

# Nausea and Vomiting

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**Nausea** is the unpleasant feeling that you are going to vomit. **Vomiting** is the forceful ejection of the stomach contents through the mouth. Muscles in the abdominal wall contract vigorously to create the pressure necessary for vomiting (retching). Retching can also occur without vomiting, before vomiting, or on its own. Similarly, nausea can occur without vomiting, or may precede vomiting.

## Common Causes of Nausea and Vomiting

Common causes of nausea and vomiting include the following:

- Medicines. Certain medicines such as chemotherapy for cancer and anesthetic agents are particularly known for causing nausea and vomiting
- Infections of the gastrointestinal tract. These may be viral or bacterial. Other infectious conditions like gall bladder infection (cholecystitis), appendicitis, viral hepatitis, and diverticulitis can also cause nausea and vomiting
- Infections outside the gastrointestinal tract, for instance, pneumonia, bladder and kidney infections, meningitis, and ear infections
- Bacterial toxins in food (food poisoning)
- Pregnancy
- Motion sickness
- Too much alcohol
- Inflammation of the abdominal organs (for instance, pancreatitis, Crohn's disease, ulcerative colitis).
- Intestinal blockage. This can occur due to stomach or intestinal ulcers, cancers and tumors, or inflammatory diseases like Crohn's disease
- Slow intestinal movement or transit, for example gastroparesis (delayed emptying of stomach), ileus or pseudoobstruction. Slow transit can be due to many causes
- Migraine headaches
- Other brain and nervous system disorders, including tumors of the brain, seizures, and multiple sclerosis.
- Hormonal disorders, including diabetes, overactive thyroid (hyperthyroid), underactive adrenal glands (Addison's disease)

- Kidney failure
- Radiation therapy
- Psychiatric disorders such as anxiety, depression, anorexia nervosa, bulimia
- Cyclic vomiting syndrome

## Symptoms of Nausea and Vomiting

Nausea is often referred to as a 'queasy sensation' or a feeling of being 'sick to the stomach'. Nausea may occur with or without vomiting, and vomiting can occur without nausea. Other symptoms and knowing what preceded the onset of nausea and vomiting can sometime help your doctor determine the cause:

- Sudden onset of symptoms with fevers, body aches, runny nose, cough, and diarrhea may indicate possible infection
- If symptoms began after anesthesia for surgery, or following chemotherapy, medication is a likely cause. Similarly, nausea and vomiting may occur after use of recreational drugs (marijuana, cocaine) or alcohol
- Early morning vomiting often occurs during pregnancy, but also may be seen in subjects with kidney failure
- Vomiting several hours after a meal may suggest blockage in the stomach or intestines
- Abdominal pain followed by vomiting may suggest inflammation in the abdomen (such as pancreatitis) or intestinal obstruction
- Explosive projectile vomiting can be associated with increased pressure inside the brain (for example meningitis or tumors)

- Vomiting immediately after a meal could indicate blockage in the stomach, but has been associated with psychiatric disorders (anorexia, bulimia)
- Chronic nausea and vomiting may be caused by hormonal disorders (diabetes, pregnancy) or functional disorders (symptoms in the absence of specific abnormalities that can be identified on testing)
- Cyclic vomiting syndrome is characterized by intense vomiting lasting a few hours or a few days with long periods without symptoms
- Loss of weight, malnutrition, and dehydration may result from long standing nausea and vomiting, as it may be associated with reduced or poor oral intake of nutrients

### Diagnosis: Identifying Causes of Nausea and Vomiting

If nausea and vomiting are the result of a minor illness or short-term problem, there may be little cause for concern. Doctors usually start by taking a detailed history and performing a thorough physical examination. This usually provides your doctor with enough information to determine if you need to be admitted to a hospital, if you need testing that can be performed as an outpatient, and if medication may be beneficial. Hospital admission may be more likely for the very elderly and the very young, as they can become dehydrated quickly.

Test ordered to evaluate nausea and vomiting may include:

- Blood tests (blood count, measurement of chemical levels in the blood, liver enzymes, pancreatic enzymes)
- X rays of the gastrointestinal tract, abdomen, or brain. These can include plain x rays, barium x rays, or specialized scans such as CT scans or MRI scans
- Endoscopy, which is the use of a long flexible tube with a video camera that allows direct visualization of the swallowing tube, stomach and first part of the small intestine. This test is performed to look for abnormalities in the lining of the upper gut that might be causing the nausea and vomiting
- Tests to assess the movement of food through the stomach and intestines (gastrointestinal motility testing)

If the cause of nausea and vomiting is not clear after a thorough search, and if the symptoms are not controlled with standard therapy, psychological tests and evaluation or psychiatric consultation may prove helpful. Psychogenic vomiting and eating disorders such as anorexia nervosa or bulimia are recognized causes of these symptoms.

### Potential Complications of Nausea and Vomiting

Dehydration and/or imbalance of the body's electrolytes and minerals circulating in the blood can be problematic when vomiting is severe or prolonged. When symptoms are prolonged, weight loss or malnutrition may occur. Forceful retching or vomiting can lead to tears of the intestinal junction where the esophagus joins with the stomach. When these tears are limited to the inner lining, they are called Mallory-Weiss tears. Mallory-Weiss tears may cause intestinal bleeding. Passing of bright red or dark blood in the vomitus or from the rectum could be due to a Mallory-Weiss tear. Rarely, tears can be full thickness, resulting in perforation and the escape of stomach contents outside the gut, called Boerhaave's syndrome. This is a serious condition and can lead to abscess formation or fluid collection, typically around the bottom part of the left lung. Violent retching can occasionally cause bruises or tears in the abdominal wall muscles.

### Treatment for Nausea and Vomiting

The treatment of nausea and vomiting may depend on the cause. However, the following general measures are appropriate for any patient with significant nausea and vomiting.

#### Correction of Fluid and Electrolyte Imbalance

Loss of body fluids results in dehydration and alteration in levels of minerals in the blood. Fluid replacement is usually performed with intravenous saline solution containing potassium. Potassium and sometimes magnesium levels may be low in the blood, and may need to be added to the intravenous fluid.

#### Nutritional Support

Initially, patients should not eat solid food or may need to stop consuming food and drink altogether. When feeding resumes, clear liquids are given first and the diet advanced as tolerated. When obstruction or chronic symptoms makes feeding by mouth impossible, alternate access for nutrition and fluid support are used. A nasogastric tube can be placed through the nose into the small intestine, and feeding solutions administered directly into the intestines (known as enteral feeding or tube feeding). A second option is to place a venous catheter into an arm vein or some other vein and infuse a prepared solution containing all the essential nutrients and vitamins directly into the blood stream. This is called total parenteral nutrition or hyperalimentation.

#### Therapy for Symptom Relief

Patients with upper abdominal discomfort from fluid in the stomach or intestines (usually in the presence of a blockage) feel better if a tube is placed through the nose into the

stomach to suction out stomach contents. Medications for nausea and vomiting may be given to prevent symptoms (eg, before chemotherapy or immediately after surgery) or to suppress symptoms after they have begun. Several different types of medications are available, and include phenothiazines (such as Compazine and Phenergan), 5-HT<sub>3</sub> antagonists (such as Zofran), dopamine receptor antagonists (such as Reglan), antihistamines (Antivert, Dramamine, Benadryl), and anticholinergics (Scopolamine). Other agents that may be used for chronic nausea and vomiting include benzodiazepines (Ativan), and tricyclic antidepressants (Elavil, Pamelor). Medicine to reduce acid production may also be necessary in patients with prolonged vomiting. These agents are given to protect the esophagus from the acidic content of the vomitus.

### **Other Agents**

Several alternative approaches are available for nausea and vomiting. The best-studied alternative therapy is perhaps the use of acupressure for pregnancy related nausea and vomiting. Wristbands with acupressure buttons are commercially available, are inexpensive, safe and have been shown to provide relief of mild nausea and vomiting of pregnancy. Ginger and vitamin B6 supplements have also been used successfully as symptom suppressants in pregnancy. Electrical stimulation, usually at the wrist, has also been used to prevent postoperative nausea and vomiting with some success. Hypnosis has been used with some success to address the fear of vomiting in patients with psychogenic nausea and vomiting, chemotherapy and pregnancy-related nausea and vomiting. Therapy focuses on hypnotic suggestions for relaxation and symptom reduction as well as distraction through guided imagery.

### **Can Nausea and Vomiting Be Prevented or Successfully Cured?**

Episodic nausea and vomiting with a known cause (for example, motion sickness, chemotherapy, or surgical anesthesia) can be prevented with medicines taken just before the causative event or medication. Symptoms due to medications and toxins improve when the drug or toxin is stopped. Morning sickness of pregnancy will usually resolve as the pregnancy progresses or with delivery. Nausea and vomiting due to chronic disorders such as functional problems, psychiatric disorders, endocrine disorders, or cancer may be difficult to treat, and may need chronic medications to control the symptoms. If nausea and vomiting are related to an infectious or inflammatory condition, symptoms will generally resolve completely with treatment of the primary condition.