A reasonable definition of nausea is a vague, intensely disagreeable sensation of sickness or “queasiness.” It is also defined as the symptoms that result from an inclination to vomit. Vomiting means “to eject matter from the stomach through the mouth.” Dry vomiting is also called “retching.” Vomiting is different from regurgitation and from rumination.

Treating Nausea and Vomiting

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Causes of Nausea and Vomiting

The vomiting center in the brain is composed of a group of neuronal areas (area postrema, nucleus tractus solitarius, and central pattern generator) within the medulla that serves to coordinate emesis. There are four different sources of input:

1. Afferent vagal fibers from the gastrointestinal viscera
2. Fibers of the vestibular system
3. Higher central nervous center (CNS) centers (amygdale)
4. Chemoreceptor trigger zone located outside the blood-brain barrier in the area postrema of the medulla

The chemoreceptor trigger zone is rich in opioid, serotonin, 5-HT3, neurokinin 1 (NK1), and dopamine D2 receptors, which serves as the basis for the mechanisms of action of some of the antiemetics today.

Diagnoses

ACUTE NAUSEA/VOMITING

Acute nausea/vomiting (N/V) may be typically caused by food poisoning, infectious gastroenteritis, drugs, or systemic illness. Questions concerning recent changes in diet, medications, other symptoms, and similar illness in other family members should be addressed. Acute onset suggests peritoneal irritation, acute gastric, or intestinal obstruction or pancreatociliary disease.

PERSISTENT NAUSEA/VOMITING

Persistent vomiting may result from pregnancy, gastric outlet obstruction, gastroparesis, intestinal dysmotility, psychogenic disorders, and CNS or systemic disorders.

MORNING NAUSEA/VOMITING

Morning vomiting is common with alcohol intake, uremia, pregnancy, and increased intracranial pressure.

CANCER CHEMOTHERAPY INDUCED NAUSEA/VOMITING

Several anticancer drugs can cause N/V; this is often the most anticipated and stressful side effect for cancer patients. Chemotherapy-induced N/V is partially mediated by the stimulation of 5HT3 and 1 (NK1) CNS receptors. This N/V may occur within minutes to hours after chemotherapy administration, or it may not occur until the second day and last up to 7 days.

• Vomiting immediately after meals suggest bulimia or psychogenic causes.
• Gastroparesis or a gastric outlet obstruction may show up as vomiting of undigested food from one to several hours after meals.
• Nausea and one or two episodes of vomiting are experienced in almost all patients with appendicitis.
• N/V commonly accompanies migraine headaches.
• Acute diarrhea may be accompanied by vomiting.
• HIV infection and AIDS patients may experience...
Complications that may need treating include:

- Acute or chronic N/V may be suggestive of headache, stiff neck, vertigo, and focal parenchymal or weakness.

**Antiemetic Drugs Used in the Treatment of Nausea/Vomiting**

Common antiemetic drugs and their categories are listed in Table 1. Table 2 contains a number of popular compounded formulas that can be used in treating N/V when commercial manufactured products are not suitable.

Drugs used to treat N/V generally fall into one of five different classes:

1. Corticosteroids
2. Dopamine receptor antagonists
3. Neurokinin receptor antagonists
4. Sedatives
5. Serotonin 5-HT3 antagonists

**Corticosteroids**

Dexamethasone and methylprednisolone, and other corticosteroids, have antinecrotic properties. They are used for the prevention of postoperative N/V and combinations with serotonin antagonists and droperidol have additive benefit.

**Dopamine Antagonists**

This class includes benzamides as all have antinecrotic properties that result from dopaminergic blockade as well as sedative effects.

**Neurokinin Receptor Antagonists**

This class is used in combination with corticosteroids and serotonin antagonists in the prevention of acute and delayed N/V with highly emetogenic chemotherapy regimens.

**Sedatives**

Benzodiazepines (lorazepam and diazepam) are used in psychogenic and anticipatory vomiting. Lorazepam has an antinausea effect in addition to its anxiolytic effects.

**Serotonin 5-HT3 Receptor Antagonists**

This class is effective in preventing chemotherapy- and radiation-induced vomiting when initiated prior to therapy. Single-dose administration is generally all that is indicated. Serotonin antagonists are effective for the prevention of postoperative N/V but less expensive alternatives, such as dexamethasone or droperidol, are equally effective.

**Other Drug Classes Used in the Treatment of Nausea/Vomiting**

**Antihistamines and Anticholinergics**

Meclizine, dimenhydrinate, and transdermal scopolamine may be useful in the prevention of vomiting arising from stimulation of the labyrinth (motion sickness, vertigo, migraines); they may possibly cause drowsiness. Prochlorperazine is usually adequate to treat patients on low emetogenic chemotherapy.

**Treatment**

Generally, acute vomiting is mild, self-limited, and requires no specific treatment. When treating nausea, oftentimes, combinations of drugs from different classes provide better control of symptoms with less toxicity. Vomiting due to vestibular apparatus disturbance may be treated with anticholinergic and anticholinergic agents, including diphenhydramine or scopolamine. N/V due to chemotherapy has been further classified into the emetogenic potential of the various chemotherapeutic agents. Table 3 lists the agents along with their potential for causing N/V. Benzodiazepines have been effective in preventing anticipatory nausea associated with chemotherapy but otherwise are not indicated for N/V.

Nausea due to opioids may occur upon initiation of opioid therapy and resolve after a few days. Oftentimes, this induced nausea can be relieved by dose reduction or substitution with an equipotential dose of another opioid or a sustained-release formulation. If it does not resolve or is severe, it can be treated with prochlorperazine dosed at either 10 mg orally or intravenously every eight hours, or 25 mg rectally every six hours.

Complications that may need treating include:

- Aspiration and rupture of the esophagus
- Dehydration
- Hypokalemia
- Metabolic alkalosis

Recommendations of clear liquids and small quantities of dry foods may suffice. If dehydration or hypokalemia is present, intravenous 0.45% saline solution with 20 mEq/L of potassium chloride can be given.

**Resources**


Moom RB. ABHR Gel in the treatment of nausea and vomiting in the hospice patient. JPC 2006; 10(2): 95–98.