



Cyclic Vomiting Syndrome

What is cyclic vomiting syndrome?

Cyclic vomiting syndrome (CVS) is a functional gastrointestinal disorder (FGID). These disorders occur when there is no structural abnormality but rather a problem in signaling between the brain and gastrointestinal (GI) tract. This miscommunication can cause various GI-related symptoms.

CVS is sudden, repeated attacks (often called episodes) of severe nausea and vomiting. CVS has a very specific pattern of vomiting, with three main features: sudden onset (called paroxysmal), similar episodes (called stereotypical), and intervening periods of wellness (no symptoms in between episodes).

What causes CVS?

The definite cause of CVS is unknown, and there are usually multiple reasons why CVS develops. Patients with CVS may have a history of migraine headaches, and many have a family history of migraines.

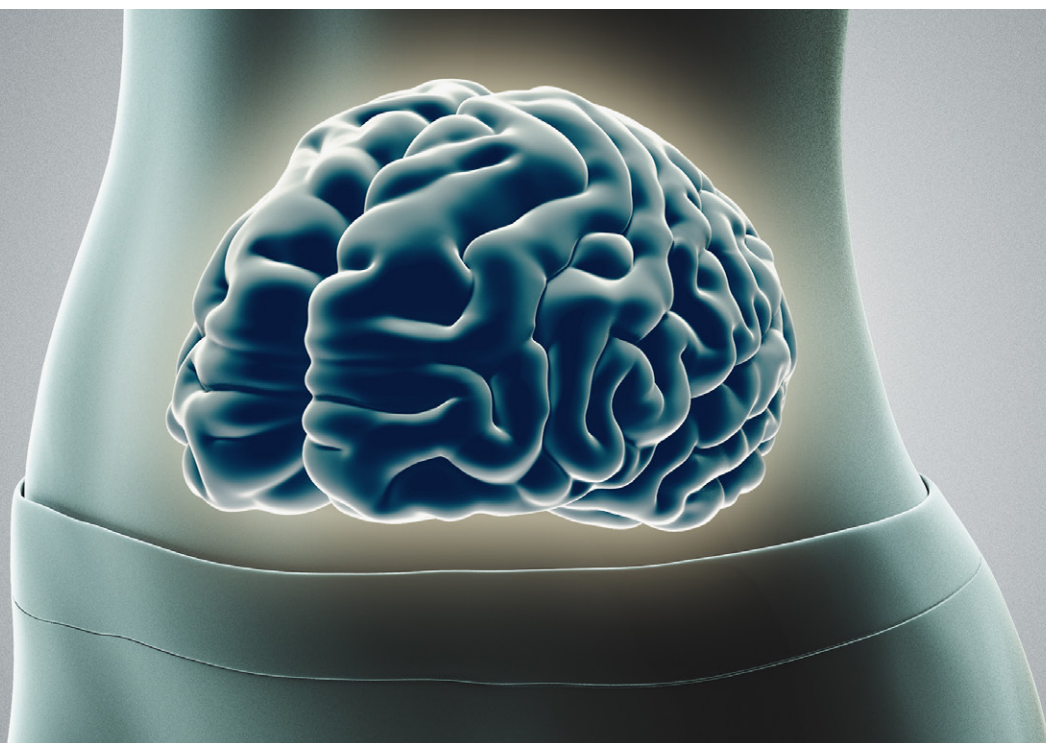
Antimigraine treatments can be effective to prevent CVS attacks. Therefore, doctors believe that many cases of CVS are “migraines affecting the gut” that cause vomiting.

Importantly, while CVS can often be diagnosed on the basis of medical or family history, other causes of vomiting (such as gallstones and kidney stones) should be excluded before making a CVS diagnosis.

In some patients, CVS episodes may be triggered by either physical or psychological stress. Physical stresses that can trigger episodes include infections (such as colds and viruses), menstrual periods, motion sickness, and poor sleep/fatigue. Psychological factors can also trigger CVS episodes.

Some patients have episodes triggered by positive stressors, such as holidays. Negative stressors such as friendship conflicts or school tests may also trigger episodes. It is important to note that stress does not cause the illness but can trigger symptoms and make them worse. Therefore, treatment to promote relaxation, such as counseling, yoga, acupuncture, and guided imagery, may help.

It is not clear what role diet plays in CVS, although certain foods may trigger an episode for some patients, similar to patients with migraine headaches. While each patient is different, certain foods, such as chocolate,



caffeine, smoked cheese, and legumes, may contribute to migraine headaches and possibly to CVS symptoms.

CVS also has been described as a complication of cannabis (marijuana) abuse. This form of cyclical vomiting in marijuana smokers is called “cannabinoid hyperemesis”.

How common is CVS?

About 3 in every 100,000 children are thought to have CVS. While it can occur in adulthood, it is more common in childhood. The average age of onset occurs between 3 and 7 years, although it can occur at any age.

What are the signs and symptoms of CVS?

Patients with CVS have vomiting episodes that occur in a cyclical pattern, such as every two weeks or every two months. The vomiting often comes suddenly. Most patients with CVS feel well until they get a sudden attack of nausea, followed by vomiting.

Nausea and vomiting often start in the evening and can wake the patient from sleep. However, each patient with CVS is different, and nausea and vomiting may occur during the day as well.

Vomiting episodes are usually similar, with each vomiting episode resembling past episodes. Attacks often last 8–24 hours, although some patients have attacks as short as 1–2 hours or lasting for several days. Vomiting usually occurs multiple times per hour.

Other symptoms can include nausea, severe stomach pain, diarrhea, headache, lack of appetite, light sensitivity, and low fever. Patients can become disoriented, irritable, and turn pale and clammy during an attack. Some patients vomit until they dry heave and become dehydrated.

Episodes often go away without any obvious intervention or explanation. However, in some cases, patients need to be managed in the hospital with anti-nausea medications or intravenous fluids for dehydration. Cyclical vomiting episodes are often misdiagnosed as viral gastroenteritis, or “stomach bug” for the first few episodes.

Patients with CVS have periods of intervening wellness—in between attacks, they feel completely

normal without any symptoms. Usually this occurs within a few hours after an attack, or when they awake from sleep after an episode. Patients can experience a period of wellness for weeks to months (1–3 months on average). Some patients have more frequent episodes that occur every 1–3 weeks, while others may have rare episodes that occur every 6–12 months.

When should I seek medical attention for my child?

You and your child’s healthcare provider should discuss what signs or symptoms require medical attention. In general, you should contact your medical provider/gastroenterologist or go to the nearest emergency department if your child experiences any of the following symptoms:

- Signs of dehydration (such as decreased urination, severe diarrhea, crying with no tears being produced, inability to keep any fluids down without vomiting)
- Vomiting blood
- Fever higher than 101°F
- Vomiting that lasts longer than usual episode or does not respond to prescribed medications

How is CVS diagnosed?

Your healthcare provider will take a very detailed medical and family history, which is often highly suggestive of CVS in patients with the disorder. CVS is diagnosed if all the following criteria are met:

- Two or more periods of intense, unremitting nausea and sudden onset vomiting, lasting hours to days within a 6-month period
- Episodes are similar each time
- Episodes are separated by weeks to months with return to normal health between episodes
- After appropriate evaluation, symptoms cannot be attributed to another medical condition

While a medical history is the most helpful way to diagnose CVS, vomiting can be caused by many different diseases. Therefore, your medical provider may

order tests to rule out other causes of vomiting, such as a structural abnormality in the GI tract. In very rare cases, brain tumors or metabolic disorders can cause recurrent vomiting.

Testing may include one or more of the following:

- Blood and urine tests to look for infection, inflammation, or metabolic enzyme problems
- X-ray of the upper GI tract with contrast dye to test for a structural problem
- Abdominal ultrasound to evaluate organs inside the abdomen
- CT or MRI of the head to look for any abnormalities/lesions
- Gastric emptying study to determine how quickly food empties from the stomach
- Upper endoscopy to check for inflammation, in which a camera is passed through the mouth to look at the esophagus, stomach, and part of the small intestine

What is the treatment for CVS?

Treatment for CVS is divided into two major types: abortive therapy and prophylactic therapy. Abortive therapy means giving treatments to stop the episode once it starts, and only giving that treatment during the episode. Prophylactic therapy means giving a medication every day, whether the child is well or sick, to prevent episodes from starting.

Once a CVS episode starts, supportive measures are usually the most beneficial for patients. Abortive therapy usually includes giving your child medications at home at the first sign of an episode. These medications are usually anti-nausea medications such as ondansetron (Zofran) or other medications your healthcare provider prescribes.

Because it is difficult to stop a CVS episode once it is triggered, severe cases may need intravenous fluids and medications in a hospital. Common medications used in the hospital include anti-nausea medications such as ondansetron (Zofran), promethazine (Phenergan), and chlorpromazine (Thorazine).

Because patients can feel anxious during an attack, they may benefit from an anti-anxiety medication such as lorazepam (Ativan). Others may need anti-migraine medications like sumatriptan (Imitrex). The episode usually resolves with time, which can be anywhere from hours to days.

Prophylactic therapy includes medications that are given every day to prevent an episode from starting. For patients with frequent episodes (every 1–2 months), prophylactic treatment can lessen the frequency and severity of episodes. However, if episodes are infrequent (such as once a year), prophylactic therapy may be unnecessary.

Prophylactic medications may include cyproheptadine, propranolol, and amitriptyline. In some patients, anti-convulsants, which are medicines to treat seizures, are used. These medications include topiramate, valproate, and levetiracetam. While all these prophylactic medicines are generally safe, each has different side effects. Review the benefits and risks of prophylactic therapy with your doctor.

What can I expect if my child has CVS?

While some patients “outgrow” CVS, it can affect patients for months, years, or decades. Some studies suggest that patients with CVS may develop migraines as adults.

Complications of cyclic vomiting can include dehydration, inflammation of the esophagus (esophagitis), small tears in the lining of the esophagus (Mallory-Weiss tear), or tooth enamel decay due to recurrent vomiting.

Fortunately, most patients improve once properly diagnosed and treated.

Can CVS be prevented?

While the onset of CVS is unpredictable, you may be able to lessen the frequency or intensity of attacks. Keeping a journal of episodes (including information such as symptoms leading up to episode, time of day, frequency, etc.) is helpful to better understand your child’s CVS pattern.

Try to avoid known triggers. If your child is experiencing stress, encourage stress-reduction techniques or work with a counselor for stress management.

Give your child medications as prescribed by your healthcare provider. For patients with recurring episodes that interfere with life, prophylactic (preventative) medication taken on a daily basis is the best way to reduce the frequency and severity of episodes.

Many patients prefer to be in a quiet, dark space during an episode.

Where can I find support for my child and family?

Talk to your healthcare provider and to other patients, and explore the website www.cvsaonline.org. If you are interested, join the Cyclic Vomiting Association, which offers educational materials, conferences, and support groups.

Updated GIKids.org Educational Material

*Reviewed & Updated by:
Elizabeth Burch, , MSN, CPNP, June 2019*

➔ Locate a Pediatric Gastroenterologist

IMPORTANT REMINDER: *This information from the North American Society for Pediatric Gastroenterology, Hepatology and Nutrition (NASPGHAN) is intended only to provide general educational information as a definitive basis for diagnosis or treatment in any particular case. It is very important that you consult your doctor about your specific condition.*



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