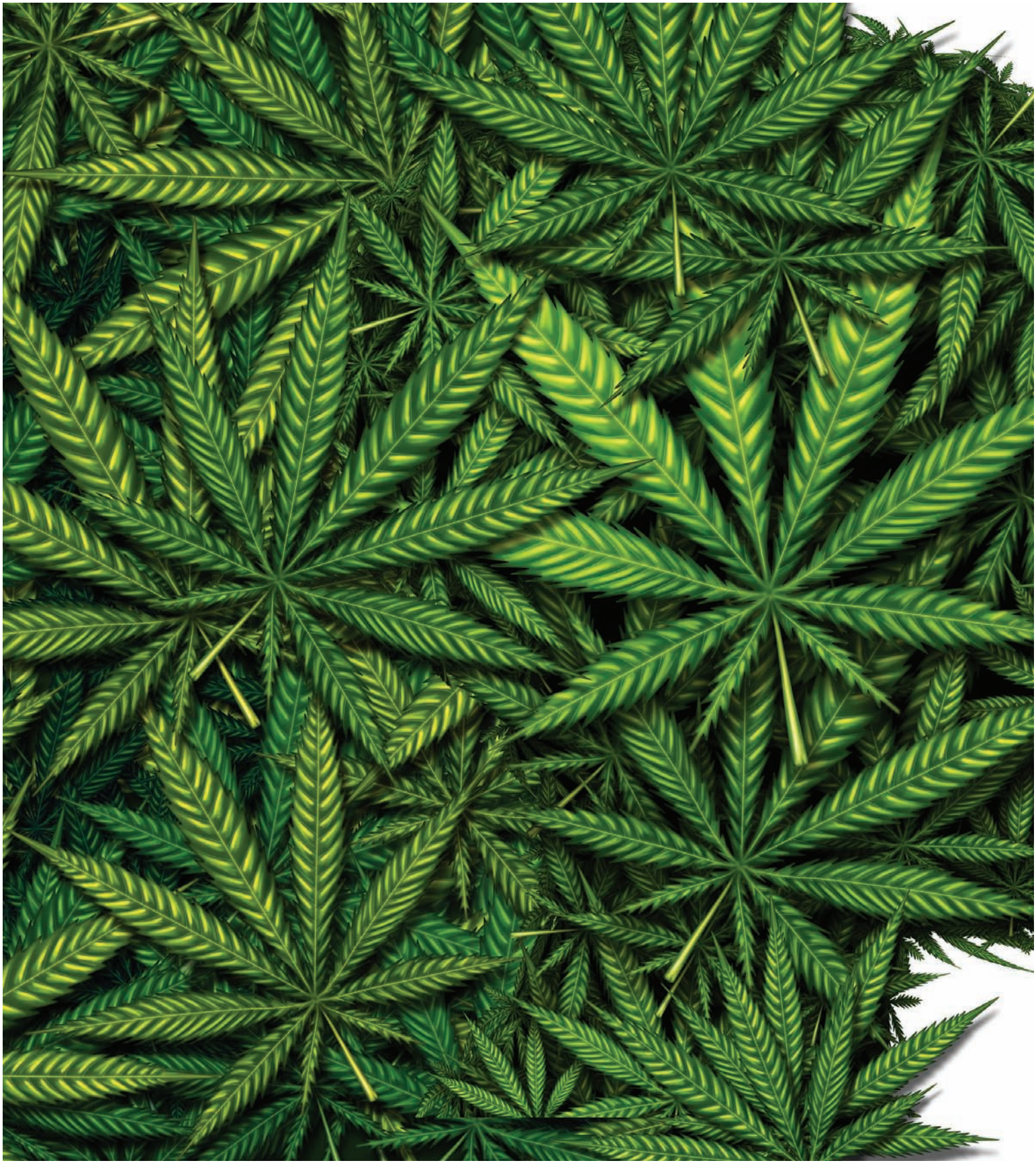

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The emergence of cannabinoid hyperemesis syndrome

Get up-to-date information on this condition, which is increasingly being identified with the legalization of medical and recreational marijuana use.

By Meredith Scannell, PhD, MPH, MSN, RN, CEN, CNM, SANE-A

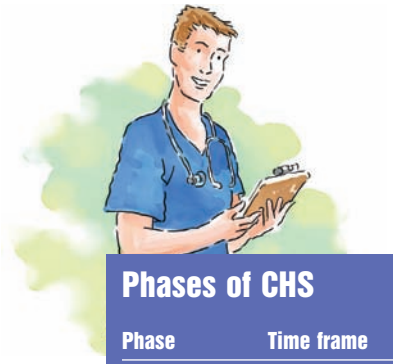
Cannabinoid hyperemesis syndrome (CHS), characterized by severe abdominal pain and significant cyclical nausea and vomiting, is an emerging condition that's often not diagnosed properly due to lack of knowledge and the underreporting of cannabis use by patients. Proper diagnosis and assessment of CHS can lead to quicker diagnosis and treatment, as well as decrease unnecessary, costly testing and procedures. This article provides the latest information on CHS, including nursing implications and future considerations.

Background

Cannabis, or marijuana, use is increasing since the passing of laws allowing medical marijuana use in some states and legalizing recreational use of marijuana in others. The latest data from the 2018 National Survey on Drug Use and Health (NSDUH) indicate that 43.5 million people age 12 and older use cannabis. Marijuana use disorder (MUD) is defined as significant impairment caused by the recurrent use of marijuana, including health problems; persistent or increasing use; and failure to meet major responsibilities of work, school, or home. The NSDUH reports that 4.4 million people age 12 and older experience MUD.

Over the years, there's been increasing use of marijuana for the treatment of various health conditions and a growing body of research demonstrating the health benefits. Several studies have shown statistical improvements in pain relief, a decrease in muscle spasticity and stiffness, inhibition of the rapid growth of some cancerous cells, and reduction of neuronal hyperactivity in patients with epilepsy. Although the medical use of marijuana does alleviate many medical conditions, one serious complication of repeated and chronic marijuana use is CHS, with cases being seen more frequently in EDs, especially in states where patients have access to medical marijuana or where there's decriminalization of recreational marijuana use.

To date, there are no clear criteria for the diagnosis of CHS, but it's often made when patients report chronic marijuana use of more than 1 year, symptoms of cyclic vomiting for months that resolve when stopping marijuana use, abdominal pain, and compulsion to take hot showers



Phases of CHS

cheat sheet

Phase	Time frame	Characteristics
Prodromal	Months	• Frequent marijuana use • Normal eating patterns • Early morning nausea • Abdominal discomfort
Hyperemetic	24 hours or less	• Intense and persistent nausea and vomiting that's often debilitating • Unable to tolerate foods/fluids, leading to weight loss and dehydration • Frequent and often severe abdominal pain • Frequent hot showers or baths to relieve pain
Recovery	Days to months	• Return to health after cessation of marijuana use, including regaining weight and resuming normal eating patterns

and baths. Other supportive criteria considered for a diagnosis include normal bowel function, weight loss of greater than 5 kg (11 lb), symptoms occurring mostly in the morning, and a negative lab workup.

The actual pathophysiology of CHS is unclear. One hypothesis suggests a genetic disposition to CHS, whereas another hypothesis suggests a dysregulation of endogenous cannabinoid receptors (CB-1 and CB-2) located in the gastrointestinal tract. With little current research, there's no consensus on the diagnosis and treatment of this condition. In addition, there's a lack of general knowledge about CHS and underdiagnosis remains a significant issue, leading to unnecessary testing and procedures that increase healthcare expenditure.

Clinical manifestations

CHS can be divided into three phases: prodromal, hyperemetic, and recovery.

During the prodromal phase, frequent marijuana use occurs with mild symptoms of morning nausea that don't typically interfere with eating patterns. This phase can last for months, with the patient continuing use of marijuana.

In the hypermetric phase, the most severe symptoms occur, which often prompts the patient to seek medical attention. During this phase, the main features of intractable and debilitating nausea, vomiting, and abdominal pain are seen. Typically located in the epigastric and periumbilical regions, abdominal pain may be severe, with the patient guarding the abdomen and describing the pain as burning, cramping, and sharp. In this phase, patients have a significant change in eating patterns and will often lose weight and become dehydrated.

The recovery phase, which can take days to months, occurs after treatment and cessation of marijuana use.

A common home remedy for CHS is taking frequent hot showers and baths to relieve pain, and patients may become compulsive with this practice, sometimes taking up to 15 hot showers or baths a day. Overuse of hot showers and baths can cause skin problems and even thermal burns to the skin if the water is too hot.

Potential complications

Complications of CHS include esophagitis, gastritis, dehydration, electrolyte imbalances, and weight loss as a result of persistent and untreated nausea and vomiting.

Diagnosis may be complicated in cases in which marijuana is obtained from illegal sources or sources with minimal regulations. Farmers who grow cannabis may use pesticides that aren't well regulated. In addition, there's scarce information on the health effects of residual pesticides. Patients may be experiencing acute symptoms attributed to other causes, or those using marijuana regularly for medical purposes may have additional conditions that may make them vulnerable to the effects of pesticides.

Another area of concern is the increase in marijuana users who are mixing substances to achieve additional effects, such

consider this

A 24-year-old male patient enters the ED with severe nausea, vomiting, and abdominal pain, unable to eat or tolerate many foods or fluids for days. He tells you he didn't want to come to the hospital but is now at the point that he's dizzy all the time and fainted this morning when he came out of the shower. As you utilize the nursing process and start to gather information, you learn that the onset of symptoms has been worsening over the past month; the location of the abdominal pain is diffuse through the abdomen, described as cramping and sharp at times, and worsens as the day progresses; pain is relieved by hot showers and a heating pad; the patient hasn't taken any medications for symptoms; and this is his first time being seen by a healthcare provider for the problem. You also learn that the patient has been a daily marijuana user for several years and has received medical care for stress-related issues. He also tells you that the symptoms are causing him significant stress, leading him to call in sick from work and use marijuana more frequently to alleviate the stress.

This case represents several hurdles for healthcare providers: One, the patient's condition may be serious due to dehydration, which will need to be treated first. Second, the patient has a classical presentation of CHS and having a conversation with him about marijuana use may be difficult. If the patient has been habitually using marijuana and is now told he's getting sick from it, he may doubt the diagnosis, which may lead to nonadherence with care. Lastly, even if the patient follows the recommended treatment for CHS—avoiding marijuana use—his underlying reason for using marijuana needs to be addressed. In this case, the patient uses marijuana for stress-related issues. Stress-relieving modalities should be a part of this patient's treatment plan. This may take additional interviewing to determine what the patient has tried in the past and if he's open to other treatments.

as in a practice known as "wet" or "fry" where marijuana is mixed with additional substances like formaldehyde or phencyclidine. When evaluating a patient with CHS symptoms, it's important to consider these aspects, which can impact a preexisting medical condition and make diagnosis difficult.

Treatment

The most effective treatment for CHS is the abstinence of marijuana use. Most patients have resolution of symptoms after the cessation of using marijuana. In one systematic review, it was found that up to 98% of patients with CHS were symptom-free after avoiding marijuana use.

One treatment is the application of topical 0.075% capsaicin cream directly to the abdomen up to four times daily. The cream can also be applied to areas of the body that were relieved by hot showers or baths such as on the arms. Capsaicin is derived from chili pepper plants and may cause tingling, warmth, heat, and altered sensations to the skin. Capsaicin isn't water-soluble and topical preparations are made from alcohol or a mineral oil base. Low-dose topical capsaicin can be found over-the-counter in concentration doses ranging from 0.025% to 0.1%; higher concentration doses up to 8% are prescription strength.

In the acute phase, patients may require antiemetics, such as ondansetron, promethazine, or metoclopramide. Depending on symptom severity, patients may also require supportive management with I.V. fluids, electrolyte replacement, and correction of hypoglycemia.

Another treatment used for CHS is haloperidol. Although there's limited information on the efficacy of haloperidol in the treatment of CHS, case studies demonstrate the effectiveness of I.V. haloperidol after other failed treatments, decreasing unnecessary testing and length of stay in the ED.

Nursing considerations

One of the biggest nursing considerations is the early identification of CHS as a differential diagnosis in patients who present with unexplained abdominal pain, nausea, and vomiting. A toxicology test should be performed even if the patient denies substance use; however, results should be interpreted with caution because some synthetic forms of cannabis may not register. For patients who deny marijuana

use but report repeated hot showers, this should be a red flag for CHS.

Patients who use marijuana may do so for several reasons, some for recreational use and others to treat a medical condition such as an appetite stimulant or an antiemetic for cancer patients undergoing chemotherapy treatment. Consider the underlying reason for marijuana use; patients who are using marijuana for a medical condition will need alternative treatments.

Some patients may have a dependency on marijuana, especially those who report chronic use. Behavioral treatment therapies may be necessary to help patients with MUD. In addition, all patients, especially those with MUD, should have a mental health assessment to determine if other psychiatric disorders may be present. Research has shown that psychiatric disorders can co-occur in individuals with substance use disorders—both health issues need to be addressed for successful cessation of substance use.

Patient education

Nurses need to educate patients about CHS and the necessity of abstinence from marijuana use. The paradoxical nausea and vomiting experienced by patients with CHS can cause disbelief in those who believe that marijuana use alleviates nausea and vomiting. Patients should also be instructed on the use of topical capsaicin cream. Teach patients to use gloves when applying the cream and wash their hands after use. Tell them to avoid areas that can be sensitive to capsaicin, such as the eyes, face, nipples, and any breaks in the skin (see *Patient teaching: Capsaicin cream*).

Other patient teaching considerations, especially for young adults with CHS, is the genuine concern of marijuana use leading to other substance use. Studies have shown that 44.7% of individuals who've used marijuana in their lifetimes will also use illicit substances. In addition, patients with CHS who must cease marijuana use may look to other substances for relief. Nurses are in a key position to educate patients on the dangers of marijuana use as a gateway drug and provide information about local support resources.

Be aware

It's predicted that the rates of CHS will increase as marijuana use rises with more states legalizing medical and recreational marijuana. Healthcare professionals need to be aware of the signs and symptoms of CHS to better diagnosis and treat this condition. ■

Patient teaching: Capsaicin cream

- Apply a thin film of capsaicin cream to the affected area and rub it in until fully absorbed.
- Don't use if you're allergic to capsicum or chili peppers.
- Don't use on broken skin.
- Latex gloves may not provide adequate protection; use nonlatex gloves to apply the capsaicin cream to the affected area or when removing it.
- If using bare hands to apply capsaicin cream, wash your hands thoroughly after use.
- Avoid using direct heat to the area where the capsaicin cream has been applied; the area may be sensitive for several days.
- Avoid using near mucous membranes such as the mouth.
- Avoid using near the eyes.
- If applied to an unintended site or a reaction occurs, gently wipe off with cleansing gel and wash the area for 1 minute.

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