

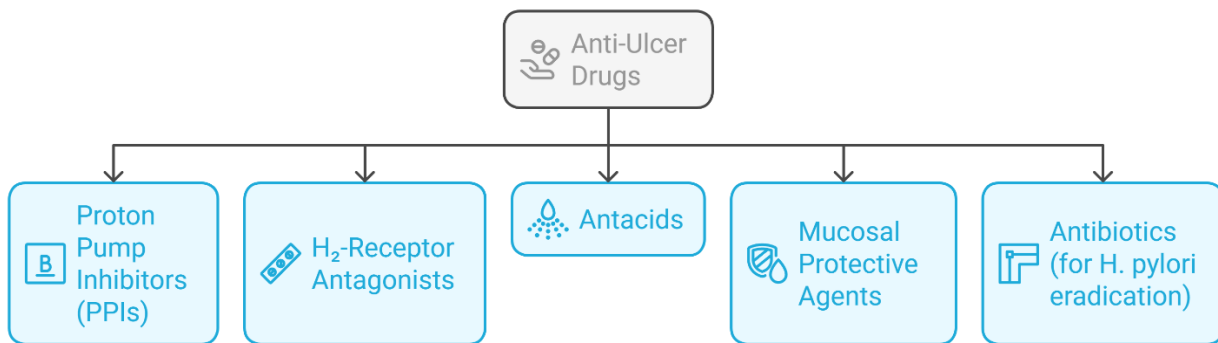
Drugs Acting on the Gastro Intestinal Tract

Anti-Ulcer Drugs

Definition

- Anti-ulcer drugs are medications used to **treat and prevent peptic ulcers** (gastric and duodenal) and related conditions by **reducing gastric acid secretion, neutralizing acid, or protecting the mucosal lining**.

Classification



1. Proton Pump Inhibitors (PPIs)

- Omeprazole, Pantoprazole, Esomeprazole, Rabeprazole

2. H₂-Receptor Antagonists

- Ranitidine, Famotidine, Cimetidine

3. Antacids

- Magnesium hydroxide, Aluminum hydroxide, Calcium carbonate, Sodium bicarbonate

4. Mucosal Protective Agents

- Sucralfate, Bismuth subsalicylate, Misoprostol

5. Antibiotics (for H. pylori eradication)

- Amoxicillin, Clarithromycin, Metronidazole (used in combination)

Pharmacological Actions

Class	Mechanism
PPIs	Irreversibly inhibit H ⁺ /K ⁺ -ATPase (proton pump) in parietal cells → ↓ acid
H₂ blockers	Block histamine H ₂ receptors → ↓ gastric acid secretion

Antacids	Neutralize existing stomach acid
Sucralfate	Forms protective gel over ulcer base
Misoprostol	Prostaglandin analog → ↑ mucus, ↓ acid
Bismuth	Protective and antibacterial against H. pylori

Dose (examples)

Drug	Typical Dose
Omeprazole	20–40 mg once daily
Pantoprazole	40 mg once or twice daily
Ranitidine	150 mg twice daily
Sucralfate	1 g 4 times daily before meals
Misoprostol	200 mcg 4 times/day
Antacids	5–10 mL or 1–2 tablets as needed after meals and at bedtime

Indications

- Peptic ulcer disease (PUD)
- Gastroesophageal reflux disease (GERD)
- H. pylori infection (in combination therapy)
- NSAID-induced ulcers (Misoprostol is useful)
- Zollinger-Ellison syndrome
- Stress ulcers (prophylaxis)

Contraindications

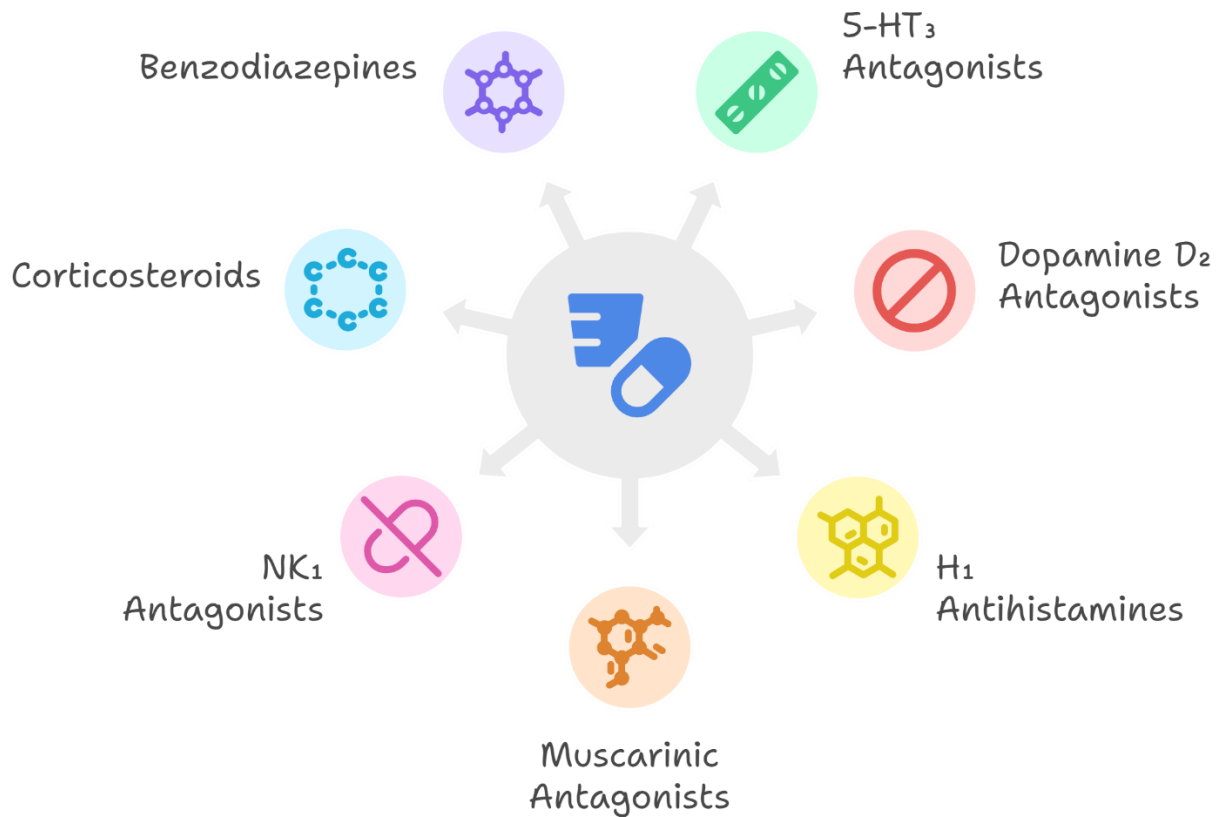
- **PPIs (Proton Pump Inhibitors):** Long-term use may increase risk of vitamin B12 deficiency, bone fractures, and infections
- **H2 blockers:** Cimetidine may cause gynecomastia; avoid in elderly due to central nervous system effects
- **Antacids:** Contraindicated in renal failure (especially magnesium- or aluminum-containing antacids)
- **Misoprostol:** Contraindicated in pregnancy (can cause uterine contractions leading to abortion)
- **Sucralfate:** Use with caution in renal failure (contains aluminum)

Anti-Emetics

Definition

- Anti-emetics are drugs that prevent or relieve nausea and vomiting by acting on the vomiting center, chemoreceptor trigger zone (CTZ), or GI tract.

Classification



A. 5-HT₃ Receptor Antagonists

- Ondansetron, Granisetron, Palonosetron

B. Dopamine D₂ Receptor Antagonists

- Metoclopramide, Domperidone, Prochlorperazine

C. H₁ Antihistamines

- Promethazine, Diphenhydramine, Cyclizine, Meclizine

D. Muscarinic (M₁) Antagonists

- Scopolamine (Hyoscine)

E. Neurokinin-1 (NK₁) Antagonists

- Aprepitant, Fosaprepitant

F. Corticosteroids (adjuvant)

- Dexamethasone

G. Benzodiazepines

- Lorazepam (anticipatory vomiting in chemotherapy)

Pharmacological Actions

Class	Action
5-HT₃ antagonists	Block serotonin receptors in CTZ and GI tract
D₂ antagonists	Block dopamine in CTZ, enhance gastric motility (prokinetic)
H₁ & M₁ blockers	Act on vestibular system (motion sickness)
NK₁ antagonists	Block substance P in brainstem (used in chemo-induced vomiting)

Dose (examples)

Drug	Typical Dose
Ondansetron	4–8 mg IV/oral every 8 hours
Metoclopramide	10 mg 3–4 times daily
Domperidone	10–20 mg 3 times/day before meals
Promethazine	25 mg oral/IM at night or before travel
Aprepitant	125 mg before chemo, then 80 mg/day for 2 days
Scopolamine	1.5 mg transdermal patch every 72 hrs

Indications

- **Chemotherapy-induced nausea and vomiting (CINV)** – Ondansetron, Aprepitant, Dexamethasone
- Post-operative nausea and vomiting (PONV)
- **Motion sickness** – Scopolamine, Meclizine
- **Pregnancy-induced vomiting (Hyperemesis gravidarum)** – Promethazine, Ondansetron
- **Gastritis, gastroenteritis** – Metoclopramide, Domperidone
- **Anticipatory nausea** – Lorazepam (BZD)

Contraindications

- **Metoclopramide:** Parkinson's disease, epilepsy, gastrointestinal (GI) obstruction
- **Domperidone:** QT prolongation, cardiac arrhythmias



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