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LETTER TO THE EDITOR

Cannabinoid Hyperemesis Syndrome

Jose M. Roca-Pallín,[1] Hugo López-Pelayo,[1] Gisela Sugranyes[2] & Maria M. Balcells-Oliveró[1]

1 Hospital Clinic i Provincial de Barcelona - University Hospital, Barcelona, Spain
2 Institut d'Investigacions Biomèdiques d'August Pi i Sunyer (IDIBAPS), Barcelona, Spain

Correspondence
J. M. Roca Pallín, Psychiatry department of Hospital Clinic i Provincial de Barcelona - University Hospital, C/ Villarroel 170, CP 08036 Barcelona, Spain
Tel.: +34-(93)-2275477
Fax: +34-(93)-2279876
E-mail: jmroca@clinic.cat
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Recent articles published in CNS Neuroscience and Therapeutics reflect the increasing interest of the scientific community in the therapeutic properties of cannabis[1,2]. However, an aspect that is commonly overlooked is the potential medical side effects of cannabis use, among which severe hyperemesis is an uncommon condition.

Cannabinoid hyperemesis syndrome (CHS) occurs in chronic, daily cannabis users and is characterized by cyclic vomiting and compulsive bathing behavior. This clinical manifestation is paradoxical, given the previously identified therapeutic role of cannabis as an antiemetic agent. We report a recent case of CHS associated with organic and psychiatric complications that was diagnosed at our center.

A 36-year-old Hispanic woman attended the emergency department of a tertiary hospital presenting with second-degree burns on 20% of her body surface. These had been caused by repeated showers in excessively hot water. She also reported a history of frequent episodes of nausea and vomiting for the previous 24 months, which after several inconclusive assessments had been attributed to anxiety. She denied any medical or surgical history, except diagnosis of gastritis in 2011, treated with omeprazole. She had visited the emergency department on several occasions during the previous 5 years referring anxiety and abdominal pain associated with vomiting and compulsive hot showers which the patient had claimed were aimed at relieving anxiety symptoms, and which were considered to be part of an obsessive–compulsive disorder (OCD). She had been treated with antidepressant and anxiolytic drugs without clear improvement. She admitted to smoking marijuana daily for at least 5 years, while she denied the use of any other illicit substances. The patient was admitted for evaluation and was administered acid-suppressive medications, antiemetics, rehydration, and topical treatment.

The patient's laboratory data at admission were normal, except for hypokalemia and a positive urinary drug screen for cannabis, while the physical examination yielded no additional information. During the length of the patient's hospital admission, she continued to take hot showers numerous times each day.

Taking into account the patient's clinical presentation and her history of regular cannabis use, she was diagnosed with CHS. The patient was informed of the diagnosis, and of the need to cease her marijuana use. On further questioning, the patient confirmed persistent, daily marijuana use over the past 5 years. Following liaison with her psychiatrist, she was referred to a drug treatment center to address her cannabis use disorder, while her OCD diagnosis was withdrawn and her medication modified. Six months later, she had succeeded in giving up cannabis use entirely, she had not suffered any further episodes of nausea or vomiting, and she showered once daily with mild warm water.

Discussion

CHS is characterized by chronic cannabis use, cyclic vomiting, and compulsive bathing behavior and was first described by Allen and colleagues in 2004 [3]. In 2011, a review of 31 previously reported cases of CHS was published.

Cannabis is one of the most commonly used illicit drugs worldwide. However, the exact prevalence of CHS is currently unknown, largely due to the fact that it is often overlooked by clinicians. Prior to diagnosis, patients often have a history of frequent visits to healthcare services; if left undiagnosed, CHS can lead an overuse of medical resources and a decrease in quality of life. Based on previously published case reports, some authors have listed a series of clinical characteristics to assist in the diagnosis of CHS [4].

The pathophysiological mechanism by which the use of cannabis may lead to cyclic vomiting, in association with compulsive warm bathing, remains poorly understood. The endogenous cannabinoid receptors CB-1, which have a neuromodulatory role in

the central nervous system and enteric plexus[5] and which are likely responsible for the antiemetic effects of cannabinoids [6,7], have been implicated. It has been hypothesized that chronic stimulation of these receptors may produce a paradoxical emetic response in susceptible individuals. In addition, cannabinoids have been shown to slow gastrointestinal motility in a dose-dependent manner, which could also cause symptoms of vomiting and nausea [8].

On the other hand, compulsive hot bathing may relieve persistent vomiting through either the brain response to changes in the core body temperature, caused by the hypothermic effects of cannabinoids, or by activating the CB-1 receptors in the hypothalamus, which are responsible for the regulation of body temperature [9]. Alternatively, it is well known that when cannabinoid receptors in the splanchnic circulation are activated they cause vasodilatation. CB-1 receptor-mediated vasodilatation of the gut induced by chronic cannabis use may produce the symptoms described. A redistribution of blood flow from the splanchnic circulation to peripheral muscle tissue has been demonstrated during exercise; thus, the temporary relief of symptoms during bathing with hot water may be related to the redistribution of blood flow from the gut to the skin. Although these are all plausible explanations, they remain tentative and need to be tested experimentally.

To sum up, we encourage physicians to be mindful of this clinical syndrome when assessing patients presenting with symptoms similar to the ones illustrated here. Future research is warranted in order to improve understanding of the pathophysiology of the condition and to promote early diagnosis of the syndrome.

Conflict of interest

The authors declare no conflict of interest.

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