

GASTROINTESTINAL DRUGS (3.0)

NAME SCHOOL

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1. Drugs for the Treatment of Peptic Ulcer Disease

Describe neural, paracrine and endocrine regulation of gastric acid production, H⁺,K⁺-ATPase activity, and concept of acid-peptic aggression vs. mucosal defense.

Describe the role and mechanism of H. pylori in the development of peptic ulcers. Describe the role and mechanism of NSAIDs in the development of peptic ulcers.

a. Histamine H₂ Antagonists.

- 1) Explain mechanisms by which H₂ antagonists inhibit acid production.
- 2) Describe absorption, metabolism and excretion; duration of action.
- 3) Explain mechanisms by which certain H₂ antagonists alter responses to other drugs.
- 4) Identify adverse effects, especially those related to age or gender, and consequences of cessation of therapy on the course of the disease.

b. H⁺, K⁺-ATPase Inhibitors

- 1) Describe the role of H⁺, K⁺-ATPase in gastric acid production.
- 2) Explain the selectivity for the site and mechanism of H⁺, K⁺-ATPase inhibitor actions.
- 3) Consider concept of efficacy to explain potential side effects.
- 4) Explain the rationale for their use in peptic ulcer disease and gastroesophageal reflux disease (GERD).

c. Prostaglandin Derivatives

- 1) Describe the mechanisms of gastric antisecretory and mucosal protective effects.
- 2) Describe the major side effects associated with misoprostol.
- 3) Explain the rationale for use of misoprostol in conjunction with anti-inflammatory drugs.

d. Sucralfate

- 1) Describe the antiulcer actions of sucralfate.
- 2) Describe side effects and therapeutic limitations.

e. Antacids

- 1) Explain the mechanism of action of antacids.
- 2) State their relative rates of onset and duration of action.
- 3) Explain the rationale for their uses in the treatment of peptic ulcer, gastroesophageal reflux disease, and dyspepsia.

- 4) Identify the major adverse reactions to major classes of drugs: diarrhea, constipation, acid-base balance, phosphate depletion, acid rebound, milk-alkali syndrome, effects on absorption of other drugs.
- 5) Provide the rationale for mixtures of antacids.
- 6) Outline additional concerns for patients with renal impairment.

g. Antibacterial Drugs

- 1) Relate peptic ulcer disease to infection with *Helicobacter pylori*.
- 2) Describe the role of antibacterial triple and quadruple therapy with bismuth salts and antibiotics in the management of peptic ulcer disease.

2. Secretory Drugs

Explain the rationale for use of secretory agents in diagnosis of secretory disorders.

Compare the mechanisms of action and relative safety of histamine agonists, cholinergic agonists and gastrin agonists.

3. Prokinetic Drugs

Explain the rationale for use of drugs that increase esophageal clearance, gastric emptying and small and large intestinal transit.

Explain the role of smooth muscle muscarinic M₃ receptors in mediation of prokinetic drug actions.

Discuss the gastrointestinal motility complications associated with surgery, including the use of opioid analgesic agents.

Describe the expected side effects associated with each class of prokinetic drugs. Compare the prokinetic actions of each class of drugs including consideration of their relative effects at cholinergic, dopamine, 5-hydroxytryptamine (5-HT₄) and motilin receptors.

4. Laxative Drugs

Classify laxative drugs as bulk-forming, lubricant, surface active, secretory or osmotic.

Discuss appropriate use of laxatives to treat constipation (include the laxative abuse syndrome).

Compare the mechanisms by which surface active laxatives alter mucosal transport and the mechanisms of action of osmotic laxatives.

Describe the adverse reactions to laxatives including systemic effects and local effects.

Compare various classes of laxatives in terms of time course to onset of desired drug effect.

5. Antidiarrheal Drugs

Discuss the pathophysiology of diarrhea including alterations in mucosal transport and motility.

Define the therapeutic objectives in treating diarrhea with drugs.

Discuss the antidiarrheal mechanisms of opioids and differences in their pharmacokinetic characteristics.

List nonopioid antidiarrheal drugs and their mechanisms of action.

6. Drugs for the Treatment of Inflammatory Bowel Disease (IBD)

Discuss the pathophysiology of IBD stressing the postulated role of the immune system.

Define the therapeutic objectives in treating IBD with drugs.

Discuss the role of drug design in localizing drug delivery to the intestinal mucosa.

Discuss the rationale for using specific antibodies as drugs in IBD.

7. Drugs for the Treatment of Irritable Bowel Syndrome (IBS)

Discuss the prevalence and the presenting signs and symptoms of IBS.

Discuss the receptors and neural pathways involved in visceral pain.

Discuss the postulated role of abnormal motility and of visceral hypersensitivity in IBS.

Define the therapeutic objectives in treating IBS with drugs.