

## Cannabinoid Hyperemesis Syndrome

Cannabinoid Hyperemesis Syndrome (CHS) was first described in 2004 in patients with chronic cannabis abuse and a cyclic vomiting illness (*Gut* 2004;53(11):1566–1570). Since then, several case reports and case series have been published describing this condition. It's unclear how cannabis causes hyperemesis. In fact, it seems paradoxical since cannabis is considered an antiemetic used to treat nausea and vomiting associated with chemotherapy. It is thought that a downregulation or desensitization of cannabinoid (CB1) receptors causes a dysregulation of the cannabinoid system. This dysregulation results in slowing of gastric motility and hyperemesis. In addition, it has been proposed that cannabinoids inactivate TRPV1 receptors, which are also involved in gastric motility.

CHS can occur after inhaling or smoking cannabis in plant, wax or oil forms, in e-cigarettes, and with synthetic cannabinoids. CHS is clinically similar to cyclic vomiting syndrome, a gastrointestinal disorder. Patients presenting with cyclic and persistent vomiting often undergo extensive laboratory and imaging studies and a variety of drug interventions that are unnecessary when the cause is CHS. With the recent legal changes in cannabis use and the resulting increase in chronic use, CHS should be in the differential diagnosis of any patient presenting with intractable vomiting. A literature review by Sorenson et al (*J Med Toxicol* 2017;13(1):71-87) identified the following diagnostic characteristics of CHS and their frequency:

- Severe nausea and vomiting (100%)
- Vomiting occurs in a cyclic pattern over months (100%)
- At least weekly cannabis use (97.4%)
- Resolution of symptoms after stopping cannabis (96.8%)
- Compulsive hot showers or baths that relieve symptoms (92.3%)
- Abdominal pain (85.1%)
- History of daily cannabis use (76.6%)
- Regular cannabis use for > 1year (74.8%)

Treatment is focused on symptom relief, IV fluids for dehydration, and electrolyte replacement. Hot showers or baths usually offer immediate relief. It has been suggested that heat reactivates the TRPV1 receptor, restoring gastric motility and relieving symptoms. Capsaicin also interacts with the TRPV1 receptor and topical application will offer relief (*ACG Case Rep J* 2018;5:e3). Routinely prescribed antiemetics (e.g. ondansetron, metoclopramide, prochlorperazine) are often ineffective. Haloperidol, a D2 dopamine receptor antagonist, has been reported to relieve symptoms within 1-2 hours (*Am J Therapeutics* 2017;24:e64-7). The mechanism for haloperidol's effectiveness is unclear but it's been suggested that it may involve interactions between CB1 and dopamine receptors. Similarly, the D2 receptor antagonist olanzapine might provide relief. Benzodiazepines also may be effective, but results are mixed. An attempt to relieve abdominal pain with opioids should be avoided as they may exacerbate nausea and vomiting. CHS will resolve completely within 7-10 days of cannabinoid cessation; therefore, prior to discharge, patients should be educated to immediately stop using the drug and referred to treatment programs.



### Did you know?

**Capsaicin is an OTC topical analgesic that quickly relieves the symptoms of Cannabinoid Hyperemesis Syndrome.**

Capsaicin should be applied to the abdomen, backs of the arms, or areas on the body where hot water relieves symptoms. Use gloves when applying capsaicin. Warn patients that it may cause some discomfort initially. Caution should be used to avoid the face, eyes and other sensitive areas of the body. Do not use it on broken skin or cover with occlusive dressings. Counsel patients to use topical capsaicin three or four times each day if needed. If capsaicin is not available and hot showers are used in the ED or at home instead, educate patients to avoid thermal injuries.

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