Wolters Kluwer
When you have to be right

Introduction to Clinical Pharmacology

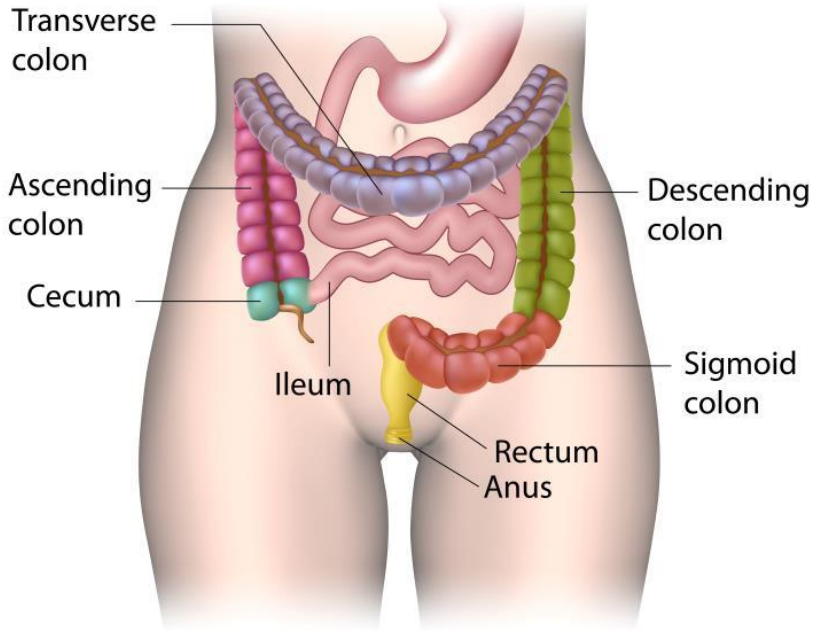
Chapter 39
Lower Gastrointestinal System Drugs

Learning Objectives

1. Describe how inflammatory bowel disease alters function of the lower gastrointestinal (GI) system.
2. List the types of drugs prescribed or recommended for lower GI disorders.
3. Explain the uses, general drug actions, general adverse reactions, contraindications, precautions, and interactions associated with lower GI drugs.
4. Distinguish important preadministration and ongoing assessment activities the nurse should perform on the client taking a lower GI drug.
5. List nursing diagnoses particular to a client taking a lower GI drug.
6. Examine ways to promote an optimal response to therapy, how to manage common adverse reactions, and important points to keep in mind when educating clients about the use of lower GI drugs.

Gastrointestinal System

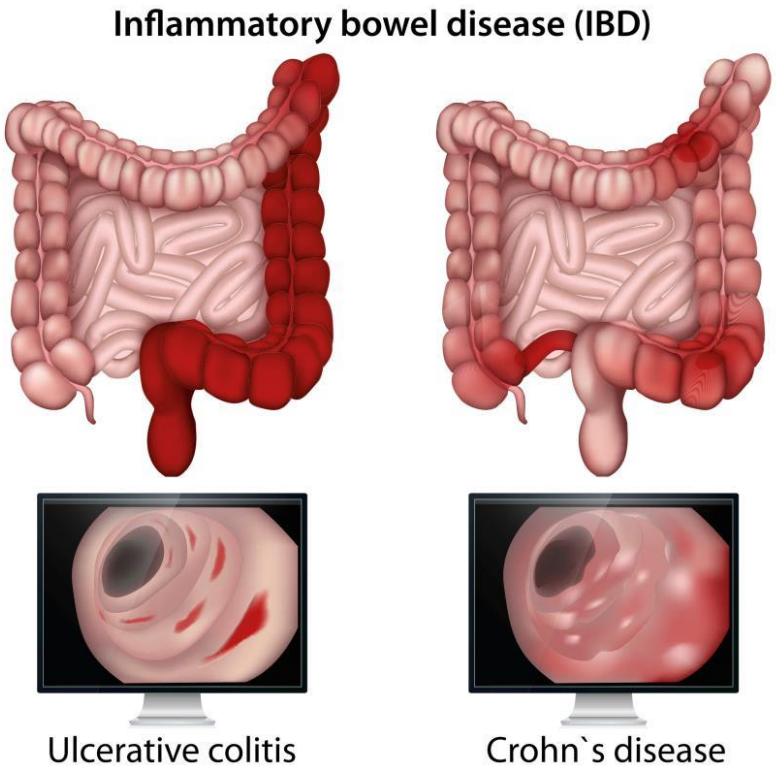
- Problems of the lower gastrointestinal system include diarrhea, constipation, irritable bowel syndrome, ulcerative colitis, and inflammatory bowel disease



Lower Gastrointestinal System Drugs

- Drugs used to treat the lower GI system:
  - Inflammatory Bowel Disease
    - Aminosalicylates
    - Immunotherapy
  - Antidiarrheals
  - Antiflatulents
  - Laxatives

Inflammatory Bowel Disease

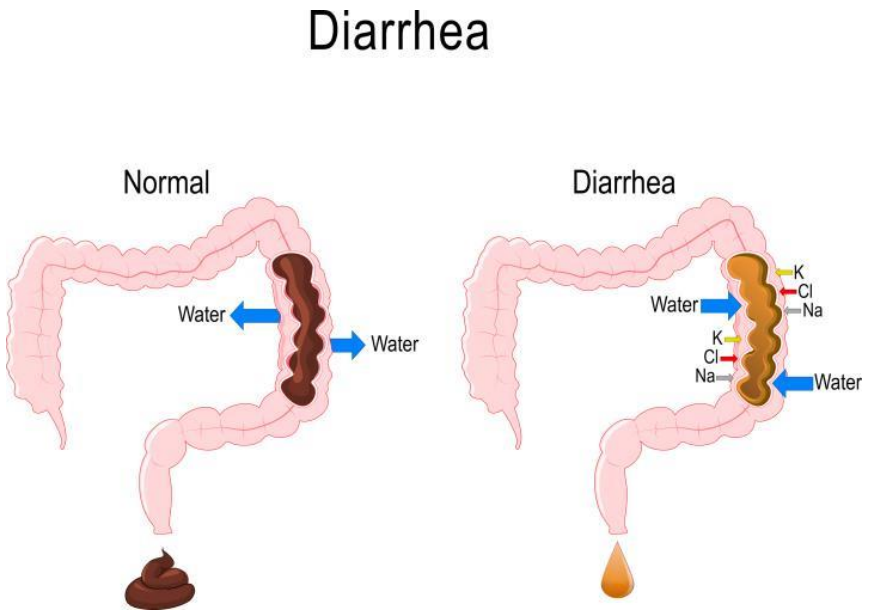


Aminosalicylates—Actions and Uses

- Aspirin-like compound with anti-inflammatory action
- 5-aminosalicyclate acid (5-ASA) medications
- Exerts topical anti-inflammatory effect in bowel
- Example: balsalazide
- Used to treat Crohn disease, ulcerative colitis, inflammatory diseases

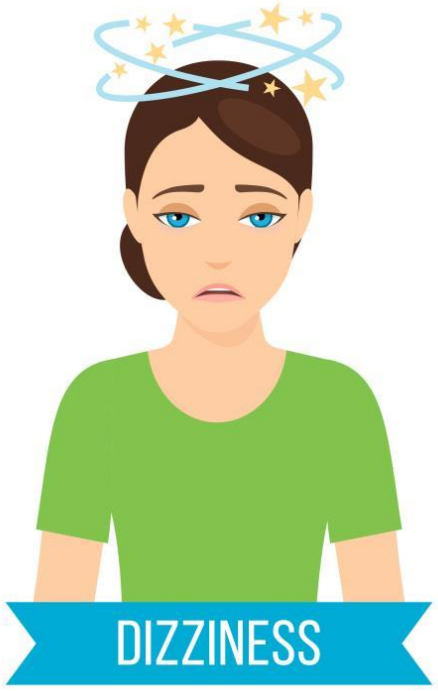
Aminosalicylates—Adverse Reactions #1

- Most Common Adverse Reactions—Gastrointestinal System:
  - Abdominal pain
  - Nausea
  - Diarrhea



Aminosalicylates—Adverse Reactions #2

- Other General Adverse Reactions:
  - Headache
  - Dizziness
  - Fever
  - Weakness



Aminosalicylates—Contraindications and Precautions

- Contraindicated in clients with:
  - known hypersensitivity to the drugs or salicylate-containing drugs,
  - hypersensitivity to sulfonamides and sulfites,
  - intestinal obstruction, or
  - in children younger than 2 years
- Use cautiously in clients with:
  - pregnancy (pregnancy category B)
  - lactation

Aminosalicylates—Interactions

Interacting Drug	Common Use	Effect of Interaction
Digoxin	Cardiac problems	Reduced absorption of digoxin
Methotrexate	Cancer and autoimmune conditions	Increased risk of immunosuppression
Oral hypoglycemic	Diabetes mellitus management	Decreased blood glucose level
Warfarin	Prevention of blood clots	Increased risk of bleeding

Immunomodulators and Biologic Agents—Use for IBD

- Immunomodulators and biologic agents are being used in the treatment for conditions caused by issues of immunity including inflammatory bowel disease
- Action of immunomodulator: suppresses the body's immune reactions
- Examples: infliximab
- Use: induction and remission of inflammatory bowel activity

Antidiarrheals—Actions and Uses

- difenoxin and diphenoxylate
  - Action: decrease intestinal peristalsis
  - Use: to treat diarrhea
- loperamide
  - Action: Act directly on the muscle wall of the bowel to slow motility
  - Use: to treat chronic diarrhea associated with IBD
- crofelemer
  - Action: blocks the secretion of chloride, which causes high water volume loss
  - Use: diarrhea-related water volume loss in clients with HIV and AIDS

Antidiarrheals—Adverse Reactions #1

- Gastrointestinal System Reactions:
  - Anorexia
  - Nausea
  - Vomiting
  - Constipation
  - Abdominal pain or discomfort
  - Abdominal distention

Antidiarrheals—Adverse Reactions #2

- Other Reactions:
  - Dizziness
  - Drowsiness
  - Headache
  - Sedation
  - Euphoria
  - Rash

Antidiarrheals—Contraindications

- Contraindicated in clients with:
  - organisms that can harm the intestinal mucosa (*Escherichia coli*, *Salmonella*, and *Shigella*),
  - pseudomembranous colitis,
  - abdominal pain of unknown origin,
  - obstructive jaundice, or
  - in children younger than 2 years

Antidiarrheals—Precautions

- Used cautiously in clients with:
  - severe hepatic impairment
  - pregnancy (pregnancy category C)
  - lactation

Antidiarrheals—Interactions

Interacting Drug	Common Use	Effect of Interaction
Antihistamines, opioids, sedatives, or hypnotics	Allergy treatment (antihistamines), sedation, or pain relief	Increased risk of CNS depression
Antihistamines and general antidepressants	Allergy relief and depression management	Increased cholinergic blocking adverse reactions
MAOI antidepressants	Depression management	Increased risk of antihypertensive crisis

Pharmacology in Practice Exercise #1

- When assessing a client's use of over-the-counter antidiarrheals, the client should be taught to seek treatment from the primary healthcare provider if diarrhea persists for how long?

a) 1 day

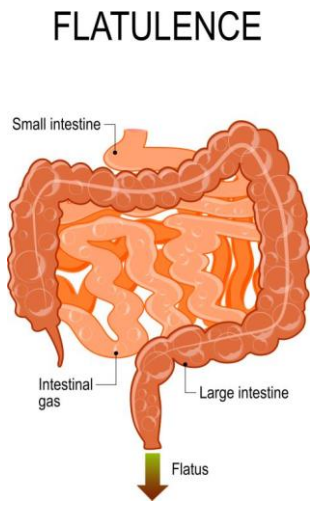
b) 12 hours

c) 2 days

d) 7 days

Antiflatulents—Actions

- Simethicone and charcoal:
  - Action: Help body release gas by belching or flatus
- Simethicone:
  - Action: Defoaming action that disperses and prevents formation of gas pockets in intestine
- Charcoal:
  - Action: Helps bind gas for expulsion



Antiflatulents—Uses and Adverse Reactions

- Used in the treatment of:
  - postoperative gaseous distention and air swallowing
  - dyspepsia
  - peptic ulcer
  - IBS or diverticulosis
  - nonspecific pruritis associated with kidney dialysis treatment (charcoal)
- No adverse reactions have been reported

Antiflatulents—Contraindications and Precautions

- Contraindicated in clients with:
  - known hypersensitivity to the drugs or any component of the drugs
- Used cautiously in:
  - Pregnancy—the pregnancy category of simethicone has not been determined and charcoal is a pregnancy category C drug

Antiflatulents—Interactions

- Interactions:
  - Decreased effectiveness of other drugs because of absorption by charcoal
  - No known interactions with simethicone

Laxatives—Actions

- The actions of laxatives are all different, but all laxatives relieve constipation.
  - Bulk-producing laxatives
  - Emollient laxatives
  - Stool softeners
  - Hyperosmolar drugs
  - Irritant or stimulant laxatives
  - Saline laxatives

Laxatives—Uses

- *Stimulant, emollient, and saline laxatives*: prevention of strain during defecation
- *Stool softeners or mineral oil*: prevention of strain during defecation (after anorectal surgery or a myocardial infarction)
- *Psyllium and polycarbophil*: IBS and diverticular disease
- *Hyperosmotic (lactulose) agents*: reduction of blood ammonia levels in hepatic encephalopathy

Laxatives—Adverse Reactions

- Diarrhea
- Loss of water and electrolytes
- Abdominal pain, discomfort, or cramps
- Nausea, vomiting
- Perianal irritation
- Fainting, weakness
- Bloating, flatulence
- Allergic reaction (tartrazine-containing laxatives)
- Obstruction of esophagus, stomach, small intestine, or colon (bulk-forming laxatives)

Laxatives—Contraindications

- Contraindicated in clients with:
  - known hypersensitivity to the drugs
  - persistent abdominal pain
  - nausea or vomiting of unknown cause
  - signs of acute appendicitis
  - fecal impaction
  - intestinal obstruction
  - acute hepatitis

Laxatives—Precautions

- Used cautiously in clients with:
  - renal impairment (magnesium)
  - rectal bleeding
  - pregnancy (pregnancy category C)
  - lactation

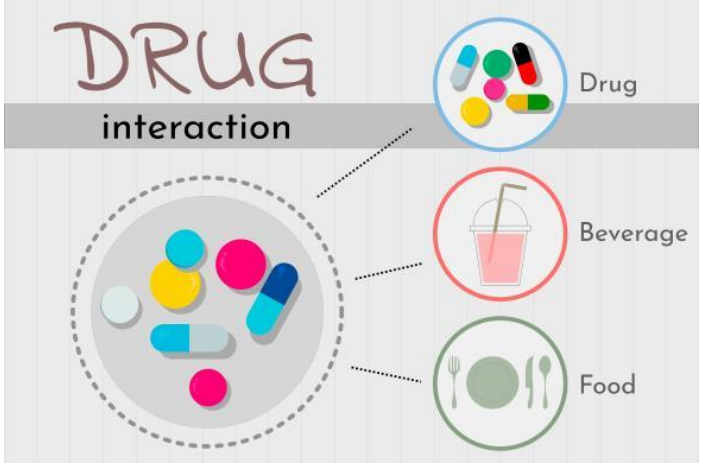
- Excessive or prolonged use of laxatives should be avoided due to potential for physical dependence on them for normal bowel movements

Laxatives—Interactions #1

Interacting Drug	Common Use	Effect of Interaction
Fat-soluble vitamins (A, D, E, K) with mineral oil	Nutritional supplement	Impaired absorption of fat-soluble vitamins
Any other drug with laxatives	Use specific to each drug	Reduced absorption of other drugs by combining them chemically or hastening their passage through the GI tract
Surfactants with mineral oil	Treatment of constipation	Increased mineral oil absorption

Laxatives—Interactions #2

- Milk, antacids, histamine H_2 antagonists, and proton pump inhibitors bisacodyl tablets should not be administered within 1 to 2 hours of bisacodyl tablets or enteric coating may dissolve early resulting in gastric lining irritation or dyspepsia and decreasing the laxative effect of the drug



Pharmacology in Practice Exercise #2

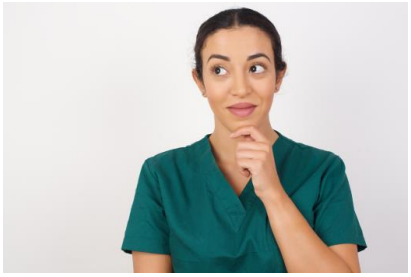
- A nurse is caring for a client taking a bulk laxative for the treatment of watery, loose, stools. The overuse of the drug results in constipation in the client. What instruction should the nurse offer the client to avoid constipation?

a) Take commercial electrolytes

b) Take the drug with food

c) Drink increased amounts of fluid

d) Avoid milk products



Weight Management Agents

- Action: orlistat makes fat indigestible, causing it to pass through the intestine without being absorbed due to inhibiting lipase
- Use: weight loss and weight management
- Adverse reactions: loose stools, increased flatus, fecal urgency, and incontinence with fatty or oily stools
- Contraindicated in clients with gallstones

Nursing Process—Client Receiving a Drug for a Lower Gastrointestinal Condition #1

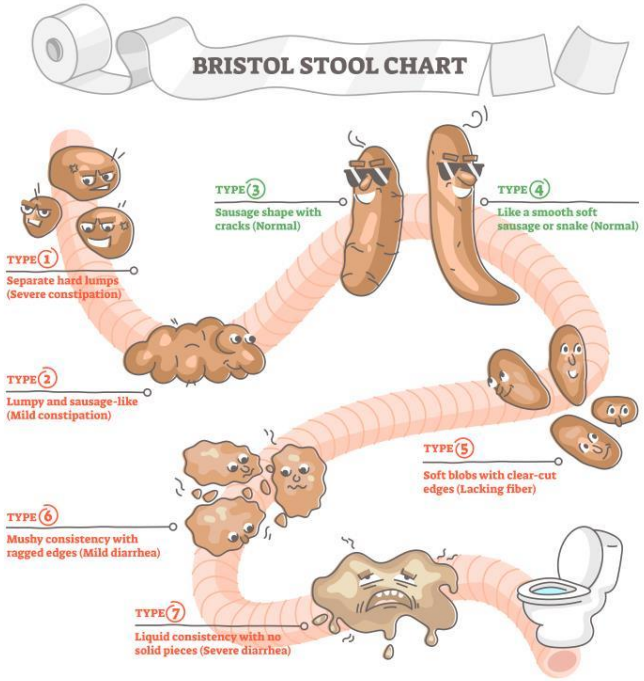
- **Preadministration Assessment**
- **Objective** Data
  - Vital signs
  - Auscultate for bowel sounds
  - Palpate abdomen, note guarding or discomfort
  - Weight
  - Lab tests: electrolyte panel if diarrhea is evident

Nursing Process—Client Receiving a Drug for a Lower Gastrointestinal Condition #2

- **Preadministration Assessment (continued)**
- **Subjective** Data
  - Description of type and intensity of symptoms (e.g., pain, discomfort, diarrhea or constipation, stool description)
  - Remedies client has attempted before seeking treatment
  - Medical history
  - Current list of all drugs and supplements taken

Nursing Process—Client Receiving a Drug for a Lower Gastrointestinal Condition #3

- **Ongoing Assessment**
  - Assess the client for relief of symptoms
  - Assess the frequency of bowel movements and the color and consistency of stool
  - Monitor vital signs daily or more frequently if severe diarrhea
  - Observe for adverse reactions
  - Evaluate effectiveness of the drug therapy



Nursing Process—Client Receiving a Drug for a Lower Gastrointestinal Condition #4

- **Nursing Diagnosis**
  - Risk for Dehydration related to diarrhea

Nursing Process—Client Receiving a Drug for a Lower Gastrointestinal Condition #5

- **Planning**
  - Expected client outcomes depend on the reason for administration of the drug but include:
    - Optimal response to therapy
    - Management of adverse drug reactions
    - Confidence in an understanding of the prescribed medication regimen

Nursing Process—Client Receiving a Drug for a Lower Gastrointestinal Condition #6

- **Implementation**
  - *Promoting Optimal Response to Therapy—Antidiarrheals*
    - Give drug after each loose stool
    - Client may be concerned that constipation will occur; teach client to inspect each bowel movement before administering the drug to determine if a dose is indicated
    - Crofelemer should not be crushed or chewed

Nursing Process—Client Receiving a Drug for a Lower Gastrointestinal Condition #7

- **Implementation**
  - *Promoting Optimal Response to Therapy—Laxatives*
    - Give bulk-producing or stool-softening laxatives with full glass of water or juice; bulk-producing laxatives are followed by an additional glass of water
    - Administer mineral oil to the client on empty stomach in the evening
    - Thoroughly mix powder, flake, or granule form laxatives prior to administration
    - Some preparations have an unpleasant taste; warn client and disguise taste by chilling, adding to juice, or pouring over cracked ice

Nursing Process—Client Receiving a Drug for a Lower Gastrointestinal Condition #8

- **Implementation**
  - Monitoring and Managing Client Needs
    - **Risk for Dehydration**
      - Notify primary healthcare provider if client has elevation in body temperature, severe abdominal pain, abdominal rigidity, or distention
      - Closely monitor and document fluid intake, output, and bowel movements
      - Encourage client to drink extra fluids and increase foods high in fiber

Nursing Process—Client Receiving a Drug for a Lower Gastrointestinal Condition #9

- **Implementation**
  - Monitoring and Managing Client Needs
    - **Risk for Dehydration (continued)**
      - Fluid volume loss and electrolyte balances from diarrhea and the adverse effects of lower GI drugs such as drowsiness and dizziness may put client at risk for falls; assist client with ambulation
      - For perianal irritation from loose stools, cleanse area with mild soap and water after each bowel movement, dry the area with soft cloth, apply emollient

Nursing Process—Client Receiving a Drug for a Lower Gastrointestinal Condition #10

- **Implementation—Educating the** Client and Family
- **Antidiarrheals:**
  - Explain the importance of taking the drug as directed
  - Emphasize observing caution when driving or performing other hazardous tasks
  - Instruct to avoid use of alcohol or other CNS depressants, other nonprescription drugs

Nursing Process—Client Receiving a Drug for a Lower Gastrointestinal Condition #11

- **Implementation—Educating the** Client and Family
- **Antiflatulents:**
  - Emphasize the importance of taking the drug after each meal and at bedtime
  - Instruct client to chew the tablets
  - Explain the necessity of contacting the primary healthcare provider immediately if symptoms are not relieved

Nursing Process—Client Receiving a Drug for a Lower Gastrointestinal Condition #12

- **Implementation—Educating the** Client and Family
- **Laxatives:**
  - Emphasize the importance of avoiding long-term use of products unless recommended
  - Instruct client not to use products in presence of abdominal pain, nausea, vomiting
  - Instruct the client to prevent future constipation by drinking fluids, exercising, and eating foods high in fiber
  - Notify the provider if rectal bleeding or other symptoms occur

Pharmacology in Practice Exercise #3

- A nurse is caring for a radiation outpatient experiencing treatment related diarrhea. Which of the following instructions should the nurse include in the teaching plan for this client? Select all that apply.

a) Get sufficient exercise

b) If drowsy, observe caution when driving

c) Avoid the use of alcohol

d) Eat a variety of fruits and vegetables

e) Avoid the use of nonprescription drugs

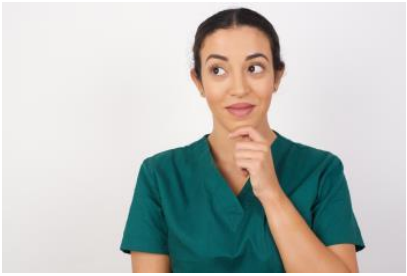
Nursing Process—Client Receiving a Drug for a Lower Gastrointestinal Condition #13

- **Evaluation**
  - Was the therapeutic effect achieved and bowel movements appropriate for the client's normal routine?
  - Were adverse reactions: identified, reported, and managed?
    - Client maintains adequate fluid volume
  - Did client and family express confidence and demonstrate understanding of drug regimen?

Turn and Talk—Case Study #1

- The nurse begins a clinic intake on a client with a chief complaint today of hard stools and straining to have a bowel movement. The nurse recognizes this issue as constipation. The client's current medications include amitriptyline 25 mg at bedtime for back sciatic pain, ferrous sulfate 325 mg three times a day for anemia, and lisinopril/hydrochlorothiazide 20/25 mg every day for high blood pressure.

1. Which of the client's medications may be contributing to the constipation?
2. What nonpharmacologic steps can the client take to relieve the constipation?



Turn and Talk—Case Study #2

- The nurse begins a clinic intake on a client with a chief complaint today of hard stools and straining to have a bowel movement. The nurse recognizes this issue as constipation. The client's current medications include amitriptyline 25 mg at bedtime for back sciatic pain, ferrous sulfate 325 mg three times a day for anemia, and lisinopril/hydrochlorothiazide 20/25 mg every day for high blood pressure.

3. The physician recommends over-the-counter docusate (Colace) to relieve the constipation. What should the nurse discuss with the client during discharge and teaching?