Cannabis and hyperemesis

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Ir J Psych Med 2010; 27(1): 47-48

Abstract

The adverse effects of marijuana are well documented, as well as its positive therapeutic uses.[1] Cannabis has traditionally been associated with an antiemetic action following acute ingestion and synthetic cannabinoids have an established use as antiemetics for chemotherapy induced nausea.[2] However, there has been limited recognition of chronic cannabis use as a cause of cyclical vomiting syndrome. Cannabinoid hyperemesis was first identified by Allen *et al* in 2004.[3] Compulsive bathing was also described as part of the clinical picture. This same syndrome has been confirmed a number of times[4-6] in the medical literature in the interim. The condition has, to our knowledge, never been reported, in a psychiatric patient.

Case report

A single unemployed 19 year old woman presented for psychiatric assessment of intractable vomiting, thought by the referring medical team to be psychogenic in origin.

There was no personal or family history of psychiatric or medical disorders. She reported having a good relationship with her family and partner with whom she had a one year old child. She lived with her parents.

She had a four year history of cyclical vomiting symptoms necessitating approximately 30 admissions to general hospitals. A typical episode involved sudden onset of vomiting without warning, usually beginning in the early morning. The patient would vomit up to 30 times per day, each episode lasting approximately eight days. Vomiting was intractable and unresponsive to regular anti-emetics or fluid rehydration.

Between episodes of vomiting (up to two months) she was completely well. During her admissions to hospital she had been extensively investigated for the source of her vomiting, including imaging of the brain and abdomen, endoscopy and routine laboratory tests.

The vomiting episodes caused her significant physical and psychological distress. She had given up her full-time job as a result of her condition, rarely socialised and had stopped drinking alcohol. There appeared to be no secondary gain from her symptoms and she complained of low mood and anxiety as a result of condition. When no cause for her hyperemesis could be identified, the patient had been referred by her medical team to the local psychiatric service initially. She had been diagnosed with depression, anxiety and psychogenic vomiting. Trials of fluoxetine, alprazolam and psychotherapy had been unsuccessful. Her medical team then referred her to our service for a second psychiatric opinion and queried a diagnosis of obsessive compulsive disorder.

Following admission she continued to have episodes of vomiting. She was commenced on mirtazapine for its antidepressant and anti-nausea effects and underwent a psychological assessment which did not identify any clear underlying psychological cause.

During her admission she was noted by staff to bathe frequently, taking up to six protracted showers per day. She denied any obsessive thoughts of contamination. She displayed no other ritualistic behaviour. She did not meet diagnostic criteria for OCD, depression or anxiety. She seemed to fit the ICD-10 diagnostic criteria for undifferentiated somatoform disorder.

On questioning she reported that the hot water relieved her symptoms of nausea and vomiting. This effect persisted while her temperature remained high but was lost after cooling. Bathing in cool water provided no relief. She also used a hairdryer to heat herself though this was not applied directly to the abdomen.

She reported that she had been using these methods of self heating for the last three years. Excessive thirst and polydipsia was also evident during episodes.

The patient was diagnosed with cyclical vomiting syndrome. We then performed a literature review on cyclical vomiting which resulted in the identification of a small number of cases of cannabis induced cyclical vomiting with features of compulsive bathing.[5-8]

On admission to hospital our patient had admitted to 'occasional' cannabis use. Her urine drug screen had tested positive for cannabis on week two of her admission.

When questioned further about her cannabis use she admitted to heavy use of marijuana for the last four years, smoking up to 12 cannabis cigarettes per week. She did not associate this with the onset of her vomiting illness and reported that she had been using cannabis for six months prior to its onset. It also emerged that her vomiting illness had resolved during her pregnancy when she had been abstinent from cannabis.

It was suggested to the patient that cannabis could be the cause of her vomiting and that she abstain from cannabis use. Her urine cannabis screen remained positive at weeks four and six of her admission. Vomiting finally resolved on the seventh week of admission and urine test was negative for the first time on that week.

All psychotropic medication was discontinued and she was

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SUBMITTED: DECEMBER 9, 2008. ACCEPTED: JANUARY 23, 2009.

discharged well . She continues in her efforts to abstain from cannabis use.

Discussion

This patient clearly met the criteria for a diagnosis of cyclical vomiting syndrome (CVS), a disorder characterised by recurrent episodes of high intensity nausea and vomiting interspersed with periods of good health.[7] Its diagnosis requires that other medical causes of recurrent vomiting be excluded. It has been noted that some patients suffering from CVS bathe in hot water during periods of vomiting and often drink excessive volumes of water.[3-6,8] Episodes are usually stereotyped with onset of vomiting often occurring in the early morning. No one pathogenic mechanism has yet been identified though it has been noted that patients with CVS have evidence of gastric dysmotility and endocrine dysfunction. Many aetiologies for CVS have been proposed, one of which is chronic cannabis usage.

As mentioned above, cannabis has traditionally been associated with an antiemetic action.[2] This anti-emetic action is thought to be mediated via cannabinoid (CB1) receptors in the gastrointestinal tract and the brain.[9]

However, in the case of cannabis induced cyclical vomiting, chronic use can induce hyperemesis. There are a number of hypotheses for this paradoxical effect. Firstly, cannabis is lipophilic and binds to cerebral fat. It is thus cleared slowly and chronic use can lead to accumulation and toxicity. Also, cannabinoid compounds have a biphasic effect. Cannabidiol has been found to suppress emesis at lower doses and enhance it at higher doses.[10] Marijuana is also known to delay gastric emptying in animal and human subjects which may contribute to its emetogenic properties.[11]

Cannabis causes a variety of autonomic and endocrine responses, thought to be effected at a hypothalamic level, including polydipsia, polyphagia and alteration of multiple hormone systems.[3,12] In particular, cannabinoid agonists are known to cause hypothermia in a dose dependent manner, acting centrally via the CB1 receptor.[13] The relationship between hypothermia and hyperemesis, however has not been established. It would appear that increasing body temperature in patients suffering from cannabinoid hyperemesis temporarily terminates vomiting.

Conclusion

This case presented some important issues for consideration. Firstly, it should be noted that patients with cyclical vomiting and compulsive bathing are often referred to psychiatrists as a 'last resort' when all medical causes of vomiting have been apparently excluded and all treatment options exhausted. Because of the lack of awareness of the condition among psychiatrists, patients may be misdiagnosed as cases of 'psychogenic vomiting' or even obsessive-compulsive disorder with the chances of the correct medical diagnosis receding as the problem is redefined as psychological.

This case history suggests that lengthy and costly investigations, as well as years of suffering could be avoided by the specific pursuit of a history of substance misuse where unexplained vomiting occurs in association with compulsive bathing.

Secondly, diagnosis of cyclical vomiting is a challenge. Vomiting episodes do not coincide with the introduction of cannabis but often present a few weeks or months into chronic usage. Thus the triggering event is often missed. For this reason our patient continued to use marijuana throughout her illness and in fact rationalised that it was helping to alleviate her vomiting. Diagnosis is also confounded by patient reluctance to admit to marijuana use or its extent. Our patient only disclosed the extent of her addiction when the hope of a cure from her vomiting was offered.

A history of cannabis use must therefore be specifically and repeatedly pursued in these patients. Abstinence has been shown in this and other cases to resolve the problem[5-8] and its considerable associated morbidity though addiction counselling and support may be required to achieve this.

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https://doi.org/10.1017/S0790966700000938 Published online by Cambridge University Press