

Cyclic Vomiting Syndrome

What is cyclic vomiting syndrome (CVS)?

CVS is characterized by episodes or cycles of severe nausea and vomiting that last for hours, or even days, that alternate with intervals with no symptoms. Although originally thought to be a pediatric disease, CVS occurs in all age groups. Medical researchers believe CVS and migraine headaches are related (see “CVS and Migraine” on page 2).

Each episode of CVS is similar to previous ones, meaning the episodes tend to start at the same time of day, last the same length of time, and occur with the same symptoms and level of intensity. Although CVS can begin at any age, in children it starts most often between the ages of 3 and 7.

Episodes can be so severe that a person has to stay in bed for days, unable to go to school or work. The exact number of people with CVS is unknown, but medical researchers believe more people may have the disorder than commonly thought. Because other more common diseases and disorders also cause cycles of vomiting, many people with CVS are initially misdiagnosed until other disorders can be ruled out. CVS can be disruptive and frightening not just to people who have it but to family members as well.

The Four Phases of CVS

CVS has four phases:

- **Symptom-free interval phase.** This phase is the period between episodes when no symptoms are present.
- **Prodrome phase.** This phase signals that an episode of nausea and vomiting is about to begin. Often marked by nausea—with or without abdominal pain—this phase can last from just a few minutes to several hours. Sometimes, taking medicine early in the phase can stop an episode in progress. However, sometimes there is no warning; a person may simply

wake up in the morning and begin vomiting.

- **Vomiting phase.** This phase consists of nausea and vomiting; an inability to eat, drink, or take medicines without vomiting; paleness; drowsiness; and exhaustion.
- **Recovery phase.** This phase begins when the nausea and vomiting stop. Healthy color, appetite, and energy return.

What triggers CVS?

Many people can identify a specific condition or event that triggered an episode, such as an infection. Common triggers in children include emotional stress and excitement. Anxiety and panic attacks are more common triggers in adults. Colds, allergies, sinus problems, and the flu can also set off episodes in some people.

Other reported triggers include eating certain foods such as chocolate or cheese, eating too much, or eating just before going to bed. Hot weather, physical exhaustion, menstruation, and motion sickness can also trigger episodes.

What are the symptoms of CVS?

A person who experiences the following symptoms for at least 3 months—with first onset at least 6 months prior—may have CVS:

- vomiting episodes that start with severe vomiting—several times per hour—and last less than 1 week
- three or more separate episodes of vomiting in the past year
- absence of nausea or vomiting between episodes

A person with CVS may experience abdominal pain, diarrhea, fever, dizziness, and sensitivity to light during vomiting episodes. Continued vomiting may cause severe dehydration that can be

life threatening. Symptoms of dehydration include thirst, decreased urination, paleness, exhaustion, and listlessness. A person with any symptoms of dehydration should see a health care provider immediately.

How is CVS diagnosed?

CVS is hard to diagnose because no tests—such as a blood test or x ray—can establish a diagnosis of CVS. A doctor must look at symptoms and medical history to rule out other common diseases or disorders that can cause nausea and vomiting. Making a diagnosis takes time because the doctor also needs to identify a pattern or cycle to the vomiting.

CVS and Migraine

The relationship between migraine and CVS is still unclear, but medical researchers believe the two are related.

- Migraine headaches, which cause severe head pain; abdominal migraines, which cause stomach pain; and CVS are all marked by severe symptoms that start and end quickly and are followed by intervals without pain or other symptoms.
- Many of the situations that trigger CVS also trigger migraines, including stress and excitement.
- Research has shown that many children with CVS either have a family history of migraine or develop migraines as they grow older.

Because of the similarities between migraine and CVS, doctors treat some people with severe CVS with drugs that are also used for migraine headaches. The drugs are designed to prevent episodes, reduce frequency, and lessen severity.

How is CVS treated?

Treatment varies, but people with CVS generally improve after learning to control their symptoms. People with CVS are advised to get plenty of rest and sleep and to take medications that prevent a vomiting episode, stop one in progress, speed up recovery, or relieve associated symptoms.

Once a vomiting episode begins, treatment usually requires the person to stay in bed and sleep in a dark, quiet room. Severe nausea and vomiting may require hospitalization and intravenous fluids to prevent dehydration. Sedatives may help if the nausea continues.

Sometimes, during the prodrome phase, it is possible to stop an episode from happening. For example, people with nausea or abdominal pain before an episode can ask their doctor about taking ondansetron (Zofran) or lorazepam (Ativan) for nausea or ibuprofen (Advil, Motrin) for pain. Other medications that may be helpful are ranitidine (Zantac) or omeprazole (Prilosec), which help calm the stomach by lowering the amount of acid it makes.

During the recovery phase, drinking water and replacing lost electrolytes are important. Electrolytes are salts the body needs to function and stay healthy. Symptoms during the recovery phase can vary. Some people find their appetite returns to normal immediately, while others need to begin by drinking clear liquids and then move slowly to solid food.

People whose episodes are frequent and long-lasting may be treated during the symptom-free intervals in an effort to prevent or ease future episodes. Medications that help people with migraine headaches, such as propranolol (Inderal), cyproheptadine (Periactin), and amitriptyline (Elavil), are sometimes used during this phase, but they do not work for everyone. Taking the medicine daily for 1 to 2 months may be necessary before one can tell if it helps.

The symptom-free interval phase is a good time to eliminate anything known to trigger an episode. For example, if episodes are brought on by stress or excitement, a symptom-free interval phase is the time to find ways to reduce stress and stay calm. If sinus problems or allergies cause episodes, those conditions should be treated.

During an episode, anti-migraine drugs such as sumatriptan (Imitrex) may be prescribed to stop symptoms of migraine headache. However, these agents have not been studied for use in children.

What are the complications of CVS?

The severe vomiting that defines CVS is a risk factor for several complications:

- **Dehydration.** Vomiting causes the body to lose water quickly. Dehydration can be severe and should be treated immediately.
- **Electrolyte imbalance.** Vomiting causes the body to lose important salts it needs to keep working properly.
- **Peptic esophagitis.** The esophagus—the tube that connects the mouth to the stomach—becomes injured from stomach acid moving through it while vomiting.
- **Hematemesis.** The esophagus becomes irritated and bleeds, so blood mixes with vomit.
- **Mallory-Weiss tear.** The lower end of the esophagus may tear open or the stomach may bruise from vomiting or retching.
- **Tooth decay.** The acid in vomit can hurt teeth by corroding tooth enamel.

Points to Remember

- People with CVS have severe nausea and vomiting that come in cycles.
- CVS occurs in all age groups.
- Medical researchers believe CVS and migraine headaches are related.
- CVS has four phases: symptom-free interval phase, prodrome phase, vomiting phase, and recovery phase.
- Many people can identify a condition or event that triggers an episode of nausea and vomiting. Infections and emotional stress are two common triggers.
- The main symptoms of CVS are episodes of nausea and vomiting that come and go. Vomiting can lead to severe dehydration that can be life threatening.
- Symptoms of dehydration include thirst, decreased urination, paleness, exhaustion, and listlessness. A person with any symptoms of dehydration should see a health care provider immediately.

- The only way a doctor can diagnose CVS is by looking at symptoms and medical history to rule out any other possible causes for the nausea and vomiting. Then the doctor must identify a pattern or cycle to the symptoms.
- Treatment varies by person, but people with CVS generally improve after learning to control their symptoms. They may also be given medications that prevent a vomiting episode, stop one in progress, speed up recovery, or relieve associated symptoms.
- Complications include dehydration, which can be severe; electrolyte imbalance; peptic esophagitis; hematemesis; Mallory-Weiss tear; and tooth decay.

Hope through Research

The National Institute of Diabetes and Digestive and Kidney Diseases' Division of Digestive Diseases and Nutrition supports basic and clinical research into functional gastrointestinal disorders, including cyclic vomiting syndrome. More research is needed in the areas of diagnosis and treatment of this condition.

Participants in clinical trials can play a more active role in their own health care, gain access to new research treatments before they are widely available, and help others by contributing to medical research. For information about current studies, visit www.ClinicalTrials.gov.

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