Cannabinoid-induced cyclic vomiting; what every clinician needs to know

Anas K. Gremida, Antonio Cheesman, Julie Gammack

ABSTRACT

Introduction: According to the National Survey on Drug Use and Health (NSDUH), marijuana is the most commonly used illicit drug worldwide. In the United States and Europe, prevalence of regular marijuana use among adults reaches 4%. Despite the common belief that cannabinoids have an antiemetic effect, chronic use of cannabinoids can result in paradoxical bouts of abdominal pain, nausea and vomiting. Cannabinoid hyperemesis syndrome (CHS) is still an under recognized clinical entity and its diagnosis can be challenging to many clinicians due to the similarity of its clinical presentation to other more common disorders.

Case Report: We found that patients who were diagnosed with CHS have usually undergone an extensive clinical evaluation before the diagnosis was made. We are presenting a case of cannabinoid hyperemesis syndrome related to chronic and heavy marijuana use.

Conclusion: Compared to the increasing use of marijuana worldwide, cannabinoid hyperemesis syndrome is still an under recognized condition.

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CASE REPORT

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Keywords: Cannabinoid hyperemesis syndrome, Compulsive bathing, Cyclic vomiting, Marijuana

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INTRODUCTION

Cannabis has been used recreationally for millennia. Recently, a syndrome has been described a linkage between marijuana abusers and recurrent bouts of unexplained abdominal pain, nausea and vomiting. Contrary to the common beliefs that marijuana is a strong anti-emetic agent, paradoxical emesis can result among habitual users. Increased awareness among clinicians along with attentiveness to focused history taking are the key elements to early detection of this disorder [1–4].

CASE REPORT

An otherwise healthy 32-year-old female with heavy marijuana abuse for about 16 years presented with several days of intractable nausea, vomiting and vague abdominal pain not related to food consumption. The patient had no other symptoms. Review of medical records revealed similar episodes in the past with multiple emergency visits and three hospital admissions. The underlying etiology could not be identified. On examination, the patient was afebrile, slightly hypotensive and tachycardic. Abdominal examination revealed normal bowel sounds and mild diffuse tenderness without rigidity or rebound. Laboratory examination including complete blood count, comprehensive metabolic panel, lipase, and urinalysis were normal. Pregnancy test was negative. Urine toxicology screen was positive for cannabinoids. Records from recent hospital admissions including CT scans of the abdomen and pelvis, and esophagogastroduodenoscopy

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(EGD) proved unremarkable. The patient was rehydrated, multiple antiemetic medications including ondansetron, metochlopramide and prochlorperazine were used which partially controlled her symptoms. Nursing staff reported the patient spent long time showering, which seemingly provided symptomatic relief. On the fourth day of admission, the patient recovered completely and was discharged in good condition after offering a drug counselling.

DISCUSSION

Cannabinoid hyperemesis syndrome (CHS) is a recently identified syndrome related to chronic and heavy marijuana use. It is characterized by recurrent episodes of abdominal pain, nausea and vomiting partially relieved by hot showering or bathing in regular marijuana users. The syndrome was first reported in 2004 in a clinical series of ten patients in Australia by Allen et al. [3]. Even though many cases were reported afterwards, there is still no information about the actual prevalence of the disease.

Cannabinoid hyperemesis syndrome is clinically divided in two stages: emetic phase, and recovery phase. The first manifests with abdominal discomfort and intractable nausea and vomiting during which patients develop a characteristic crave for hot baths to soothe their symptoms. The recovery phase starts within few days of abstinence, but may take up to a week. Episodes related to CHS are usually separated by interludes of absolute well-being [2]. Patients usually have multiple emergency room and clinic visits before the diagnosis is made. Previously reported case series showed an average of 15 visits with at least one hospital admission per patient for CHS related symptoms [2]. In our reported case, the patient had three hospital admissions and multiple emergency room visits with significant associated costs for repeated laboratory workup, imaging studies and invasive procedures.

Among many cannabinoids present in the raw marijuana plant, Δ^9 -tetrahydrocannabinol (Δ^9 -THC) is the main ingredient involved in the pathogenesis of CHS through stimulation of cannabinoid 1 receptors (CB1r) located on nerves and synapses throughout the brain and enteric nervous systems [5, 6]. Their stimulation results in a neuromodulatory effect with decrease in gastrointestinal motility and an associated increase in nausea and vomiting [7]. Stimulation of these same receptors also provide “highs” and “analgesia” which recreational users prize [5]. To date, there is no available data in literature describing the association between the duration or the amount of cannabis use and the development of this syndrome.

Compulsive showering or bathing, “the water pill”, has been reported in almost all cases of CHS [8–10]. The mechanism of action is still unclear. Existing theories postulate that hot water exposure modulates the hypothalamic-pituitary axis (HPA) pathway through stimulation of endogenous CB1 receptors which normally

plays a role in regulation of body temperature [11].

Wallace et al. have proposed an easy and effective diagnostic and treatment algorithm based solely on detailed history taking, awareness of chronic marijuana use and the compulsive warm bathing linked to the CHS [12]. Compulsive bathing behavior is considered a hallmark for CHS and may be used to distinguish this condition from other differentials. There is no specific treatment for CHS in the acute settings other than supportive care. Abstinence is the only intervention to prevent recurrence.

CONCLUSION

Compared to the increasing use of marijuana worldwide, cannabinoid hyperemesis syndrome is still an under recognized condition. Lack of awareness among patients and clinicians leads to delay in the diagnosis with unnecessary overuse of health resources. We think that if the movement toward legalization of cannabis continues, cannabinoid hyperemesis will become more common health issue. Early recognition of this disorder depends exclusively on accurate history taking and physicians' awareness of the condition.

Author Contributions

Anas K. Gremida – Acquisition of data, Analysis and interpretation of data, Drafting the article, Final approval of the version to be published

Antonio Cheesman – Analysis and interpretation of data, Revising the article for important intellectual content, Final approval of the version to be published

Julie Gammack – Analysis and interpretation of data, Revising the article critically for important intellectual content, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

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