DRUGS AFFECTING THE GASTROINTESTINAL SYSTEM

Antidiarrheal and Laxatives

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Diarrhea

- Abnormal frequent passage of loose stools

  or

- Abnormal passage of stools with increased frequency, fluidity, and weight, or with 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	Chronic Diarrhea
Bacteria	Tumors
Viral	Diabetes
Drug-induced hyperthyroidism	Addison's disease
Nutritional syndrome	Irritable bowel
Protozoal	

Antidiarrheals: Mechanism of Action

1. Adsorbents

- 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, attapulgite (Kaopectate)

Antidiarrheals: Mechanism of Action

2. Anticholinergics

- Decrease 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

Antidiarrheals: Mechanism of Action

3. Intestinal Flora Modifiers

- 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: Mechanism of Action

4. Opiates

- Decrease bowel motility and relieve rectal spasms
- Decrease transit time through the bowel, allowing more time for water and electrolytes to be absorbed

Examples: paregoric, opium tincture, codeine, loperamide, diphenoxylate

Antidiarrheal Agents:Side Effects

Anticholinergics

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

Antidiarrheal Agents: Side Effects

Opiates

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

Antidiarrheal Agents: 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

- 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.

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

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 and anxiety

Laxatives:

Mechanisms of Action

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

Laxatives: Mechanism of Action

1. Bulk-Forming

- High fiber
- Absorbs water to increase bulk
- Distends bowel to initiate reflex bowel activity

Examples: psyllium (Metamucil), methylcellulose (Citrucel), polycarbophil

Laxatives: Mechanism of Action

2. Emollient

- 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: Mechanism of Action

3. Hyperosmotic

- Increase fecal water content
- Result: bowel distention, increased peristalsis, and evacuation

Examples: polyethylene glycol (GoLYTELY), sorbitol, glycerin, lactulose (Chronulac)

Laxatives: Mechanism of Action

4. Saline

- Increase osmotic pressure within the intestinal tract, causing 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 Phospho-Soda)

Laxatives: Mechanism of Action

5. Stimulant

- Increases peristalsis via intestinal nerve stimulation

Examples: castor oil, senna, cascara, bisacodyl

Laxatives: Therapeutic Uses

Laxative Group	Use
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

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

Laxatives: Therapeutic Uses

Laxative Group	Use
Stimulant	Acute constipation Diagnostic and surgical bowel preps

Laxatives: Therapeutic Uses

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

Laxatives: Therapeutic Uses

Laxative Group	Use
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: Suggestions

- Obtain a thorough history of presenting symptoms, elimination patterns, and allergies.
- Assess fluid and electrolytes before initiating therapy.
- Patients should not take a laxative or cathartic if they are experiencing nausea, vomiting, and/or abdominal pain.

Laxatives: Suggestions

- 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.

Laxatives: Suggestions

- Patients should take all laxative tablets with 6 to 8 ounces of water.
- Patients should take bulk-forming laxatives as directed by the manufacturer with at least 240 mL (8 ounces) of water.

Laxatives: Suggestions

- 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

Thank you

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