Cannabis Hyperemesis

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Disclosures

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Support from NSHA, Health Canada, WCB, CPSNS
No support from industry
After today you will…

Use best-evidence to diagnose CHS
Have an approach to CHS management
Consider prevention
The Mexican slang term “marihuana” was used in the 19th century to highlight its “exotic” quality.

A jab at the Mexicans who brought it to the US for recreational use after the Mexican-American War.

The use of “marihuana” rose in popularity in the early 1900s, morphing into “marijuana”.
Prevalence of Self-Reported Cannabis Use

Youth (15-24)
General Population (15+)
Adults (25+)

Source: CADMUS 2008-2012, CTADS 2015
Chart 1
Benchmarked and adjusted rate of cannabis consumption by age group, 1960 to 2015

Note: The benchmarked rate of cannabis consumption estimates are based on a methodology that incorporates growth rates between modern and historical data sources with level estimates from the Canadian Community Health Survey – Mental Health.

Source: Statistics Canada, authors’ calculations.
Daily Use

33% of Canadians >15 who used cannabis in the past three months in 2015, use almost daily reported that they used this drug daily

183,000,000 (3.8%) of the global population

For 10 years THC potency has been increasing

The Syndrome

Syndrome of cyclic vomiting

Associated with chronic cannabis use

CHS is becoming a commonplace and costly occurrence in hospitals nationwide

Situation

Most data from case reports and case series
Pathophysiology of the syndrome is unclear
Occurrence in some users, but not others, is not understood
Literature

Literature search was conducted: PubMed, Embase, and Google Scholar until 2017

Publications describing the epidemiology, pathophysiology, diagnostic criteria, and treatments

National surveys were also used for current information about this patient population
## Diagnosis

### Essential for diagnosis
Long term cannabis use

### Major features
1) Severe cyclic nausea and vomiting. 2) Resolution with cannabis cessation. 3) Relief of symptoms with hot showers or baths. 4) Abdominal pain, epigastric or periumbilical. 5) Weekly use of marijuana

### Supportive features
1) Age less than 50 years old. 2) Weight loss of > 5kg. 3) Morning predominance of symptoms. 4) Normal bowel habits. 5) Negative laboratory, radiographic and endoscopic test results

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Diagnosis

CHS in the differential diagnosis of patients with regular and chronic cannabis use and intractable nausea and vomiting, cyclical vomiting, relief of symptoms with hot baths, and resolution of symptoms after cannabis cessation.

Sensitive Characteristics

At least weekly cannabis use, more than 1 year (74.8%)
Severe nausea/vomiting (100%)
Cyclic vomiting that recurs over months (100%)
Resolution of symptoms after stopping cannabis (96.8%)
Compulsive hot baths/showers with symptom relief (92.3%)
Abdominal pain (85.1%)

CH1 receptors are located in the CNS

- the dorsal ganglia
- hypothalamus
- hippocampus
- cerebellum
- peripheral enteric nerves
- presynaptic ganglia of the parasympathetic system
THC acts on cannabinoid receptor CB1 and CB2 receptors

- CHS is a withdrawal-type syndrome, as a result of long-standing agonism\(^7\)
- chronic agonism of CB1 receptors produces a paradoxical emetic response in certain patients\(^8\)


Pathophysiology

THC shown to affect CB1 receptors altering gastrointestinal motility and delaying gastric emptying\(^9,10\)

Higher potency of the drug contributing to increased dependence and higher risk of sequela\(^3\)

Treatment

- Hot Showers and Baths
- Antiemetics
- Haloperidol
- Capsaicin
- Benzodiazepines
- Other
Antiemetics

Ondansetron
Promethazine
Prochlorperazine
Metoclopramide

Haloperidol: Case Reports

Inayat et al.: male 25, symptoms refractory to fluids, ondansetron and lorazepam; after haloperidol, GI symptoms subsided

Witsil’s case report shows patients symptom resolution in 2 hours, discharged in 8 hours

Mechanism antiemetic efficacy is still unclear: antagonism at D2 dopamine receptors in the CNS

Capsaicin\textsuperscript{16}: Case Series

Lapoint et al.: 5 patients with complete symptom resolution after topical capsaicin to the abdomen\textsuperscript{17}

Dezieck et al.: 13 patients experienced symptom relief after failure of other treatments

Capsaicin acts via hyperstimulation and desensitization of the cannabinoid transient receptor potential vanilloid receptor TRPV1, a modulator of various pain stimuli, activated by extremes of temperature. Agonists cause desensitization, neuronal ablation, and alleviation of pain\textsuperscript{19}


Benzodiazepine: Case Reports

Cox et al.: patient received 1 mg lorazepam IV after developing extreme anxiety, led to improvement in symptoms, transition to oral intake, discharged with lorazepam tablets; time to discharge was notably longer\textsuperscript{20}

Baron et al.: patient unable to abstain from marijuana use and continued to present with emesis and renal failure, despite oral benzodiazepines\textsuperscript{21}

Other

Propranolol

Opioids
Hot Water Theories

Hot water is disrupting the hypothalamic thermoregulatory system counteracting THCs effect on the hypothalamus\(^9\)

Hot water causes histamine release and vasodilation counteracting the redistributory effects of THC redistributing blood flow from the gut\(^{11,12}\)

A variety of treatment options have also been examined, including hot water baths, haloperidol, capsaicin, and benzodiazepines.
Take Home

Diagnose it

cannabis use, vomiting, hot water

Treat it with

supportive, haloperidol, capsaicin, benzodiazepines
Conclusions

CHS is increasingly prevalent and complicated problem for health care providers and patients. Research must be done to address the diagnostic and therapeutic challenges of this syndrome.
Conclusions

CHS should be treated as any other substance abuse problem

Early recognition, symptomatic management, and a support system to help end the addiction
References


