

Antacids and Acid-Controlling Agents

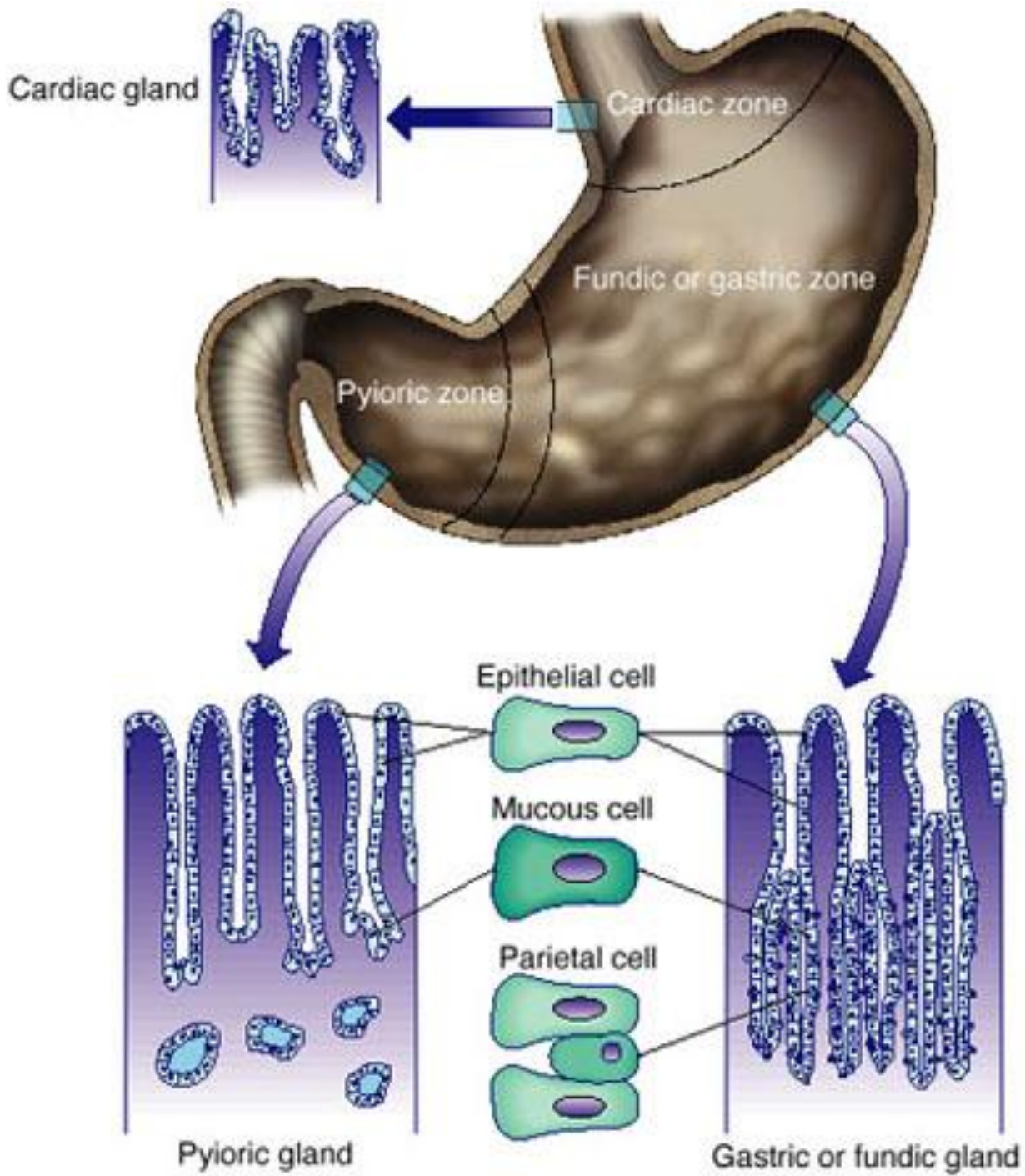
NAPNES Guidelines

Presented by Laura Zdancewicz MSN, CRNP

Acid-Related Pathophysiology

The stomach secretes:

- Hydrochloric acid (HCl)
- Bicarbonate
- Pepsinogen
- Intrinsic factor
- Mucus
- Prostaglandins



Glands of the Stomach

- Cardiac
 - Located around the cardiac orifice
- Pyloric
 - Located
 - Pyloric region
 - Transitional zone between the pyloric and fundic zones
- Gastric*
 - Located in the fundus (greatest area)

*The gastric glands are the largest in number

Cells of the Gastric Gland

- Parietal
- Chief
- Mucoid (Surface epithelial cells)

Cells of the Gastric Gland

Parietal Cells

- Produce and secrete HCl
- Primary site of action for many acid-controller drugs

Chief Cells

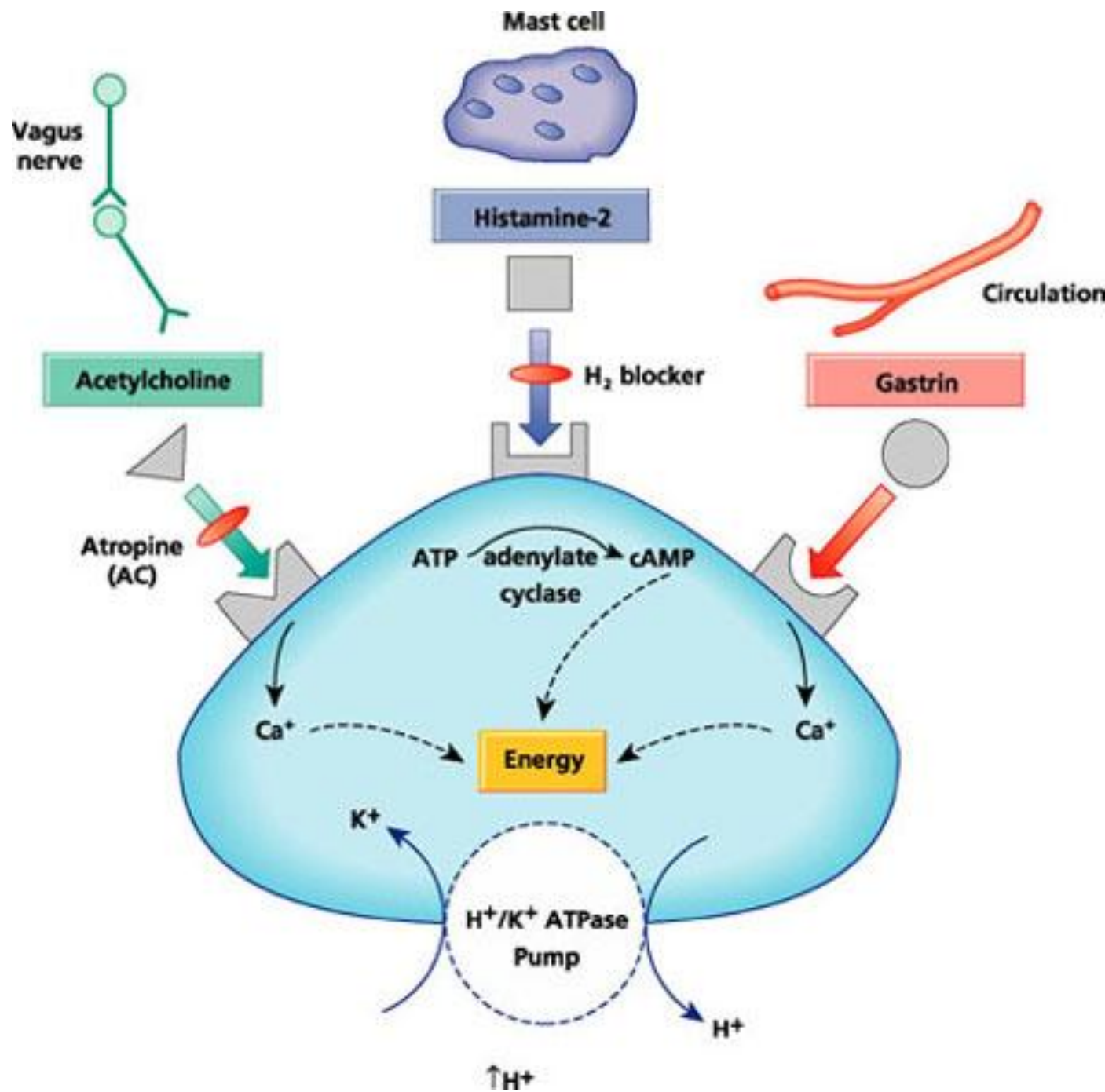
- Secrete pepsinogen (a proenzyme)
 - When exposed to acid converted to pepsin
 - Referred to a proteolytic enzyme
 - Breaks down proteins

Mucoid Cells

- Mucus-secreting cells (surface epithelial cells)
- Provide a protective mucous coat
- Protects against self-digestion by HCl

Hydrochloric Acid

- Secreted by the parietal cells
- Maintains stomach at a pH of 1 to 4
- Secretion stimulated by:
 - Large, fatty meals
 - Excessive amounts of alcohol
 - Emotional stress



Acid-Related Diseases

- Caused by imbalance of the three cells of the gastric gland and their secretions
- Most common:
 - Hyperacidity
- Most harmful:
 - Peptic ulcer disease (PUD)
- Lay terms for overproduction of HCl by the parietal cells:
 - Indigestion, sour stomach, heartburn, acid stomach

Antacids: Mechanism of Action

- Promote the gastric mucosal defense mechanisms
 - By stimulating the secretion of:
 - Mucus: Protective barrier against HCl
 - Bicarbonate: Helps buffer acidic properties of HCl
 - Prostaglandins: Prevent activation of proton pump

Antacids: Mechanism of Action

- Antacids DO NOT prevent the overproduction of acid
- Antacids DO neutralize the acid once it's in the stomach.



Antacids: Drug Effects

- Reduction of pain associated with acid-related disorders by
 - Raising gastric pH from 1.3 to 1.6 neutralizes 50% of the gastric acid.
 - Raising gastric pH 1 point (1.3 to 2.3) neutralizes 90% of the gastric acid.

Antacids

- OTC formulations available as:
 - Capsules and tablets
 - Powders
 - Chewable tablets
 - Suspensions
 - Effervescent granules and tablets

Antacids

- Types
 - Aluminum salts
 - Magnesium salts
 - Calcium salts
 - Sodium bicarbonate

Used alone or in combination

Antacids

- Aluminum Salts
 - Forms: carbonate, hydroxide, phosphate
 - Have constipating effects
 - Often used with magnesium to counteract constipation
 - Examples
 - aluminum *carbonate* (Basal gel)
 - aluminum *hydroxide* (Amphojel)

Antacids

- Magnesium Salts
 - Forms: carbonate, hydroxide, oxide, trisilicate
 - Commonly cause a laxative effect
 - Usually used with other agents to counteract this effect
 - Dangerous when used with renal failure
 - Failing kidney cannot excrete extra magnesium
 - Results in accumulation
 - Examples
 - Magnesium *carbonate* (Gaviscon)
 - Magnesium *hydroxide* (MOM)
 - Magnesium oxide (Mag-Ox)
 - Magnesium *trisilicate* (Gaviscon)



Antacids

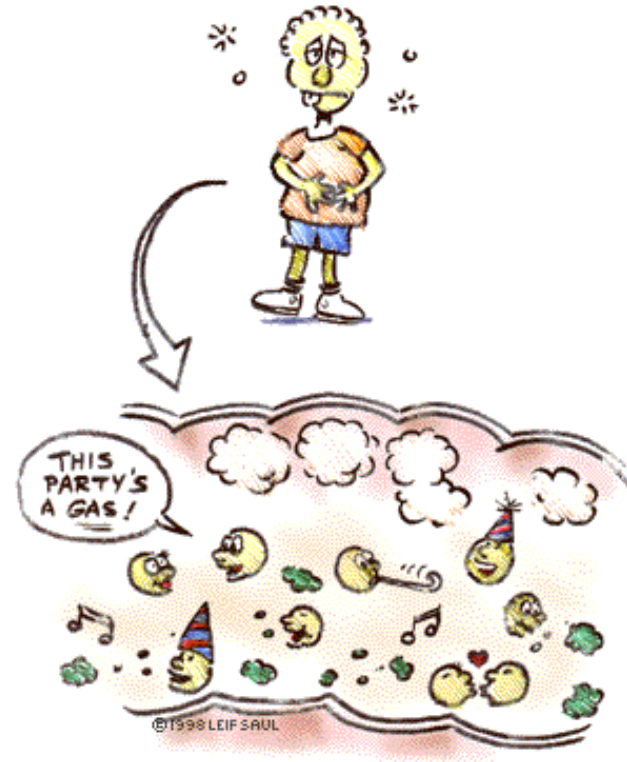
- Calcium Salts
 - Many forms
 - Carbonate is most common
 - May cause constipation
 - Use may result in kidney stones
 - Often advertised as an extra source of dietary calcium
 - Example
 - Tums (calcium carbonate)

Antacids

- Sodium Bicarbonate
 - Highly soluble
 - Quick onset, but short duration
 - May cause metabolic alkalosis
 - Sodium content may cause problems in patients with CHF, hypertension, or renal insufficiency

Antacids and Antiflatulents

- Antiflatulents
 - Aka *carminatives*
 - Used to relieve the painful symptoms associated with gas
 - Several agents are used to bind or alter intestinal gas
 - Often added to antacid combination products.



Antacids and Antiflatulents

- OTC Antiflatulents
 - activated charcoal
 - Appears to be effective in reducing belching and intestinal complaints
 - Simethicone (Phazyme)
 - Alters elasticity of mucus-coated bubbles, causing them to break.
 - Used often, but there are limited data to support effectiveness.

Antacids: Side Effects

- Minimal; depends on the compound used
 - Aluminum and calcium
 - Constipation
 - Magnesium
 - Diarrhea
 - Calcium carbonate
 - Produces gas and belching
 - Often combined with simethicone

Antacids: Drug Interactions

- 4 basic mechanisms antacids interact with other drugs
 - Adsorption
 - Other drug is absorbed by antacid instead of body
 - Chelation
 - Chemical binding, or inactivation, of another drug
 - Produces insoluble complexes
 - Increase stomach pH
 - Increases absorption of basic drugs
 - Decrease absorption of acidic drugs
 - Increased urinary pH
 - Increases excretion of acidic drugs
 - Decrease excretion of basic drugs

Antacids: Nursing Implications

- Assess for allergies and preexisting conditions that may restrict the use of antacids
 - Fluid imbalances
 - Renal disease
 - CHF
 - Pregnancy
 - GI obstruction
- Patients with CHF or hypertension should use low-sodium antacids such as Riopan, Maalox, or Mylanta II.

Antacids: Nursing Implications

- Use with caution with other medications due to the many drug interactions.
- Most medications should be given 1 to 2 hours after giving an antacid.
- Antacids may cause premature dissolving of enteric-coated medications
 - resulting in stomach upset.

Antacids: Nursing Implications

- Insure chewable tablets are chewed thoroughly
- Shake Liquid forms well before giving.
- Administer with at least 8 ounces of water to enhance absorption (except for the “rapid dissolve” forms).
- Caffeine, alcohol, harsh spices, and black pepper may aggravate the underlying GI condition.

Antacids: Nursing Implications

- Monitor for side effects:
 - Nausea, vomiting, abdominal pain, diarrhea
 - With calcium-containing products: constipation, acid rebound
- Monitor for therapeutic response:
 - Notify health care provider if symptoms are not relieved.

Patient Teaching: Antacids

- Magnesium may cause diarrhea
- Calcium or aluminum may cause constipation
- Renal patients should not take products containing Magnesium
- Take 1-2 hours before or after other medications
- 1 & 3 hours PC and HS



Histamine Type 2 (H₂) Antagonists



H₂ Antagonists

- Mechanism of Action
 - Block histamine (H₂) at the receptors of acid-producing parietal cells
 - Production of hydrogen ions is reduced
 - Resulting in decreased production of HCl
- Drug Effect
 - Suppressed acid secretion in the stomach

H₂ Antagonists

- Examples

- Most common

- cimetidine (Tagamet)
 - famotidine (Pepcid)
 - nizatidine (Axid)
 - ranitidine (Zantac)

- All available OTC

- Do not take longer than 2 weeks

H₂ Antagonists

Therapeutic Uses

- Shown to be effective for:
 - Gastric ulcer
 - Gastroesophageal reflux disease (GERD)
 - Upper GI bleeding
 - Duodenal ulcer (with or without H. pylori)
- May be effective for:
 - Stress ulcers
 - Peptic esophagitis
 - Prevention and management of allergic conditions
 - When used with H₁ blockers

H₂ Antagonists

- Side Effects
 - Overall, less than 3% incidence of side effects
 - Cimetidine may induce impotence and gynecomastia

H₂ Antagonists

- Drug Interactions
 - Cimetidine
 - Binds with P-450 microsomal oxidase system in the liver
 - Resulting in increased levels of other drugs
 - All H₂ antagonists may inhibit the absorption of drugs that require an acidic GI environment for absorption
 - SMOKING has been shown to decrease the effectiveness of H₂ blockers

H₂ Antagonists

- Nursing Implications
 - Assess for allergies and impaired renal or liver function.
 - Use with caution in patients who are confused, disoriented, or elderly.
 - Take 1 hour before or after antacids.
 - Ranitidine may be given intravenously
 - follow administration guidelines.

Famotidine (Pepcid)

- With or without food
- Preferred over cimetidine
- Does not inhibit the cytochrome p450 system
- Renal impairment monitor creatinine



Proton Pump Inhibitors



Proton Pump Inhibitors (PPIs)

- Physiology review
 - The parietal cells release positive hydrogen ions (protons) during HCl production
 - This process is called the “proton pump.”
- PPIs completely stop the action of the pump in an individual parietal cell
- Provide faster relief and healing than H2 blockers

Proton Pump Inhibitors:

- Mechanism of Action
 - Irreversibly binds to H⁺/K⁺ ATPase enzyme
 - Prevents the movement of hydrogen ions from the parietal cell into the stomach
 - Results in ***Achlorhydria***
 - **ALL** gastric acid secretion is blocked
 - In other words
 - Bind to the gastric proton pump and prevent “pumping” or release of gastric acid (24 hr action)

Proton Pump Inhibitors

- Drug Effect
 - Total inhibition of gastric acid secretion
- Examples
 - lansoprazole (Prevacid)
 - omeprazole (Prilosec)
 - pantoprazole (Protonix)
 - rabeprazole (Aciphex)
 - esomeprazole (Nexium)
 - omeprazole/sodium bicarbonate (Zegerid)

Now for shorter-term treatment* of erosive esophagitis associated with GERD

Say goodnight to symptoms with PROTONIX[®]



Complete elimination of...

- Symptoms disappeared and did not come back while patients were on therapy.^{1,2}

Nighttime heartburn

- Twice as effective as b.i.d. nizatidine (Axid[®]) on Day 1³
- In a separate study, 82% of patients had complete elimination of symptoms by Week 8⁴

Regurgitation

- Two and a half times as effective as b.i.d. nizatidine on Day 1³
- In a separate study, 82% of patients had complete elimination of symptoms by Week 8⁴

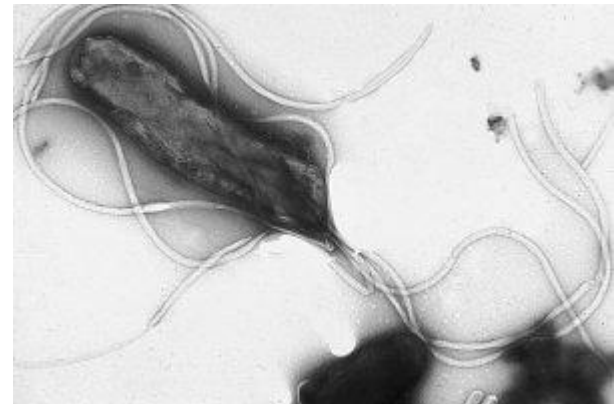
*Up to 8 weeks; an additional 8 week course may be considered if necessary.
The most frequently reported adverse events with PROTONIX are headache and diarrhea. Symptomatic hypokalemia is reported; does not preclude the presence of gastric hypochlorhydria. PROTONIX is contraindicated in children with known hypersensitivity to any component of the formulation. PROTONIX is not for use for up to 11 weeks. Please see brief summary of prescribing information on last page of this advertisement.

ONCE-A-DAY PROTONIX[®]
(Pantoprazole Sodium) 40 mg delayed-release tablets
Makes erosive GERD nights good nights



Proton Pump Inhibitors

- Therapeutic Uses
 - GERD maintenance therapy
 - Can be long term
 - Gastritis
 - Erosive esophagitis
 - Short-term treatment of active duodenal and benign gastric ulcers
 - Zollinger-Ellison syndrome
- Treatment of *H. pylori*-induced ulcers



Proton Pump Inhibitors

- Side Effects
 - Safe for short-term therapy
 - Incidence low and uncommon
 - Long- term therapy
 - Osteoporosis
 - C-difficile
 - Watch for s/s

Proton Pump Inhibitors

- Nursing Implications
 - Assess for allergies and history of liver disease
 - Pantoprazole is the only proton pump inhibitor available for parenteral administration
 - Used for patients who are unable to take oral medications
 - May increase serum levels of diazepam, phenytoin
 - Increased chance for bleeding with warfarin

Proton Pump Inhibitors

Nursing Implications (cont.)

- Instruct the patient taking omeprazole (Prilosec)
 - Take before meals
 - The capsule should be swallowed whole, not crushed, opened or chewed.
 - May be given with antacids.
- Emphasize that the treatment will be short-term.

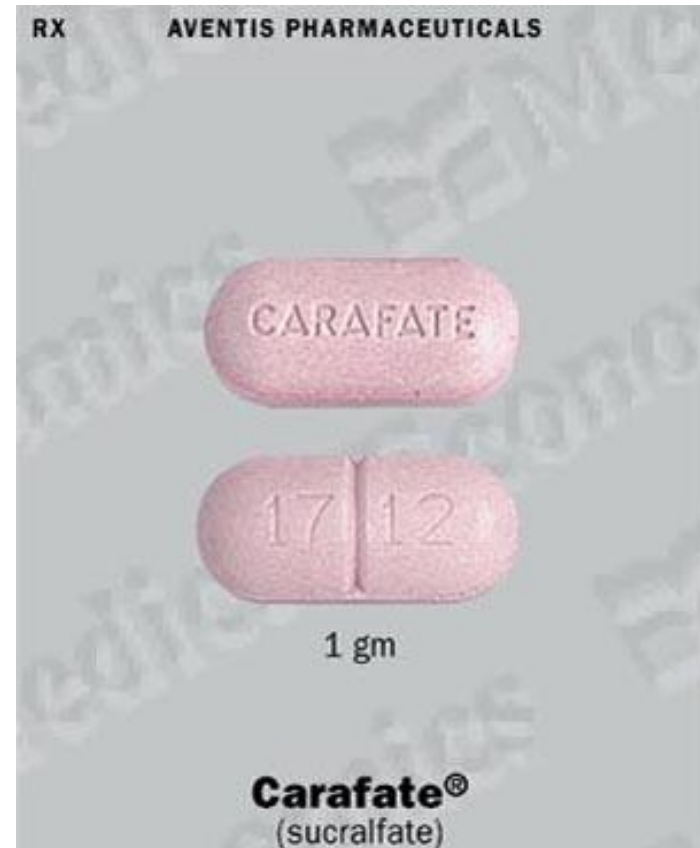


Other Acid-Controlling Drugs

1. sucralfate (Carafate)
2. misoprostol (Cytotec)

Sucralfate (Carafate)

- Cytoprotective agent
- Used for stress ulcers, erosions, PUD
- Attracted to and binds directly to the base of ulcers and erosions
 - Forms a protective barrier
- Little absorption from the gut



Sucralfate (Carafate)

- Side effects
 - Constipation
 - Nausea
 - Dry mouth
- Drug Interactions
 - May impair absorption of other drugs
 - Especially tetracycline
 - Binds with phosphate
 - May be used in chronic renal failure to reduce phosphate levels
 - Do not administer with other medications

misoprostol (Cytotec)

- Synthetic prostaglandin analog
- Prostaglandins have cytoprotective activity:
 - Protect gastric mucosa from injury by enhancing local production of mucus or bicarbonate
 - Promote local cell regeneration
 - Help to maintain mucosal blood flow

misoprostol (Cytotec)

- Therapeutic use
 - Prevention of NSAID-induced gastric ulcers
 - Often given along with chronic NSAID therapy
 - Not usually necessary with cox 2 inhibitors

Antidiarrheals & Laxatives



Diarrhea

- Abnormal frequent passage of loose stools
or
- Abnormal passage of stools with
 - increased frequency, fluidity, and weight
 - increased stool water excretion



Diarrhea

- Acute Diarrhea
 - Sudden onset in a previously healthy person
 - Lasts from 3 days to 2 weeks
 - Self-limiting
 - Resolves without sequelae

Diarrhea

- Chronic Diarrhea
 - Lasts for over 3 to 4 weeks
 - Associated with recurring passage of diarrheal stools, fever, loss of appetite, nausea, vomiting, weight loss, and chronic weakness

Causes of Diarrhea

Acute Diarrhea

Bacteria

Viral

Drug-induced

Hyperthyroidism

Nutritional

Protozoal

Chronic Diarrhea

Tumors

Diabetes

Addison's disease

Irritable bowel syndrome

Antidiarrheals

Adsorbents

Mechanism of Action

- Coat the walls of the GI tract
- Bind to the causative bacteria or toxin, which are then eliminated through the stool
- Examples
 - bismuth subsalicylate (Pepto-Bismol)
 - kaolin-pectin
 - activated charcoal
 - attapulgit (Kaopectate)

Antidiarrheals

Anticholinergics

Mechanism of Action

- Decreases intestinal muscle tone and peristalsis of GI tract
- Result: slowing the movement of fecal matter through the GI tract
- Examples:
 - belladonna alkaloids (Donnatal)
 - atropine
 - hyoscyamine (Anaspaz, Cytospaz, Levsin)

Antidiarrheals

Anticholinergics

Side Effects

- Urinary retention, hesitancy, impotence
- Headache, dizziness, confusion, anxiety, drowsiness
- Dry skin, rash, flushing
- Blurred vision, photophobia, increased intraocular pressure

Antidiarrheals

Intestinal Flora Modifiers

Mechanism of Action

- Bacterial cultures of *Lactobacillus* organisms work by:
 - Supplying missing bacteria to the GI tract
 - Suppressing the growth of diarrhea-causing bacteria
- Examples:
 - *Lactobacillus acidophilus* (Lactinex)

Antidiarrheals

Opiates

Mechanism of Action

- Decrease bowel motility and relieve rectal spasms
- Decrease transit time through the bowel
 - Allows more time for water and electrolytes to be absorbed
- Examples:
 - Paregoric
 - opium tincture
 - codeine
 - loperamide (Imodium) - OTC
 - Diphenoxylate (Lomotil)

Antidiarrheals

Opiates

- Side Effects
 - Drowsiness, sedation, dizziness, lethargy
 - Nausea, vomiting, anorexia, constipation
 - Respiratory depression
 - Bradycardia, palpitations, hypotension
 - Urinary retention
 - Flushing, rash, urticaria

Antidiarrheal Agents

Drug Interactions

- Adsorbents decrease the absorption of many agents, including digoxin, clindamycin, quinidine, and hypoglycemic agents
- Adsorbents cause increased bleeding times when given with anticoagulants
- Antacids can decrease effects of anticholinergic antidiarrheal agents

Antidiarrheal Agents

Nursing Implications

- Obtain thorough history of bowel patterns, general state of health, and recent history of illness or dietary changes, and assess for allergies.
- DO NOT give bismuth subsalicylate to children under age 16 or teenagers with chicken pox because of the risk of Reye's syndrome.

Antidiarrheal Agents

Nursing Implications

- Use adsorbents carefully in elderly patients or those with decreased bleeding time, clotting disorders, recent bowel surgery, or confusion.
- Anticholinergics should not be administered to patients with a history of glaucoma, BPH, urinary retention, recent bladder surgery, cardiac problems, or myasthenia gravis.

Antidiarrheal Agents

Nursing Implications

- Teach patients to take medications exactly as prescribed and to be aware of their fluid intake and dietary changes.
- Assess fluid volume status; intake and output; and mucous membranes before, during, and after initiation of treatment.

Antidiarrheal Agents

Nursing Implications

- Teach patients to notify their physician immediately if symptoms persist.
- Monitor for therapeutic effect.

LAXATIVES



Constipation

- Abnormally infrequent and difficult passage of feces through the lower GI tract.
- Symptom
 - Not a disease
- Disorder of movement through the colon and/or rectum
- Can be caused by a variety of diseases or drugs

Causes of Constipation

- Metabolic and endocrine disorders
 - Diabetes, hypothyroidism, pregnancy
- Neurogenic
 - Autonomic neuropathy, multiple sclerosis, spinal cord lesions, Parkinson's disease, CVA
- Adverse drug effects
 - Analgesics, anticholinergics, iron supplements, opiates, aluminum antacids, calcium antacids

Causes of Constipation (cont.)

- Lifestyle

- Poor bowel movement habits: voluntary refusal to defecate resulting in constipation
- Diet: poor fluid intake and/or low-residue (roughage) diet, or excessive consumption of dairy products
- Physical inactivity
- Psychological factors: stress, anxiety, hypochondria

Laxatives

- Types
 - Bulk-forming
 - Emollient
 - Hyperosmotic
 - Saline
 - Stimulant

Laxatives

Bulk-Forming

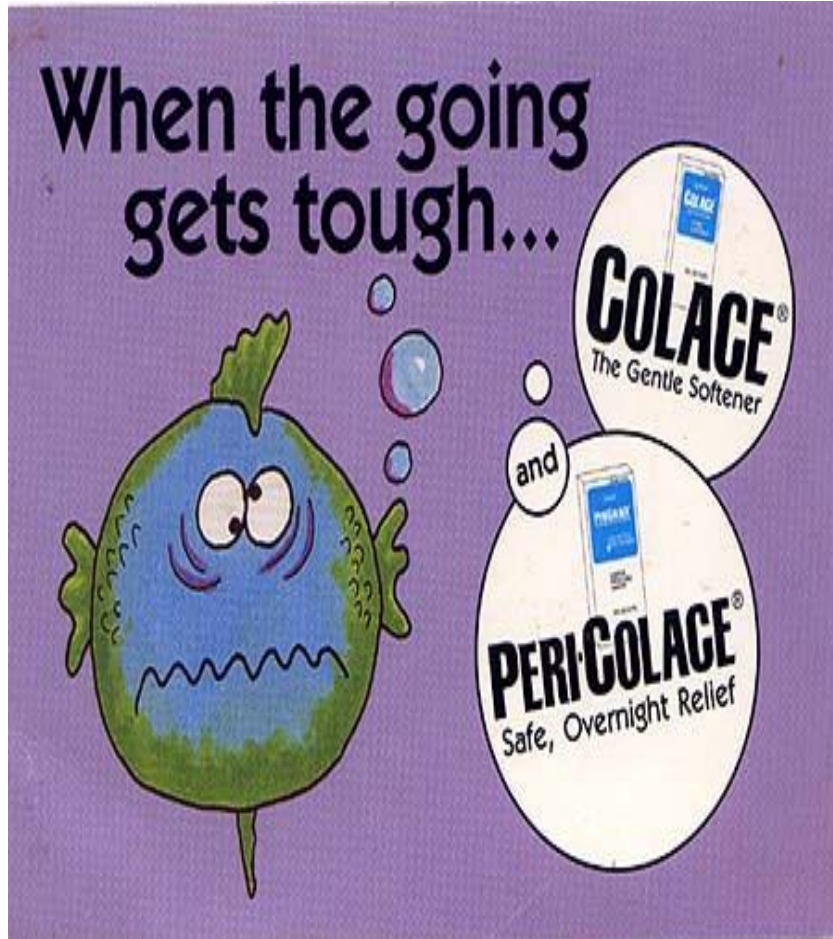
Mechanism of Action

- High fiber
- Absorbs water to increase bulk
- Distends bowel to initiate reflex bowel activity
- Examples:
 - psyllium (Metamucil)
 - methylcellulose (Citrucel)



Laxatives

Emollient



Mechanism of Action

- Stool softeners and lubricants
- Promote more water and fat in the stools
- Lubricate the fecal material and intestinal walls
- Examples:
 - Stool softeners:
 - docusate salts (Colace, Surfak)
 - Lubricants:
 - mineral oil

Laxatives

Hyperosmotic



Mechanism of Action

- Increase fecal water content
- Results
 - bowel distention
 - increased peristalsis
 - evacuation
- Examples:
 - polyethylene glycol (GoLYTELY)
 - Sorbitol
 - Glycerin
 - lactulose (Chronulac)

Laxatives

Saline

Mechanism of Action

- Increase osmotic pressure within the intestinal tract
 - Causes more water to enter the intestines
- Result: bowel distention, increased peristalsis, and evacuation
- Examples:
 - magnesium sulfate (Epsom salts)
 - magnesium hydroxide (MOM),
 - magnesium citrate
 - sodium phosphate (Fleet enema)

Laxatives

Stimulant

Mechanism of Action

- Increases peristalsis via intestinal nerve stimulation
- Examples:
 - castor oil
 - Senna
 - cascara
 - bisacodyl



Laxatives

Therapeutic Uses

<u>Laxative Group</u>	<u>Use</u>
Bulk-forming	Acute and chronic constipation
	Irritable bowel syndrome
	Diverticulosis
Emollient	Acute and chronic constipation
	Softening of fecal impaction
	Facilitation of BMs in anorectal conditions

Laxatives

Therapeutic Uses

<u>Laxative Group</u>	<u>Use</u>
Hyperosmotic	Chronic constipation Diagnostic and surgical preps
Saline	Constipation Diagnostic and surgical preps Removal of helminths and parasites

Laxatives

Therapeutic Uses

<u>Laxative Group</u>	<u>Use</u>
Stimulant	Acute constipation Diagnostic and surgical bowel preps

Laxatives

Side Effects

<u>Laxative Group</u>	<u>Use</u>
Bulk-forming	Impaction and fluid overload
Emollient	Skin rashes Decreased absorption of vitamins
Hyperosmotic	Abdominal bloating, rectal irritation

Laxatives

Side Effects

<u>Laxative Group</u>	<u>Use</u>
Saline	Magnesium toxicity (with renal insufficiency), cramping, diarrhea, increased thirst
Stimulant	Nutrient malabsorption, skin rashes, gastric irritation, rectal irritation

Laxatives

Side Effects

- All laxatives can cause electrolyte imbalances!!!

Laxatives

Nursing Implications

- Obtain a thorough history of presenting symptoms, elimination patterns, and allergies.
- Assess fluid and electrolytes before initiating therapy.

Laxatives

Nursing Implications

- A healthy, high-fiber diet and increased fluid intake should be encouraged as an alternative to laxative use.
- Long-term use of laxatives often results in decreased bowel tone and may lead to dependency.
- All laxative tablets should be swallowed whole, not crushed or chewed, especially if enteric-coated.

Antacids and Acid-Controlling Agents

NAPNES Guidelines

Presented by Laura Zdancewicz MSN, CRNP

Laxatives

Nursing Implications

- Bisacodyl and cascara sagrada should be given with water due to interactions with milk, antacids, and H₂ blockers.
- Patients should contact their physician if they experience severe abdominal pain, muscle weakness, cramps, and/or dizziness, which may indicate possible fluid or electrolyte loss.
- Monitor for therapeutic effect.

Contraindications to Laxative/Cathartic Use



- Never give in the presence of undiagnosed abdominal pain, nausea or vomiting
- Obstruction
- Fecal Impaction

Irritable Bowel Agents

- Tegaserod (Zelnorm)
 - Short-term treatment of IBS
 - Primary symptom is constipation
 - Partial agonist of 5-HT₄ (hydroxytryptamine) receptor
 - Causes release of serotonin and other neurotransmitters
 - Increases peristalsis and GI secretions
 - Decreases visceral sensitivity
 - Doses BID before meals

Irritable Bowel Agents (cont.)

- Tegaserod (Zelnorm)
 - Warnings
 - Severe diarrhea – requiring hospitalization in some cases
 - Hypovolemia
 - Hypotension
 - syncope
 - Rare reports of ischemic colitis
 - STOP DRUG IF SEVERE DIARRHEA!!

Antiemetics



Antiemetics (cont.)

- Used to relieve nausea and vomiting
- Work by blocking the vomiting pathway
 - Vomiting center (VC)
 - Area in brain
 - Responsible for initiating events leading to n/v
 - Chemoreceptor trigger zone (CTZ)
 - Area in brain involved in the causation of n/v
 - Several pathways transmit stimuli to this centers

Antiemetics (cont.)

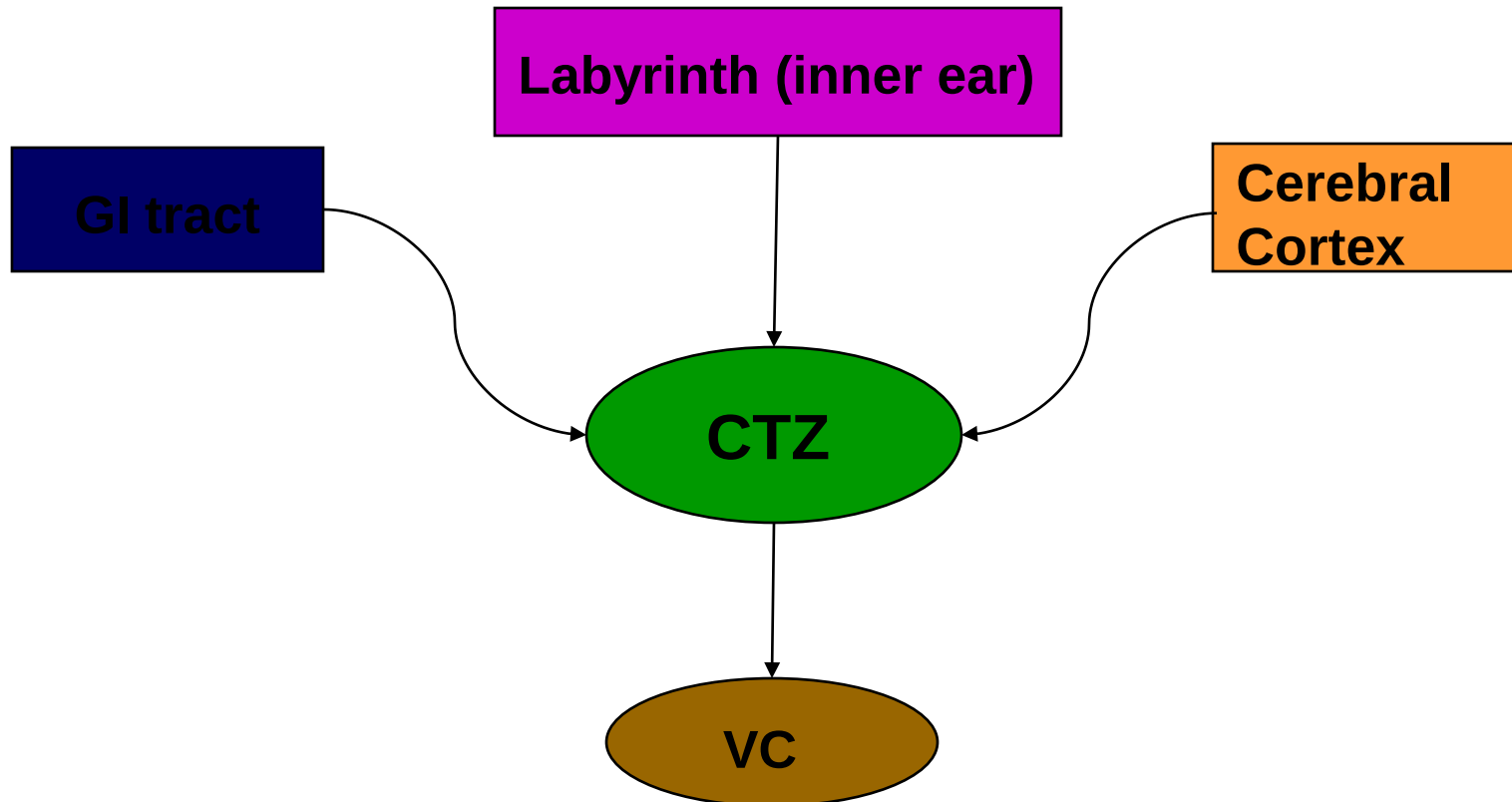
Neurotransmitter

- Acetylcholine
- Dopamine
- Histamine
- Prostaglandins
- Serotonin

Site in vomiting pathway

- VC in brain
- GI tract and CTZ
- VC in brain, inner ear
- GI tract
- GI tract, CTZ and VC in brain

Vomiting Pathway



Antiemetics (cont.)

- Types
 - Anticholinergics
 - Antihistamines
 - Neuroleptics
 - Prokinetics
 - Serotonin blockers
 - Tetrahydrocannabinol (THC)
 - Major psychoactive substance in marijuana
 - Inhibitory effects on the vomiting pathway

Antiemetics (cont.)

Therapeutic Uses

<u>Category</u>	<u>Indications</u>
• Anticholinergics	• Motion sickness, n/v. secretion reduction
• Antihistamines	• Motion sickness, cough, sedation, rhinitis, allergies, n/v
• Neuroleptics	• Psychotic disorders, hiccups, n/v
• Prokinetics	• Delayed gastric emptying, GI reflux, n/v
• Serotonin blockers	• n/v assoc w/chemo, post-op n/v
• Tetrahydrocannabinol (THC)	• n/v assoc w/chemo, anorexia in AIDS pts

Antiemetics (cont.)

- Examples
 - Scopolamine (Transderm-Scop)
 - Anticholinergic
 - Meclizine (Antivert)
 - Anticholinergic, antihistamine
 - Prochlorperazine (Compazine)
 - Neuroleptic
 - Metoclopramide (Reglan)
 - Prokinetic
 - Ondansetron (Zofran)
 - Serotonin blocker
 - Common SE - headache
 - Dronabinol (Marinol)
 - THC

Emetics

- Action
 - Induce vomiting
- Use
 - Expel gastric contents *when indicated*
 - Expectorants may be used to decrease mucous production in asthma or chronic bronchitis

Emetics (cont.)

Syrup of Ipecac



- Use in emergency to induce vomiting
- Do not give to unconscious victim
- Give 1 dose (1 ounce) if vomiting does not occur, may give second dose but no more
- Do not give if ingestion of petroleum based products has occurred

Activated Charcoal

Absorbent Agent

- Used in emergency tx of certain poisons
- If order to give both this and ipecac syrup to treat the poisoning
 - *Do not give this medicine until after the vomiting has stopped!!!*
 - Usually takes about 30 minutes
- Activated charcoal will cause stool to turn black

Test Question

Sulcrafate (Carafate) is ordered. The MAR reads to administer at 0900, 1300, 1800, & 2200. What should the nurse do?

- a. Call the MD
- b. Give as written
- c. Change the times
- d. Hold the medication

Answer

- Choice C
- Change the times because those are all after meal times!

Test Question # 2

For which client diagnosis would Aluminum Hydroxide (Amphogel) be ordered?

- a. Hepatic Impairment
- b. Renal impairment
- c. Constipation
- d. Sinusitis

Answer

- Choice A
- Clients with liver impairment should not be ingesting additional magnesium

Test Question #3

A nursing assessment finds the client is difficult to awaken. The MAR shows that Diphenoxylate (Lomotil) was given 3 times last night. What order should the nurse expect the MD to write first?

- a. Draw a peak drug level
- b. Naloxone (Narcan) Stat
- c. Nalbuphine (Nubain) QID
- d. D/C Diphenoxylate (Lomotil)

Answer

- Choice B
- Although Atropine has been added to the medication to discourage abuse, you cannot rule out the possibility of this scenerio