybin)

Synesthesia is blending of senses hearing colors or seeing sounds

Most cases only require supportive care: keep in a calm, quiet environment and reduce stimuli.

Acute agitation/dysphoria: IV benzos
If persist use 2-5 mg haldol
GI decontamination not indicated

Keys to resuscitation for suspected LSD or Mushroom OD:
A: Airway compromise is rare
B: Respiratory complications uncommon
C: Cardiovascular changes are unusual
No contraindicated RSI meds
Rarely requires intubation

Manage GI upset with IV fluids and antiemetics. Avoid metoclopramide for risk of akathisia in already heightened state

Duration: 6-12 hrs
Vitals usually normal

Common hallucinogens are not detected by standard drugs-of-abuse screens

“Acid, boomer, yellow sunshine, trippy” & “magic mushrooms, shrooms”

Duration: 6-12 hrs
Vitals usually normal
Depressants
## GHB

**Gamma Hydroxybutyrate**

“G, Gatorade, Liquid E, Gasoline, Liquid X, Georgia Home Boy”

## Signs and Symptoms of GHB Use:
- Hypotension
- Bradycardia
- Bradypnea, respiratory depression
- Nausea
- Hypothermia
- Agitation alternating with somnolence
- Amnesia
- Seizures
- High risk sexual behaviors
- Coma

## Respiratory arrest is the primary mechanism of death.**
Death may also occur from aspiration pneumonia, positional asphyxiation, or trauma sustained while intoxicated.

## Coingestion common with stimulants:
Methamphetamine, cocaine and PCP can result in psychomotor agitation and episodes of lucidity

## Keys to resuscitation for suspected GHB OD:

**A:** Obtundation and stupor

**B:** Bradypnea, apnea and hypoxemia

**C:** Hypotension

Agitation may occur in response to intubation. **Succinylcholine recommended** for induction even in cases of obtunded patients.

Due to transient hypotension: **etomidate generally preferred** over midazolam or propofol.
Key Take Aways:

- **Benzos, Benzos, Benzos!** Haloperidol is not always the answer
- Succinylcholine can worsen hyperkalemia and hyperthermia, **avoid** for RSI in:
  - PCP, MDMA, Methamphetamine and Cocaine
- Sodium correction in MDMA: if Na<120 or acutely symptomatic (seizures, coma)
  - Start with **3%NaCl 100cc Bolus** up to 3 times then IV hypertonic saline if needed
  - Initial goal: correct 4 to 6 mmol/L
- Cocaine: cardiac toxicity interventions are important, **avoid beta blockers**
- LSD and Mushrooms: reassurance and decrease stimulation
- **GHB:** Succinylcholine and etomidate preferred for RSI. Don’t be afraid to intubate these patients given their high risk of respiratory failure.
References


Paulus, Martin, and Andrew Saxon. “Methamphetamine Use Disorder: Epidemiology, Clinical Manifestations, Course, Assessment, and Diagnosis.” *Uptodate*, Aug. 2019