Maryland ACEP Chapter Educational Conference & Annual Meeting
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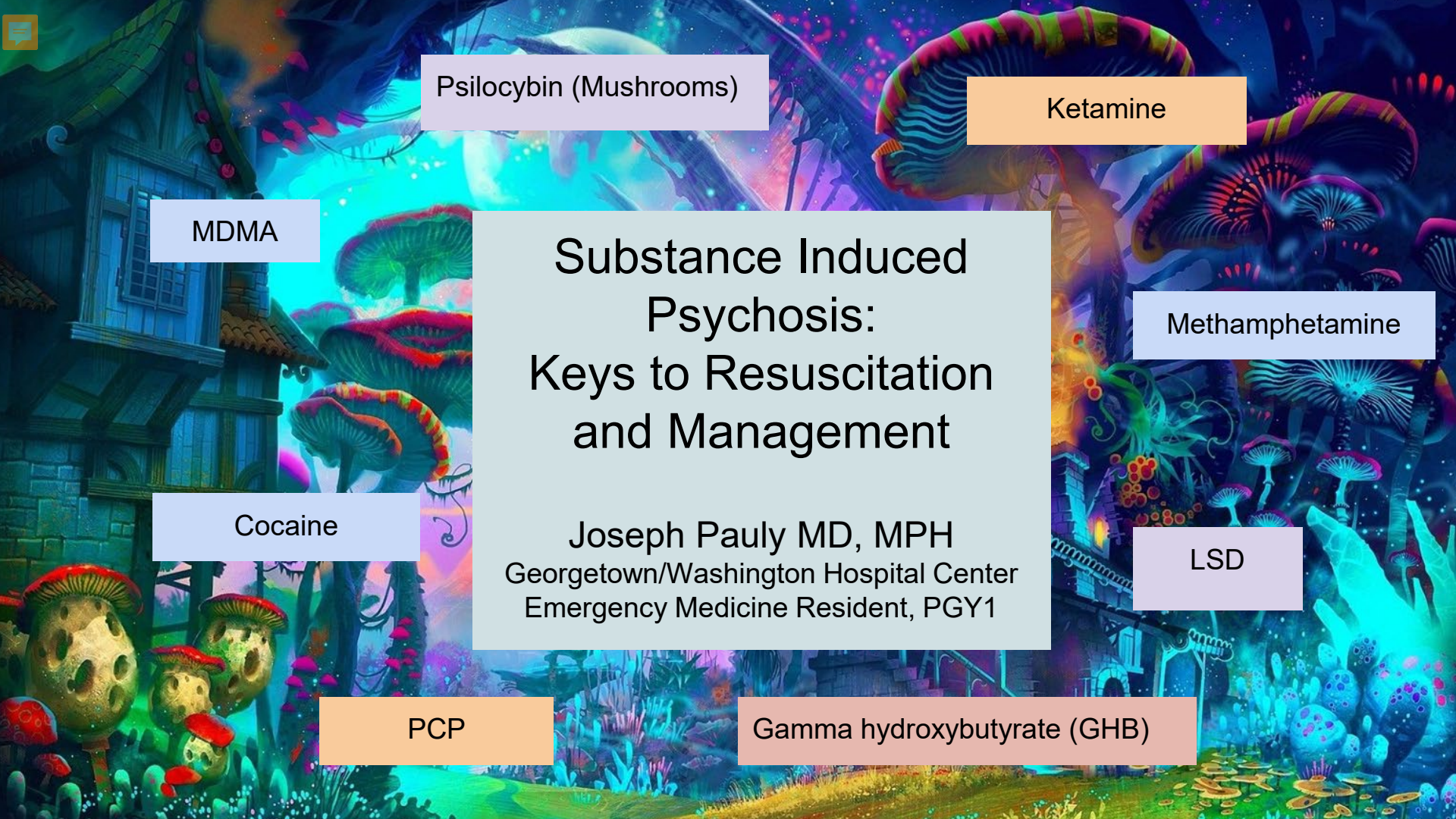
PRESENTATION
Drug Induced Psychosis: Keys to Overdose Management and RSI Induction

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

PCP

"Angel dust, embalming fluid, killer weed, peace pill, horse tranquilizer, hog"

Signs and Symptoms of PCP Use:

Aggression
Psychomotor agitation
Nystagmus
Hypoglycemia
Hypertension
Seizure
CNS activation or depression
Diminished pain sensation
Rhabdomyolysis
Hyperthermia
Coma

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

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

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

Keys to resuscitation for suspected PCP OD:

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

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

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 agitation 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

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

Rarely requires intubation

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.

Treat salivation with **atropine 0.1 mg** (0.01 to 0.02 mg/kg) q 5 mins or **glycopyrrolate 5 mcg/kg**

Stimulants

MDMA/Ecstasy

"X, E, Molly, Vitamin E, Vitamin X, Egg rolls, Candy, Scooby Snacks, Skittles, Adam, Beans"

Signs and Symptoms of MDMA Use:

Euphoria, empathy, excitement
CNS agitation
Hyperthermia
Euvolemic Hyponatremia
Seizure
Inhibition
Serotonin Syndrome
Hypertension
Obtunded

Induces ADH secretion

Treat with benzos +/- cyproheptadine

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

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

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

Standard agents for rapid sequence intubation (RSI) may be used.
Treat HTN:
lorazepam 1 to 2 mg IV push
Nitroprusside or **Phentolamine** or **nicardipine**

Methamphetamine

"Speed, Crank, Chalk, Tina, Christina, White Cross, Party and Play, Tweeking, 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

Cocaine

"Snow, blow, coke, 8 ball, crack, rock"

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)

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

A: Usually intact
B: **"**Crack lung"
C: Hypertension, Myocardial Ischemia

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**

Hallucinogens

LSD & Psilocybin (Mushrooms)

"Acid, boomer, yellow sunshine, trippy" & "magic mushrooms, shrooms"

Duration: 6-12 hrs
Vitals usually normal

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

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)

Synethesia 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 anti-emetics. **Avoid metoclopramide for risk of akathisia** in already heightened state

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

Summary

PCP
Ketamine

MDMA
Methamphetamine
Cocaine

LSD
Psilocybin

GHB

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.

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