

Nausea and Vomiting

Summary from Rosen's By Christina Smith

Epidemiology

- Most common causes in adults: Acute gastroenteritis, Febrile systemic illness, Drug effects
- Most common causes in pediatrics: Infections (mainly of the GI tract)

Pathophysiology

- Emetic Center Brainstem: lateral reticular formation of the medulla
 - Chemoreceptor Trigger Zone Area Postrema rich in dopamine and serotonin receptors: Response to exogenous and endogenous molecules
 - Lateral Vestibular Nuclei: Histamine Receptors, Muscarinic Receptors, Labyrinth input
 - Efferent inputs: Vagus (Esophagus, Stomach, Duodenum), Phrenic (Diaphragm), Spinal nerve (Abdominal rectus, Intercostals)
 - Afferent inputs: Vagus and Sympathetic nerves from GI Tract, Heart, Testicles

Differential Diagnosis

- **Critical Diagnosis**
 - Boerhaave's
 - Ischemic Bowel
 - GI Bleeding
 - Intracerebral Bleed
 - Meningitis
 - DKA
 - MI
 - Sepsis
- **Emergent Diagnosis**
 - Gastric outlet obstruction
 - Pancreatitis
 - Cholecystitis or Cholangitis
 - Bowel obstruction or ileus
 - Ruptured viscus
 - Appendicitis
 - Peritonitis
 - SBP
- **Nonemergent diagnosis**
 - Gastritis
 - Gastroparesis
 - PUD
 - IBD
- Migraine
- CNS Tumor
- Raised ICP
- Adrenal insufficiency
- Uremia
- Acetaminophen
- Digoxin
- Aspirin
- Theophylline
- Gonadal torsion
- Carbon monoxide
- Electrolyte disorders
- Organophosphate poisoning
- Biliary colic
- Hepatitis
- Gastroenteritis
- Thyroid
- Pregnancy
- Aspirin
- Antibiotics
- Erythromycin
- Ibuprofen
- Chemotherapy
- Narcotics
- Narcotic withdrawal
- Alcohol
- UTI
- Poisoning
- Nephrolithiasis
- Motion sickness
- Labyrinthitis

Signs and Symptoms

- Acute <1 week vs Chronic >1 month
- Stable vs Unstable: Hemodynamic stability, Level of consciousness, Neurologic assessment, Vital signs
- Sequela of vomiting: Hypovolemia, Metabolic alkalosis, Hypokalemia, Mallory-Weiss, Boerhaave's syndrome, Aspiration

Work-up

- **Labs:** CBC, Electrolytes, BUN, Cr, Serum lipase, Urine pregnancy, UA, Blood & Urine cultures, Liver Function, Ammonia, Serum drug level
- **Imaging:** Flat & upright radiograph, CT abd (Obstruction), Abd US (Choledocholithiasis, Cholecystitis, Pyloric stenosis, Intussusception), CT Head or MRI (CNS trauma, tumor, infectious)

Empiric Management

- If Unstable: Airway, Monitor, ECG, Labs, Oxygen, Fluid resuscitation
- Rehydrate: Oral fluids vs IV fluids
- Nasogastric tube: Refractory vomiting, Gastroparesis, Pancreatitis, Bowel obstruction
- Drugs
 - Antidopaminergic: **Prochlorperazine** (Compazine) → Side effect Akathisia and Dystonia that is mitigated with Diphenhydramine and Benzotropine, **Metoclopramide** (Reglan) → Useful in children but black box warning of tardive dyskinesia
 - Antiserotonergic: **Ondansetron** (Zofran) → Effective in ED and pediatrics
 - Antihistamines: **Promethazine** (Phenergan)

Disposition

- Admission: Significant underlying disease, Unclear diagnosis, Responds poorly to fluid and antiemetic, Refractory emesis
- Discharge: No serious underlying illness, Response to fluid and antiemetic therapy, Able to take clear liquids, Follow-up is favorable with PCP in 24-48 hours, Instruction to return to the ED with recurrence, change, deterioration