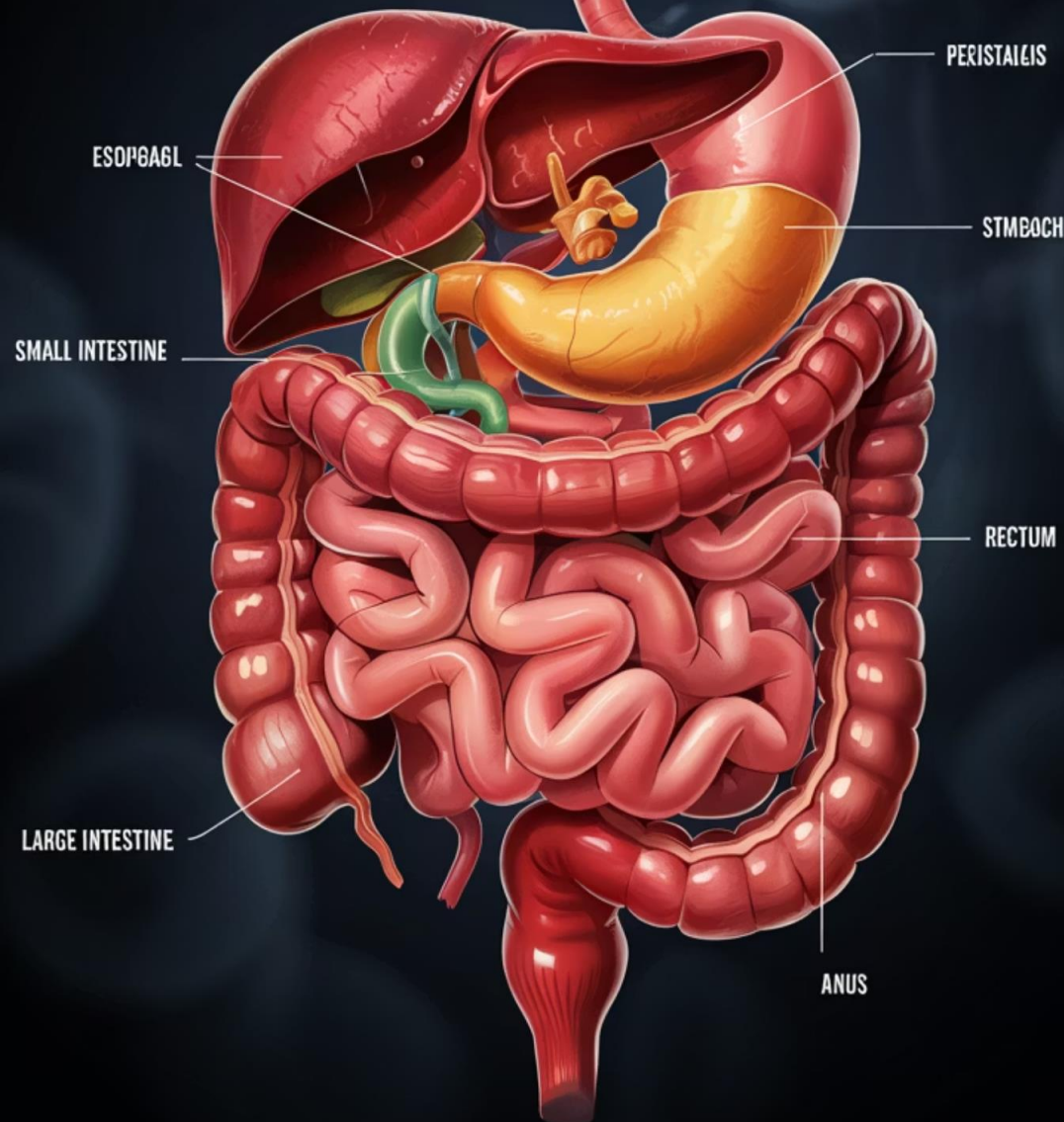


GASTROINTESTINAL SYSTEM



Gastrointestinal Pharmacology: A Comprehensive Guide

Welcome to this comprehensive guide on gastrointestinal pharmacology. In this presentation, we'll explore ten essential drug classes used to treat various gastrointestinal conditions. Each section will cover indications, mechanisms of action, nursing considerations, patient education, and key drug interactions.

Understanding these medications is crucial for providing optimal patient care and education. Let's begin our journey through the pharmacological management of gastrointestinal disorders.

G by Miranda Ekenjock



Proton Pump Inhibitors (PPIs)

Indications

GERD, peptic ulcer disease

Mode of Action

Inhibits the proton pump in the stomach, reducing gastric acid secretion

Nursing Care

Monitor for signs of GI bleeding; check magnesium levels regularly

Patient Teaching

Take before meals; avoid NSAIDs, alcohol, and smoking

Proton Pump Inhibitors like Omeprazole are powerful acid suppressants that work by irreversibly binding to the hydrogen-potassium ATPase enzyme system. They can interact with drugs requiring an acidic environment for absorption, such as ketoconazole. Remember the mnemonic: "**Pump Out Acid with a PPI (POA)**" to recall their mechanism.

H2 Receptor Antagonists

1

Indications

GERD, peptic ulcer, Zollinger-Ellison syndrome

2

Mode of Action

Blocks H2 receptors in the stomach, reducing acid production

3

Nursing Care

Monitor for confusion, especially in elderly patients

4

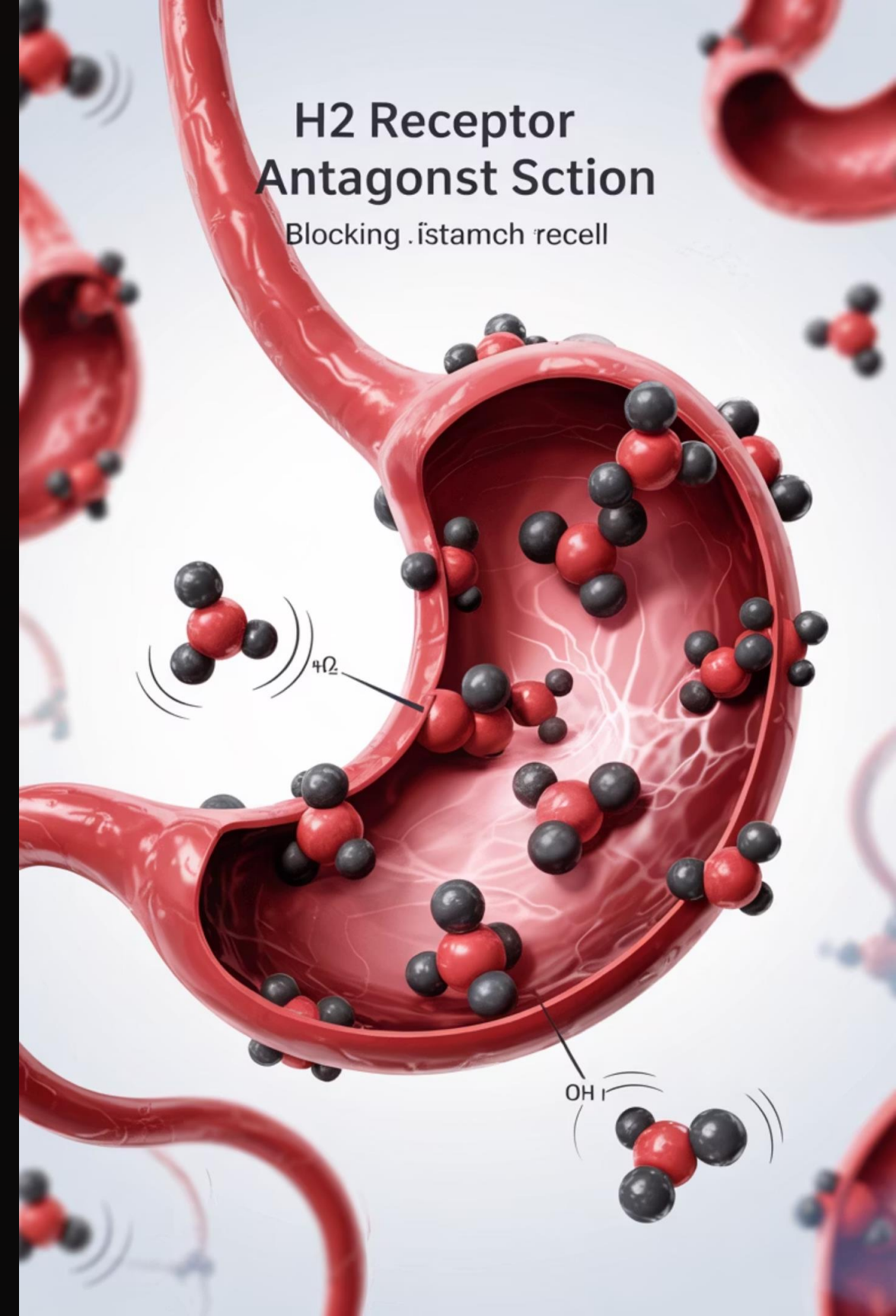
Patient Teaching

Take at bedtime; avoid alcohol and foods that increase stomach acid

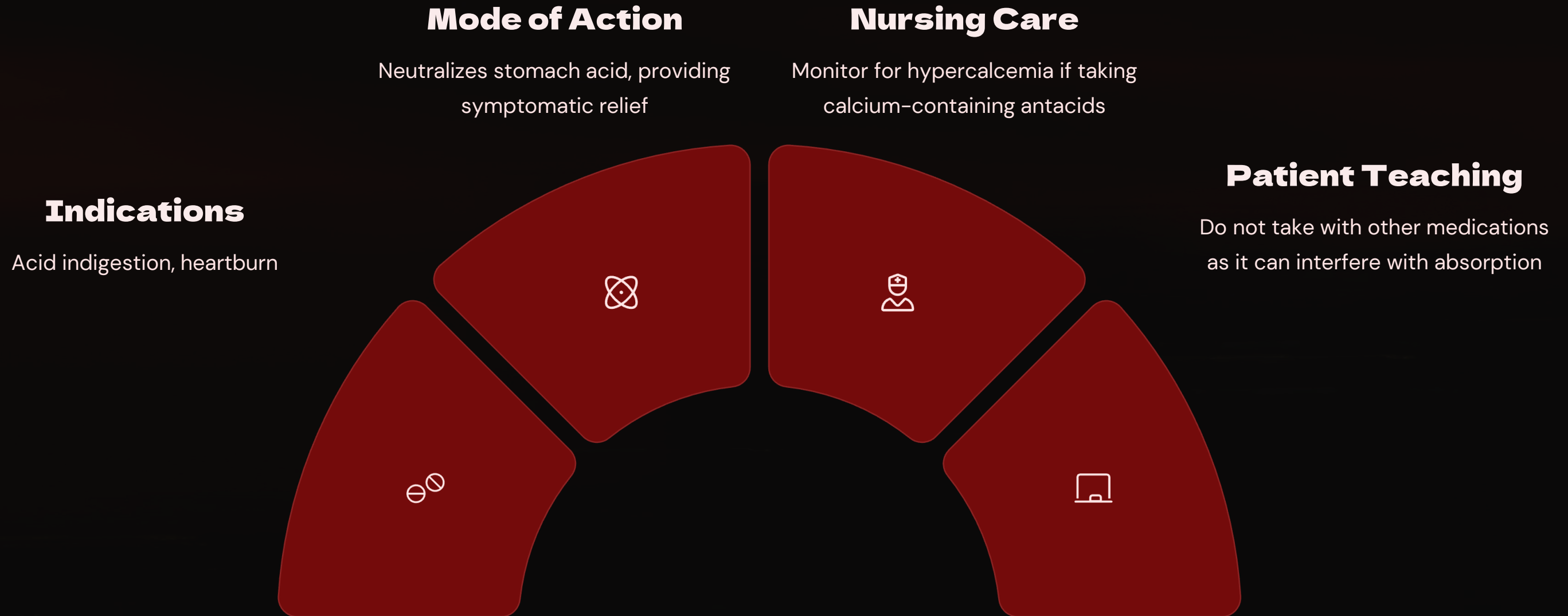
H2 Receptor Antagonists like Ranitidine work by competitively inhibiting histamine at H2 receptors of the gastric parietal cells. They're less potent than PPIs but still effective for many conditions. These medications can reduce the absorption of drugs requiring acidic pH, such as atazanavir. Remember: **"H2 Blockers Help with Heartburn" (HBHH)**.

H2 Receptor Antagonist Action

Blocking stomach cells



Antacids



Antacids like Calcium Carbonate provide rapid but temporary relief by directly neutralizing stomach acid. They're available over-the-counter but require careful monitoring, especially with long-term use. Antacids may reduce the absorption of several medications including iron, tetracycline, and fluoroquinolones. Remember: **"Antacids Act on Acid" (AAA)**.



Prokinetic Agents



Indications

GERD, gastroparesis, nausea



Mode of Action

Increases GI motility by enhancing acetylcholine action in the gut



Nursing Care

Monitor for extrapyramidal symptoms (EPS), tardive dyskinesia



Patient Teaching

Take 30 minutes before meals and at bedtime

Prokinetic agents like Metoclopramide enhance gastrointestinal motility, making them valuable for conditions involving delayed gastric emptying. They require careful monitoring due to potential neurological side effects. These medications may increase the risk of extrapyramidal symptoms when combined with antipsychotics. Remember: "**Metro Moves the Stomach**" (MMS).

Laxatives

1

Indications

Constipation, hepatic encephalopathy

2

Mode of Action

Increases water content in stool, softening it and promoting peristalsis

3

Nursing Care

Monitor electrolyte levels, especially potassium

4

Patient Teaching

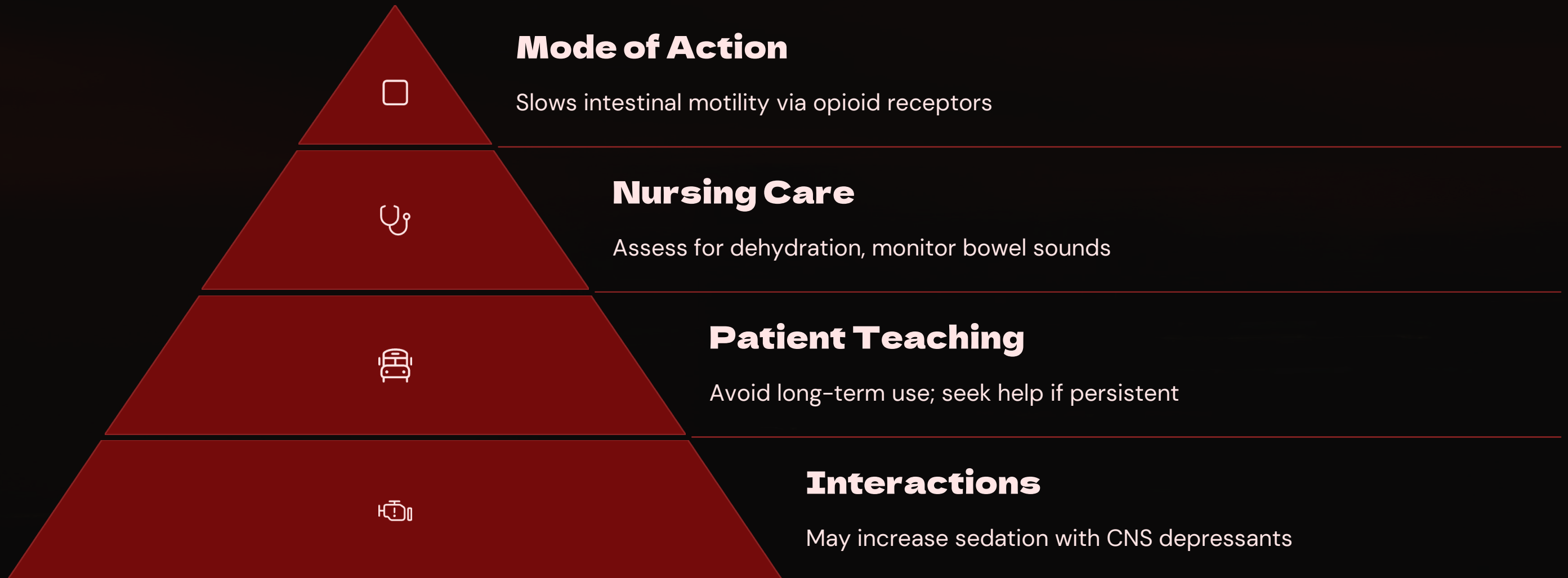
Increase fluid intake; use only as directed to avoid dependency

Laxatives like Lactulose work by drawing water into the intestinal lumen, increasing stool volume and stimulating peristalsis. They're effective for constipation but can cause electrolyte imbalances with prolonged use. Laxatives may decrease the absorption of other oral medications taken concurrently. Remember the mnemonic: "**Lactulose Lifts Stool**" (LLS).

Laxative action



Antidiarrheals



Antidiarrheals like Loperamide are effective for managing acute diarrhea by decreasing intestinal peristalsis. They work by activating opioid receptors in the intestinal wall, reducing propulsive contractions. While generally safe, they should be used cautiously with CNS depressants due to potential additive sedative effects. Remember: "**Low Motion with Loperamide**" (LML).



Antiemetics

Indications

Nausea and vomiting from various causes including chemotherapy, radiation, surgery, and pregnancy

Mode of Action

Blocks serotonin receptors in the brain and gut, reducing nausea and vomiting signals

Nursing Care

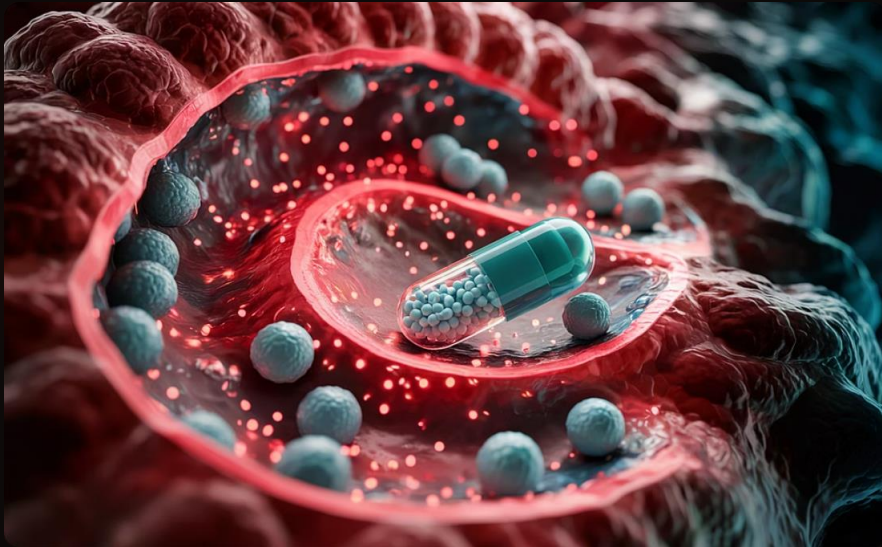
Monitor for headache and constipation; assess electrolyte levels regularly to prevent imbalances

Patient Teaching

Take as prescribed; report persistent headache or changes in bowel movements promptly

Antiemetics like Ondansetron are powerful medications that interrupt the vomiting reflex by blocking 5-HT₃ receptors. They're particularly effective for chemotherapy-induced nausea. These drugs can increase the risk of QT prolongation when combined with certain medications. Remember: **"Oh No! Nausea Stops with Ondansetron" (ONSO).**

5-Aminosalicylates



Mode of Action

Reduces inflammation in the colon by inhibiting prostaglandin synthesis, providing targeted anti-inflammatory effects in the intestinal mucosa

5-Aminosalicylates like Mesalamine are the mainstay treatment for inflammatory bowel diseases. They work locally in the intestine to reduce inflammation with minimal systemic absorption. These medications may reduce the absorption of folic acid supplements. Remember: "**Mesalamine Maintains Mucosa**" (MMM).



Patient Teaching

Take with meals to minimize GI upset; maintain regular dosing schedule for optimal therapeutic effect



Nursing Care

Monitor for blood in stool and abdominal pain; assess medication effectiveness through symptom reduction

Bile Acid Sequestrants



Mode of Action

Binds bile acids in gut, preventing reabsorption



Nursing Care

Monitor lipid levels, assess for GI discomfort



Patient Teaching

Take before meals; mix powder with water or juice

Bile Acid Sequestrants like Cholestyramine work by binding to bile acids in the intestine, preventing their reabsorption and promoting their excretion. This leads to increased conversion of cholesterol to bile acids, reducing serum cholesterol levels. These medications can decrease the absorption of fat-soluble vitamins and other drugs, requiring careful timing of administration.

Remember: "**Cholestyramine Cuts Cholesterol**" (CCC).

Hepatoprotectants

Indications

Gallstone prevention, liver disease

Patient Teaching

Take as directed, usually with meals



Mode of Action

Reduces bile cholesterol content, dissolving gallstones

Nursing Care

Monitor liver enzymes; assess for abdominal pain

Hepatoprotectants like Ursodeoxycholic Acid play a crucial role in managing gallstone disease and certain liver conditions. By altering the composition of bile, they help dissolve cholesterol gallstones and protect liver cells from damage. These medications have decreased efficacy when taken with aluminum-containing antacids. Remember: **"Urso Saves the Liver" (USL)**.