SUBSTANCE AND OPIOID USE DISORDER
TOPIC STUDY POINTS

Cannabis Use

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

Scenario:

A 33-year-old woman presents with abdominal pain and nausea and vomiting. She has experienced multiple, similar episodes over the last few years. The episodes are difficult to control and frequently result in hospital admission. Despite numerous tests, including CT scans, ultrasounds, MRIs, and endoscopies, no etiology has been found. Hot showers sometimes improve her symptoms. She uses cannabis daily.

In addition to fluids, you administer droperidol 1.25 mg IV. One hour later she is feeling better, and her labs are otherwise unremarkable. You diagnose her with cannabis hyperemesis syndrome and prescribe capsaicin cream. The patient states that she has tried to cut down or stop using cannabis in the past, but she develops withdrawal symptoms. Cannabis use has started to negatively impact her life. Due to concerns that she may have cannabis use disorder, a referral is provided to an addiction medicine specialist.

Background:

- Chronic use of cannabis can result in the development cannabis hyperemesis syndrome (CHS).
- CHS can result in nausea, vomiting, and abdominal pain that is recalcitrant to standard treatment.
- Patients with CHS undergo multiple diagnostic tests that do not identify an etiology and may frequently require admission to the hospital. This leads to high costs for the patient. Both the admissions and the cost of treatment may have significant negative consequences to the patient's life.

- Cannabinoid withdrawal syndrome (CWS) occurs after either prolonged or heavy use of cannabinoids.
- Cannabinoid withdrawal syndrome consists of multiple psychological symptoms including insomnia and irritability but also headaches, nausea, and vomiting.
- While cannabinoid replacement has been proposed for cannabinoid withdrawal syndrome, present recommendations include supportive care including treatments such as cognitive behavioral therapy.
- While there are proposed diagnostic criteria, many patients associate hot showers with the improvement of symptoms from CHS.
- While studies are limited, droperidol and haloperidol may be effective in the treatment of CHS. Capsaicin may also be useful, although the studies are even more limited.
- Discontinuation of cannabis can result in a withdrawal syndrome.
- Patients with cannabis use disorder should be referred for treatment.
- Cannabis use is also associated with a number of other vascular disorders.
- Similar complications including cannabinoid hyperemesis syndrome are reported following consumption of novel cannabinoids (e.g., delta-8 THC).

Acute Cannabis Toxicity[1]

- Neurotoxicity was reported in the majority of patients. Central nervous system (CNS) depression was more common in children whereas excitation was more common in adults.
- Anxiety, paranoia, panic attacks, psychosis and seizures were all reported.
- Tachycardia was more commonly reported than bradycardia.
- Respiratory depression was uncommon.

[1]*Noble MJ, Hedberg K, Hendrickson RG. Acute cannabis toxicity. Clin Toxicol (Phila) 2019;57(8):735-42. doi: 10.1080/15563650.2018.1548708. Epub 2019 Jan 24.*

Cardiovascular Complications of Cannabis[2]

- Cannabis the most frequently used psychoactive substance after alcohol and tobacco.
- Cannabis users presenting with cardiovascular emergencies are younger without other risk factors.
- Acute coronary syndromes, cardiac arrhythmias, stroke, peripheral arteriopathy, and stress cardiomyopathy are all reported following cannabis use due to its hyperadrenergic effects.
- The risk of acute myocardial infarction increases approximately 5-fold with an hour of exposure to cannabis compared to nonusers. Often, they have normal coronary angiograms.
- Acute ischemic stroke is the most common reported adverse cardiovascular complication of cannabis use. Reversible cerebrovascular spasm is the primary mechanism of stroke.
- Cannabis use is demonstrated as an independent risk factor for hospitalization from heart failure.

[2]*Singh A, Saluja S, Kumar A, Agrawal S, Thind M, Nanda S, et al. Cardiovascular complications of marijuana and related substances: a review. Cardiol Ther 2018;7(1):45-59. doi: 10.1007/s40119-017-0102-x. Epub 2017 Dec 7.*

Cannabis Syndromes[3]

Increasing cannabis consumption has resulted in increased frequency of cannabis-related emergency departments admissions and is a significant public health issue.

- *Cannabinoid withdrawal syndrome* presents approximately 1-10 days following the last use of cannabis with a peak incidence within a week. Symptoms can last up to 4 weeks. Symptoms should occur following heavy or prolonged use.
- Symptoms include psychological symptoms including irritability, sleep difficulty, nervousness, depression, and may impair daily life. Patients may also have nausea and vomiting and abdominal pain, although they aren't included in the DSM-V criteria.

- No specific treatment for cannabinoid withdrawal syndrome is identified. Behavioral therapies such as cognitive behavioral therapy or motivational enhancement therapy may be beneficial. Some patients have responded to substitution therapy.
- Abdominal pain associated with cannabinoid hyperemesis syndrome may be treated with capsaicin cream that helps to desensitize innervation aiding in pain management. Care should be taken to avoid contact with eyes.
- Cannabinoid hyperemesis syndrome and withdrawal syndrome are associated with many secondary issues including social isolation and financial difficulties.
- Patients should receive follow-up due to the high potential for relapse.

[3]*Razban M, Exadaktylos AK, Della Santa V, Heymann EP. Cannabinoid hyperemesis syndrome and cannabis withdrawal syndrome: a review of the management of cannabis-related syndrome in the emergency department. Int J Emerg Med 2022;15(1):45. doi: 10.1186/s12245-022-00446-0*

Cannabis Hyperemesis Syndrome[3,4]

- Cannabinoid hyperemesis syndrome is characterized by episodes of recurrent hyperemesis and abdominal pain, which normally occur within hours of consuming cannabis. Episodes may last between 24-48 hours and can be relieved by hot showers.[3]
- Abstinence is the only way to prevent recurrence of episodes.[3]
- Standard therapeutics such as ondansetron and metoclopramide and opioids do not seem to be effective in cannabinoid hyperemesis syndrome.[3] Hallmarks of cannabis hyperemesis syndrome include resistance to traditional antiemetics and prolonged abstinence as the definitive cure.[4]
- Haloperidol 0.05-0.1 mg/kg IV and droperidol 0.625 mg IV are promising treatments for cannabinoid hyperemesis syndrome.[3] Some limited literature supports the use of capsaicin cream.[3]
- Haloperidol at doses of either 0.05 mg/kg or 0.1 mg/kg intravenously resulted in improvement of abdominal pain and nausea compared to ondansetron.[4]
- Subjects in the haloperidol arms also required less rescue medication and emergency department length of stay was shorter.[4]

[4]*Ruberto AJ, Sivilotti MLA, Forrester S, Hall AK, Crawford FM, Day AG Intravenous haloperidol versus ondansetron for cannabis hyperemesis syndrome (HaVOC): a randomized, controlled trial. Ann Emerg Med 2021;77(6):613-9. doi: 10.1016/j.annemergmed.2020.08.021. Epub 2020 Nov 5.*

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