THE NORTHERN HOSPITAL

CANNABIS HYPEREMESIS SYNDROME

"The Hashish Eater", (artist unknown)

On the 143rd night, Shahrazad continued....

I have heard oh fortunate King, that the man sat by the fountain and kept on pouring water over his head until he grew tired. He then went to the cold-water room, where he found himself alone with no companions. Taking out a piece of hashish, he swallowed it, and as the drug went to his head he toppled over onto the marble floor. The hashish led him to imagine that a high functionary was massaging him, while two slaves stood at his head, one with a bowl, and the other with the utensils needed for washing in the baths. When he saw that, he said to himself, "Either these people have mistaken who I am or else they are hashish eaters like me". He stretched out his legs and in his delusion he thought that the bath man said to him, "It's time for you to go up, for you are on duty today". "Well done, hashish", he said to himself, laughing, and he sat there in silence.

The bath man got up, took him by the hand and wrapped a band of black silk around his waist. The two slaves walked behind him with the bowl and utensils until they brought him to a private room, where they released perfumes into the air. He found the room full of fruits and scented flowers. The servants sliced a melon for him and sat him in an ebony chair, while the bath man stood washing him as the servants poured out the water. They

rubbed him down expertly, saying "Our Lord and master, may you enjoy constant happiness". They then went out, closing the door on him, and when he imagined that, he got up, removed the band from his waist and started to laugh until he almost lost consciousness. He went on laughing for a while and then said to himself; "I wonder why they were addressing me as though I were a Vizier, calling me Lord and Master". It may be that they have got things wrong for a moment but afterwards they will recognize who I am and say; "This is a good-for-nothing and beat me on the neck to their heart's content".

Finding the room too hot, he opened the door and, in his dream, he saw a small mamluk and a eunuch coming in. The mamluk had with him a package which he opened and out of which he took three silk towels, placing one on the man's head, the second over his shoulders and the third round his waist. The eunuch gave him clogs, which he put on and then other mamluks and eunuchs came up to him and supported him as he left the room, laughing, and went to the hall, which was sumptuously furnished in a way suitable only for kings. Servants hurried up to him and sat him on a dais, where they started to massage him and he fell asleep. In his sleep, he dreamt that there was a girl on his lap. He kissed her and placed her between his thighs, sitting with her as a man does with a woman. Taking his member in his hand and drawing the girl to him, he pressed her beneath him.

At that point, someone called out, "Wake up you good-for-nothing! Its noon and you're still asleep". He opened his eyes and found himself in the cold-water room surrounded by a crowd of people who were laughing at him. He had an erection and the towel had slipped from his waist. He realized, to his sorrow, that all this had been a drug induced fantasy, and turning to the man, who had woken him, he said, "You could have at least waited until I had her!" "Aren't you ashamed, hashish eater!", the people said, "to sleep with your member erect?". Then they slapped him until the back of his neck was red. He was hungry but in his dream he had tasted happiness.

Night 143 in
"The Arabian Nights",
(or "Tales of the Thousand and One Nights")
c. Ninth - Tenth Century A.D

The inconvenient and sometimes embarrassing consequences of acute cannabis use have been well documented, even as early as the Ninth Century A.D! What is much less well documented however is the inconvenient and sometimes embarrassing consequences of chronic cannabis use. It is only in relatively recent times that we now recognize the previously obscure, "cannabis hyperemesis syndrome".

CANNABIS HYPEREMESIS SYNDROME

Introduction

Cannabis Hyperemesis Syndrome is an under recognized syndrome of recurrent nausea, vomiting and abdominal pain associated with the **chronic use of cannabis.**

This clinical manifestation is paradoxical to the supposed "therapeutic" role of cannabinoids as antiemetics.

The diagnosis is often not suspected, and to make it *specific questioning* for chronic cannabis abuse is required.

The disorder is an important differential diagnosis for unexplained vomiting, particularly in communities relatively tolerant of cannabis use.

Treatment initially involves symptomatic relief and correction of secondary complications, but ultimate cure will depend upon **cessation** of cannabis use.

Pathophysiology

Research into the neurobiology of the cannabinoids has led to the discovery of an endogenous "cannabinoid system".

The first of the cannabinoid receptors - **CB-1**- was identified in 1990 and this finding revolutionized the study of cannabinoid biology. Since then, a multitude of roles for the endogenous cannabinoid system has been proposed.

A large number of endogenous cannabinoid neurotransmitters or endocannabinoids have been identified, and CB-1 and CB-2 cannabinoid receptors have so far been characterized.

The CB-1 receptors exert a neuromodulatory role in the central nervous system and enteric plexus.

Cannabinoid type 2 receptors have an immunomodulatory effect and are located on tissues such as microglia.

Cannabinoids have a long half-life. They are extremely lipophilic and bind to cerebral fat.

Regular use is cumulative and this might give rise to toxicity in the sensitive patient. Cannabis additionally is known to delay gastric emptying. The exact mechanism of nausea and vomiting induced by chronic cannabis abuse however is ultimately unknown.

Complications

These will primarily relate to protracted vomiting and may include:

1. Dehydration
2. Electrolyte disturbances
3. Mallory - Weiss tears
4. Poor nutrition
5. Oesophagitis/ gastritis

Clinical features

Clinical diagnosis of cannabinoid hyperemesis involves:

1. Essential for diagnosis:
    - History of regular cannabis usually for years, but in a significant number of cases use may be less than one year. [6]
2. Major clinical features of syndrome:
    - Severe nausea and vomiting
    - Vomiting that recurs in a **cyclic pattern** every few weeks to months.
    - Resolution of symptoms after stopping cannabis use
3. Supportive features:
    - Colicky abdominal pain
    - No evidence of alternative diagnosis, such as gall bladder or pancreatic disease.
    - Compulsive hot baths with symptom relief:
        - ♥ The compulsion to have multiple hot showers or baths is not part of a psychosis or an obsessive-compulsive disorder.
        - ♥ It appears to be a learned behaviour which often does not present with the first few episodes of illness, but once established rapidly became a frequent strategy to control nausea.

Patients that experience nausea and vomiting may aggravate the condition by actually increasing cannabis use in the belief that this will control the symptoms, thus establishing a “viscous circle”.

Natural History:

The natural evolution of cannabis hyperemesis syndrome may be divided into three as follows: [8]

Prodromal phase:

- Manifests as nausea, fear of vomiting and abdominal pains.

Vomiting phase:

- Manifests as persistent nausea and vomiting.

  Vomiting can be very protracted occurring up to five times an hour.

  Patients often attend emergency departments at this stage for symptom relief.

Recovery phase:

- Vomiting is ultimately relieved when cannabis use ceases.

  Symptoms decrease then generally stop within a week of cessation.

  Symptoms recur if cannabis use then recommences.

Differential diagnoses:

Cyclical vomiting syndromes fall into two distinct categories: those with a physical basis and those of unknown aetiology.

Hyperemesis gravidarum and some variants of porphyria as well as Addison's disease are typical examples of cases that have a physical basis.

Paediatric cyclical vomiting syndrome and psychogenic vomiting syndrome essentially have unknown aetiologies.

The critical distinguishing feature for cannabis hyperemesis syndrome will of course will be the history of chronic cannabis use.

Investigations

The diagnosis of cannabis hyperemesis syndrome is ultimately a clinical one.

Investigations therefore are directed at excluding possible alternative diagnoses and/ or secondary complications.

The following may be considered:

Blood tests:

1. FBE
2. CRP
3. U&Es/ glucose
4. LFTs
5. Calcium phosphate
6. Lipase
7. **Beta HCG** is important in women of child bearing age.
8. ABGs/ VBGs:
    - A metabolic alkalosis may be seen
    - In very severe cases, there may be a lactic acidosis when the patient is significantly dehydrated.

Plain radiology:

May be considered to rule out a mechanical bowel obstruction

Urine Drug Screen:

Urine drug screen for tetrahydrocannabinol (THC) that is positive can assist in making the diagnosis, but cannot definitely establish it.

A spot blood level of **11-carboxy-THC** > **40 micrograms/ liter** indicates **chronic use.** [7]

Urine screening tests may be positive for **1-3 days** after acute use, or **10 days - 4 weeks** after chronic use. [7]

Urine drug screen for tetrahydrocannabinol (THC) that is negative on urine drug screen can confirm recent cessation of use.

Management

1. Fluids:
    - IV fluid resuscitation, as clinically indicated.
    - The condition usually improves following a 24 - 48 hour intravenous fluid replacement regimen.

2. Correction of electrolyte disturbances:

   Primarily:

   - Hypokalemia
   - Hypomagnesaemia
   - Hypoglycaemia

3. Antiemetics:

   Traditional antiemetics have only limited effect, but options include:

   - Metoclopramide
   - Prochlorperazine
   - Ondansetron / Granisetron

   Droperidol in *intractabl*e cases is often more helpful:

   - Droperidol is often given intravenously in small doses (**0.625 mg or ¼ of the 2.5 mg per 1 ml ampoule**) at the end of anaesthesia to prevent vomiting.
   - It can also be used more generally as an anti-emetic for intractable vomiting:

     ♥ **0.625 mg (or ¼ of the 2.5 mg per 1 ml ampoule) - 1.25 mg IV.**

     It is **more effective** than metoclopramide or prochlorperazine, but may have a higher incidence of dystonic side effects. [9]

4. Proton pump inhibitor:

   - Some researchers report a high frequency of gastritis and oesophagitis in patients with cannabis hyperemesis syndrome and so recommend administering a proton. [5]

     Initial IV dosing may be given, followed by a short period of oral therapy when vomiting settles.

5. **Hot showers:**

   - These typically provide some symptomatic relief from nausea, though why this is so is unknown.

6. Benzodiazepines:

   - Short term benzodiazepines, (used for a maximum of two weeks at the time of initial presentation), may be required to treat any cannabis psychological and/ or physical withdrawal symptoms.

7. **Abstinence:**

   - Ultimately, cure will depend on complete cessation of cannabis use.

   - A return to regular cannabis use heralds a return of the hyperemesis weeks or months later.

8. Counselling:

   - Some patients readily accept the diagnosis, though others may not do so and may require specialist counseling.

Disposition:

Uncomplicated cases can usually be managed in a Short Stay Unit (or similar).

Referral to a Drug & Alcohol councillor

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Dr J. Hayes
Reviewed March 2019.