



SUBSTANCE AND OPIOID USE DISORDER TOPIC STUDY POINTS

Stimulants

Study points can be used to focus areas of study and learning.

Scenario:

A 25-year-old male is brought to the emergency department by EMS for agitation. Friends state he has been using methamphetamine and they are concerned about his behavior. On arrival, he is tachycardic, hypertensive, diaphoretic, and agitated. He requires emergent sedation with multiple doses of benzodiazepines.

Hours later, the patient is awake and would like to go home. You perform the NIDA Quick Screen which is positive for stimulant use. Review of the electronic health record shows multiple emergency department visits for intoxication from multiple stimulants. Harm reduction is discussed with the patient using a brief motivational interviewing session to discuss your concerns for a stimulant use disorder (SUD). You refer him to a treatment center that offers contingency management for SUDs.

Background:

- Patients intoxicated with stimulants can present with varying degrees of agitation and psychosis.
- Patients who demonstrate sympathomimetic examination findings, aggression, or are a potential danger to themselves or others, require sedation.
- First-line treatment for sedation should include liberal amounts of benzodiazepines.
- Once the patient is no longer intoxicated, motivational interviewing should be used to discuss treatment options; the patient should be given harm reduction resources.
- While a few medications are being studied for use in patients with SUD, their efficacy is unclear. Contingency management is a demonstrated treatment modality and patients should be referred to agencies that offer it as a treatment option.

Methamphetamine Use¹

- Methamphetamine use is associated with cardiovascular disease, HIV transmission, interpersonal violence, and psychosis.
- Methamphetamine-related ED visits result in significantly longer median ED length of stay and significantly higher odds of sedation for agitation compared to ED visits for other drug use and non-drug-related ED visits.
- Administering sedation for agitation will likely obviate the need for physician restraints but result in a longer length of stay for the patient as well.
- Health care providers are pessimistic about the likelihood of success treating patients with methamphetamine use disorder citing patient behavioral characteristics as a significant barrier. Similarly, patients report negative interactions with providers as a major barrier to treatment.

¹Murphy CE, Wang RC, Coralic Z, Lai AR, Raven M. Association between Methamphetamine Use and Psychiatric Hospitalization, Chemical Restraint, and Emergency Department Length of Stay. *Acad Emerg Med* 2020 Nov;27(11):1116-25. doi: 10.1111/acem.14094. Epub 2020 Sep 21.

Substance Use Disorder Screening²

- The abbreviated NIDA Quick Screen Single drug use question may be more appropriate in ED settings. This single screening questions had a sensitivity of 100% and specificity of 73.5% or the detection of a drug use disorder in a primary care setting:
 - “How many times in the past year have you used an illegal drug or used a prescription medication for nonmedical reasons?”

²Hawk K, D’Onofrio G. Emergency department screening and interventions for substance use disorders. *Addict Sci Clin Pract* 2018;13(1):18: 18. doi: 10.1186/s13722-018-0117-1

Stimulant Use Disorder³

- Contingency management involves participants receiving something as a reward (e.g., a rent subsidy or employment opportunity) for the achievement of a specific goal such as a negative urine drug screen (e.g., not using methamphetamines or other stimulants).
- Six trials were included in the review assessing contingency management efficacy in the treatment of stimulant use disorder and found consistently positive results.
- The strongest evidence-based approach for the treatment of stimulant use disorder at this time remains contingency management interventions.

³Ronsley C, Nolan S, Knight R, Hayashi K, Klimas J, Walley A, et al.

Treatment of stimulant use disorders: a systematic review of reviews. PLoS ONE 2020;15(6):e0234809. doi: 10.1371/journal.pone.0234809. eCollection 2020.

ACEP Task Force Report on Hyperactive Delirium with Severe Agitation in Emergency Settings⁴

- Severe agitation presentations are associated with stimulant use disorder, including use of cocaine or methamphetamine.
- Stimulant intoxication, often seen with cocaine and amphetamines, can cause a sympathomimetic toxidrome as suggested by hypertension, tachycardia, mydriasis, diaphoresis, hallucinations, tremors, and agitation. Myoclonus and/or hyperreflexia, however, are more commonly seen with other toxidromes like serotonin syndrome.
- When there are no safety concerns relative to patient or staff harm, techniques such as verbal de-escalation should be employed. Place patients in quiet areas away from noisy or stimulating environments. Setting clear limits while offering choices may be helpful. Many times, non-pharmacologic techniques may be all that is required.
- A large amount of research involves the use of benzodiazepines, specifically midazolam and lorazepam, as a sole agent or in combination in the treatment of severe agitation.
 - Time to sedation is faster for midazolam 5-10 mg IM compared to lorazepam, ranging from 8.5-10 minutes for midazolam to greater than 30 minutes for lorazepam. All single agent regimens were effective in controlling agitation.

- Ketamine has a consistently faster onset of action compared to other medications in the management of severe agitation. Time to sedation is rapid (2-10 minutes on average) following 4 mg/kg of IM ketamine IM; however, there may be an association between ketamine and the development of respiratory depression.

⁴Hatten BW, Bonney C, Dunne RB, Hail SL, Ingalsbe GS, Levy MK, et al., American College of Emergency Physicians Hyperactive Delirium Task Force; Cole JB, Dutton RP, Kao LW, Kleinschmidt KC, Kupas DF, Lavonas EJ, et al., American College of Emergency Physicians Multispecialty Hyperactive Delirium Review Panel; American Society of Health-System Pharmacists. ACEP Task Force report on hyperactive delirium with severe agitation in emergency settings. 2021.

<https://www.acep.org/siteassets/new-pdfs/education/acep-task-force-report-on-hyperactive-delirium-final.pdf>. Accessed August 9, 2023.

August 2023