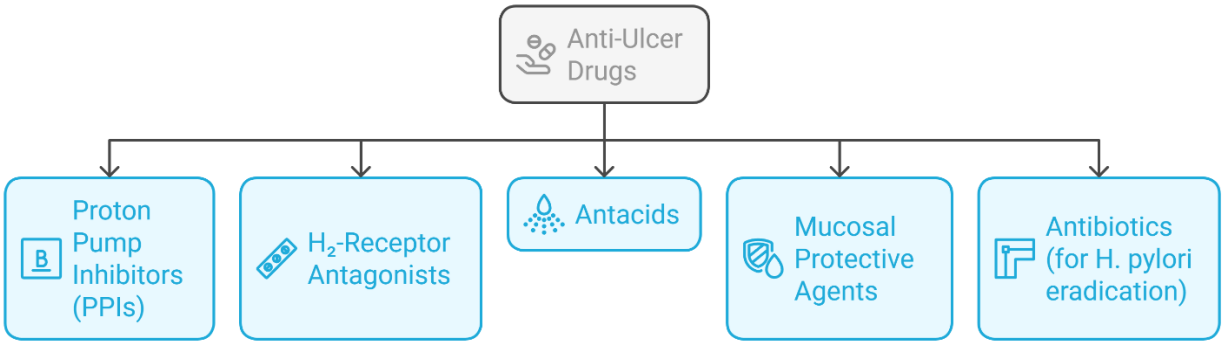
Drugs Acting on the Gastro Intestinal Tract

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

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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)

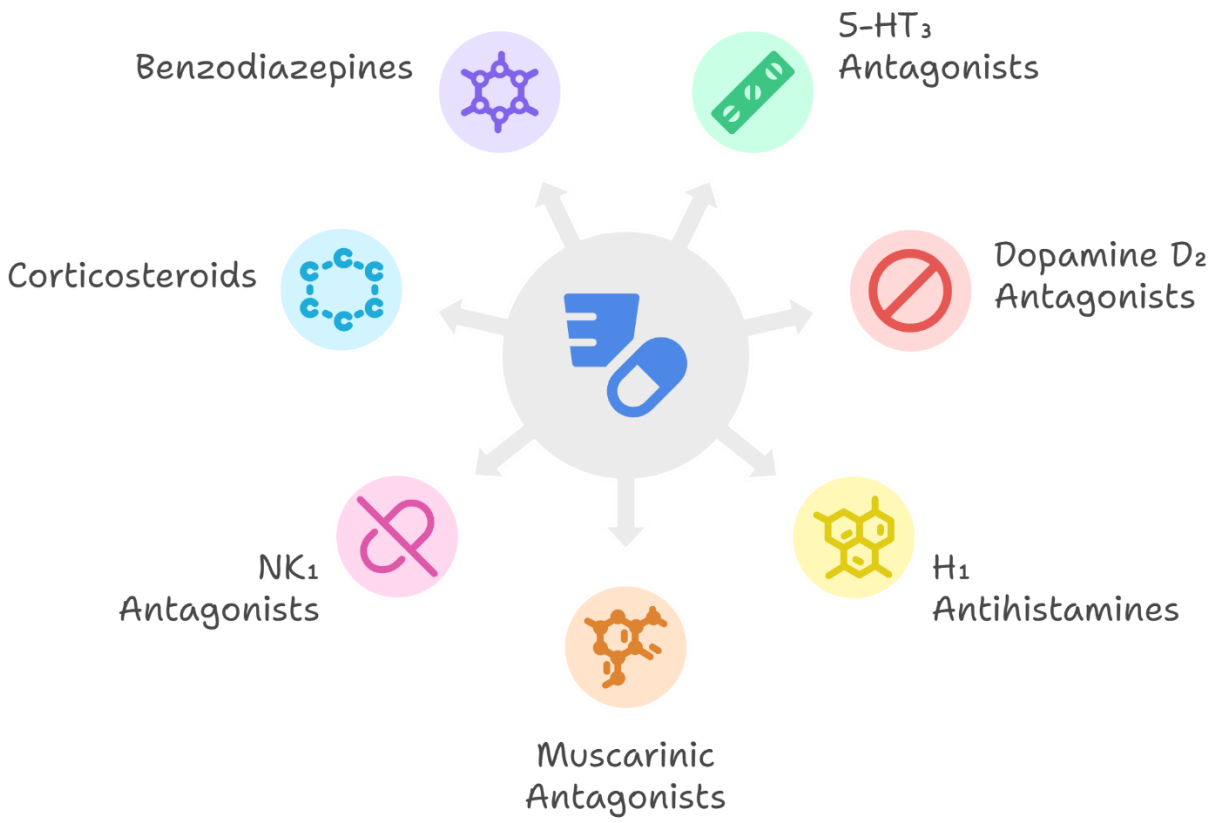
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Anti-Emetics

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

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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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