Cannabinoid Hyperemesis Syndrome

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Introduction

Marijuana is used in the United States and worldwide.[1] It sometimes is used by patients, most generally illegally, for its antiemetic properties. Paradoxically, it actually can cause nausea and vomiting with abdominal pain in some patients. In recent years, there has been recognition of a new clinical condition known as Cannabinoid Hyperemesis Syndrome (CHS). This syndrome was first described in 2004 and is characterized by chronic cannabis use, cyclic episodes of nausea and vomiting, and the learned behavior of hot bathing or showering.[2] In some cases, polydipsia is present. We present the case of a young man who came to our emergency department with classic symptoms and history of this diagnosis of exclusion.

Case Report

A 22-year-old male with a past medical history of Gilbert syndrome presented to an academic medical center with a complaint of constant, sharp, diffuse abdominal pain, as well as nausea and vomiting of four days duration. The patient ranked his pain as 10/10 without relief. He had not eaten for several days as this worsened his symptoms. He denied fever, chills, diarrhea or bleeding. His jaundice was consistent with baseline due to Gilbert syndrome. He previously was hospitalized at a local hospital one month prior due to similar symptoms and later admitted that he had been hospitalized at several other local hospitals in the past with similar complaints, but generally had left against medical advice because they "did not let me shower enough". He admitted to heavy, daily marijuana use of 3-5 cigarettes ("joints") for the past three years. At times, he booked a hotel room for hot baths and showers during these pain episodes, which occurred every 1-2 months and lasted 4-5 days. His first episode occurred one year after his marijuana use increased significantly.

His urinary drug screen was positive for tetrahydrocannabinol (THC), but no other illicit substances. He was admitted to the hospital due to uncontrolled pain. In the emergency department, he requested a hot shower several times. At admission, he was asked to remain without food and drink for possible testing. Despite this request, he was observed drinking out of the sink in the radiology suite and getting out of the transport wheelchair to drink from a water fountain while returning to his room. During hospitalization, he was frequently in the shower, up to eight times a day, and was frequently unavailable to health care professionals.

A complete blood count, comprehensive metabolic profile, and lipase were within normal limits except for the elevated bilirubin which was consistent with his diagnosis of Gilbert Syndrome. An

abdominal ultrasound did not reveal cholelithiasis or ductal dilatation. A recent computed tomography scan of the abdomen/pelvis from an outside hospital was unremarkable and did not reveal a source for his pain.

An esophagogastroduodenoscopy revealed mid to distal esophagitis and he was started on a twice daily proton pump inhibitor. At the time of discharge, his abdominal pain, nausea, and vomiting were improved and the frequency of showering had decreased. No evidence of celiac disease or H. pylori was found. It was not thought that the esophagitis was the source of his symptoms as there is no known relationship between it and excessive showering. A gastric emptying study was not obtained during hospitalization due to narcotic use to control the pain and was scheduled to be done as an out-patient. A psychiatry consult was not obtained.

The patient was advised to quit marijuana usage and have a follow-up appointment with the consulting gastroenterologist for the gastric emptying study. A copy of a Canadian article on cannabinoid hyperemesis syndrome was given to the patient.[3] Unfortunately, he missed the gastroenterology appointment and gastric emptying study and was lost to follow-up. Approximately a year later, he presented to the ED with similar complaints and his family indicated he was smoking marijuana heavily again. He recently had been hospitalized twice at outside hospitals for similar presentations. According to his family, during his periods of marijuana abstinence, his nausea, vomiting and abdominal pain resolved.

Discussion

Cannabinoid hyperemesis syndrome (CHS) is characterized by cyclic episodes of abdominal pain, nausea, vomiting, and compulsive hot bathing or showering, with some descriptions include polydipsia.[2] Soriano-Co et al.,[4] building on the previous work of Sontineni et al,[5] suggested major and supporting features supporting the diagnosis. The major features included: (1) severe cyclic nausea and vomiting, (2) resolution with cannabis cessation, (3) relief of symptoms with hot showers or baths, (4) abdominal pain, and (5) weekly use of cannabis. Supportive features included: (1) age younger than 50 years, (2) weight loss of greater than 5 kg, (3) morning predominance of symptoms, (4) normal bowel habits, and (5) negative findings on diagnostic evaluation. The syndrome consists of three phases: pre-emetic or prodromal, hyperemetic, and recovery phase. The pre-emetic prodromal phase lasts for months or years and is characterized by early morning nausea, a fear of vomiting, and abdominal discomfort. The hyperemetic phase is characterized by complaints of intense and persistent nausea, vomiting and pain. During this phase patients classically take numerous hot showers or baths throughout the day. This behavior appears to be learned, as it is the only measure known to control symptoms, and therefore, it quickly becomes a conditioned behavior.[3]

The pathophysiology of CHS is unknown. Possible mechanisms of cannabinoid hyperemesis include toxicity resulting from marijuana's long half-life, its lipophilic properties, its ability to delay gastric emptying, and its dysregulation of thermoregulatory and autonomic equilibrium.[2] One hypothesis is that heavy exposure to THC results in supersaturation of cannabinoid receptors which results in a decrease in the number of receptors, a phenomenon known as desensitization, and their gabanergic effects, including nausea suppression, is diminished. The association between hot showering and symptom relief is understood less clearly, but may involve the fact that THC increases central body

temperature and hot water may result in a paradoxical perception of cold when cutaneous cold fibers are exposed to a hot stimulus.

Patients frequently have multiple hospitalizations and often fail to be diagnosed for a considerable time period, sometimes being diagnosed with cyclic vomiting syndrome (CVS).[6-8] Though both conditions have similar presentations, including cycles of vomiting and sometimes abdominal pain, with CVS patients frequently have migraine headaches and rapid gastric emptying times, whereas CHS is associated with delayed gastric emptying.

The recovery phase requires abstinence from marijuana usage to prevent the return of symptoms. Patient education is crucial in the treatment and ultimate resolution of this debilitating syndrome. The efficacy of outpatient treatment options, such as cognitive behavioral therapy for marijuana dependence, should be considered.[9]

Conclusions

The purpose of reporting this case of cannabinoid hyperemesis syndrome is to increase awareness of this likely underdiagnosed syndrome, its symptoms, including the peculiar need for frequent hot bathing, and characteristic phases. In patients with severe, intermittent abdominal pain who have a history of prolonged, heavy cannabis use, this diagnosis should be entertained.

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Keywords: cannabinoids, marijuana abuse, nausea, vomiting, compulsive behavior