

Written Q

1. Mention mechanism of action and side effect of H₂ blocker (cimetidine)?
2. Mention MOA and side effect of PPI (omeprazole)?
3. Discuss strategies for treatment of H pylori?
4. Mention lines of treatment of bleeding peptic ulcer?

Case Scenario

- S.T., A 72-year-old woman, presented to her family physician complaining of epigastric pain for more than 1 month. The pain occurred daily, was nonradiating, and increased at night and between meals. The pain seemed to decrease on ingesting food or antacids.
 - The patient also stated that 3 days ago she noticed tarry stools. S.T. smoked one pack of cigarettes daily and drank 1 to 2 cans of beer per week.
 - Physical examination showed/ vital signs: blood pressure 136/82 mm Hg, pulse 68 bpm, respirations 18/min.
 - Abdominal examination showed normal bowel sounds and mild epigastric tenderness. The physician ordered endoscopy and blood exams. Endoscopy results indicated a 3 cm clean-based gastric ulcer, and a biopsy of the ulcer site identified *Helicobacter pylori*
- What drug therapies might be considered for this patient?

MCQ (formative)

<p>1. Mechanism Specific treatment of gastric ulceration in patients using NSAIDs.</p> <ul style="list-style-type: none">a) Ranitidineb) Omeprazolec) Misoprostold) Bismuthe) Sucralfate	C
<p>2. Which of the following is a side effect of Sucralfate?</p> <ul style="list-style-type: none">a) Osteoporosisb) Inhibits microsomal P450 enzymesc) Decreases vit B12 absorptiond) Constipatione) Infection	D
<p>3. The following drug is associated with decreased vit B12 absorption and megaloblastic anemia when used for long time (>12 weeks):</p> <ul style="list-style-type: none">a) Cimetidineb) Omeprazolec) Sucralfated) Misoprostole) Sodium bicarbonate	B
<p>4. Most effective in treatment of peptic ulcer disease?</p> <ul style="list-style-type: none">a) Cimetidineb) Pantoprazolec) Pirenzepined) Ondansetrone) LSD	B

<p>5. Omeprazole, has a mechanism of action that is based on which of the following?</p> <ul style="list-style-type: none"> a) Prostaglandins. b) Gastric secretion. c) Pepsin secretion d) H^+, K^+ ATPase. e) Anticholinergic. 	D
<p>6. A patient presents with two bleeding ulcers. Which drug irreversibly inhibits the h^+/K^+ ATPase in gastric parietal cells?</p> <ul style="list-style-type: none"> a) Cimetidin b) Cisapride c) Glycopyrolate d) Omeprazole e) Ondansetron 	D
<p>7. The approved indication for misoprostol:</p> <ul style="list-style-type: none"> a) Reflux esophagitis b) Regional ileitis c) Ulcerative colitis d) Presentation of gastric ulceration in patients using NSAID e) Zollinger Ellison syndrome 	D
<p>8. Which of the following agents relieve epigastric pain by neutralizing gastric acidity?</p> <ul style="list-style-type: none"> a) Acetaminophen b) Aspirin c) Domperidone d) Morphine e) $NaHCO_3$ 	E

<p>9. Famotidine relieves epigastric pain by which of the following mechanisms?</p> <ul style="list-style-type: none"> a) Block gastrin receptor b) Block H₂ receptor c) Block M₁ receptor d) Proton pump inhibitor e) Stimulate prostaglandin synthesis 	B
<p>10. Anticholinergic drugs are contraindicated in this case because.</p> <ul style="list-style-type: none"> a) It decreases gastric HCL secretion b) It decreases lower oesophageal sphincter pressure c) It decreases prostaglandin synthesis d) It increases gastric HCL secretion e) It increases lower oesophageal sphincter pressure 	B
<p>11. A triple therapy with vonoprazan, amoxicillin, and clarithromycin was prescribed. What is mechanism of action of vonoprazan?</p> <ul style="list-style-type: none"> a) Block H₂ receptor b) Block M₁ receptor c) Proton pump inhibitor d) Competitive potassium blocker e) Stimulate prostaglandin synthesis 	D
<p>12. Which of the following is the most potent drug in decreasing gastric acidity?</p> <ul style="list-style-type: none"> a) Atropine b) Cimetidine c) Famotidine d) Omeprazole e) Pirenzepine 	D

<p>13. A 34-year-old man with long-standing gastro-oesophageal reflux disease is reviewed in clinic. He has recently switched from ranitidine to omeprazole. What is the main benefit of omeprazole compared to ranitidine?</p> <p>a) Increased gastric motility b) Longer half-life c) Decreased post-prandial acid production d) Irreversible blockade of H⁺/K⁺ ATPase e) More effective histamine receptor antagonism</p>	D
<p>14. Which drug accumulates in parietal cell and undergoes conversion to a derivative that irreversibly inhibits H/K ATPase?</p> <p>a) Cimetidine b) Diphenoxylate c) Esomeprazole d) Metoclopramide e) Sulfasalazine</p>	C
<p>15. A 45-year-old man with duodenal ulcer treated with a combination of drugs intended to heal the mucosal damage and to eradicate H.pylori. An antibacterial drug that is used commonly to eradicate intestinal H.pylori is:</p> <p>a) Cefazolin b) Ciprofloxacin c) Clarithromycin d) Clindamycin e) Vancomycin</p>	C
<p>16. Select the drug which is an inhibitor of gastric mucosal proton pump :</p> <p>a) Carbenoxolone b) Famotidine c) Lansoprazole d) Misoprostol</p>	C

<p>17. Which of the following drugs prevents acid secretion by antagonizing a receptor?</p> <p>a) Aluminum hydroxide b) Fexofenadine c) Misoprostol d) Omeprazole e) Ranitidine</p>	E
<p>18. in peptic ulcer , antacid are now primarily used for :</p> <p>a) prompt pain relief b) ulcer healing c) prevent ulcer relapse d) control bleeding from ulcer</p>	A
<p>19. sucralfate prompt healing of duodenal ulcer by :</p> <p>a) enhance gastric mucous and bicarbonate secretion b) coating the ulcer and preventing action of acid – pepsin on ulcer base c) promot regeneration of mucosa d) both A and B are correct</p>	B
<p>20. Which of the following drugs may cause reversible gynecomastia?</p> <p>a) Omeprazole b) Pirenzepine c) Cimetidine d) Sucralfate e) Na bicarbonate</p>	C
<p>21. Choose the drug which is a H2-receptor antagonist:</p> <p>a) Omeprazole b) Pirenzepine c) Carbenoxolone d) Ranitidine e) Misoprostol</p>	D

<p>22. Toxicities of cimetidine include which one of the following?</p> <ul style="list-style-type: none"> a) Blurred vision b) Diarrhea c) Orthostatic hypotension d) P450 inhibition e) Sleepiness 	D
<p>23. Which of the following will result from blockade of H2 receptors?</p> <ul style="list-style-type: none"> a) Decreased cAMP in cardiac muscle b) Increased cAMP in cardiac muscle c) Decreased IP3 in gastric mucosa d) Increased IP3 in gastric mucosa e) Increased IP3 in smooth muscle 	A
<p>24. Which of the following is most effective in the treatment of peptic ulcer disease?</p> <ul style="list-style-type: none"> a) Cimetidine b) Lanzoprazole c) Pirenzepine d) Ondansetron e) LSD 	B
<p>25. Bismuth salts are thought to be effective in peptic ulcer disease because they have bactericidal properties against:</p> <ul style="list-style-type: none"> a) <i>Escherichia coli</i>. b) <i>Bacteroides fragilis</i>. c) <i>Clostridium difficile</i>. d) <i>Helicobacter pylori</i>. e) <i>Staphylococcus aureus</i>. 	D

<p>26. Misoprostol has a cytoprotective action on the gastrointestinal mucosa because it:</p> <ul style="list-style-type: none"> a) Enhances secretion of mucus and bicarbonate ion. b) Neutralizes acid secretion. c) Antagonizes non steroidal anti-inflammatory drugs (NSAIDs) d) Relieves ulcer symptoms. e) Coats the mucosa. 	A
<p>27. Omeprazole, an agent for the promotion of healing of peptic ulcers, has a mechanism of action that is based on:</p> <ul style="list-style-type: none"> a) Prostaglandins. b) Gastric secretion. c) Pepsin secretion. d) H^+, K^+, ATPase. e) Anticholinergic. 	D
<p>28. The primary pharmacologic action of omeprazole is the reduction of:</p> <ul style="list-style-type: none"> a) Volume of gastric juice. b) Gastric motility. c) Secretion of pepsin. d) Secretion of gastric acid. e) Secretion of intrinsic factor. 	D
<p>29. Cimetidine slows the metabolism of many drugs because it inhibits the activity of:</p> <ul style="list-style-type: none"> a) Monoamine oxidase (MAO) b) Tyrosinekinase. c) Hydrogen-potassium-adenosine triphosphatase (H^+, K^+, ATPase). d) Phase II glucuronidation reactions e) Cytochrome P450. 	E

<p>30. The approved indication for misoprostol:</p> <ul style="list-style-type: none"> a) Reflux esophagitis b) Regional ileitis. c) Ulcerative colitis. d) Prevention of gastric ulceration in patients using large doses of aspirin like drugs. e) Pathologic hypersecretory conditions such as Zollinger-Ellison syndrome. 	D
<p>31. The absorption of iron is reduced when large and prolonged doses of which of the following drugs are given?</p> <ul style="list-style-type: none"> a) Vitamin C b) Alum hydroxide. c) Aspirin. d) Cimetidine. e) Lactulose. 	B
<p>32. Your cousin is planning a three-week trip overseas and asks your advice regarding medications for traveler's diarrhea. A drug suitable for non-infectious diarrhea is:</p> <ul style="list-style-type: none"> a) Aluminum hydroxide b) Bismuth subcitrate c) Magnesium hydroxide d) Metoclopramide e) Mineral oil 	B
<p>33. Toxicities of cimetidine include which one of the following?</p> <ul style="list-style-type: none"> a) Blurred vision b) Diarrhea c) Orthostatic hypotension d) P450 inhibition e) Sleepiness 	D

<p>34. A patient presents with Zollinger-Ellison Syndrome due to a gastrinoma. He has two bleeding ulcers and diarrhea. A drug that irreversibly inhibits the $H^+/K^+ ATPase$ in gastric parietal cells is</p> <p>a) Cimetidine b) Cisapride c) Glycopyrolate d) Omeprazole e) Ondansetron</p>	D
<p>35. Pantoprazole, has mechanism of action that is based on:</p> <p>a) Prostaglandins b) Gastric secretion c) Pepsin secretion d) H^+, K^+, $Atpase$ e) Anticholinergic</p>	D
<p>36. In treatment of <i>H. pylori</i> the following drug should be used in addition to antibiotics:</p> <p>a) H_2 blockers b) Antacid c) PPI d) Misoprostol e) Sucralfate</p>	C

Other MCQ

<p>1. A 49-year-old man with a history of peptic ulcer disease and gastroesophageal reflux disorder is being treated with cimetidine for approximately 20 years. He now complains of breast swelling. What is the most likely explanation for these findings?</p> <ul style="list-style-type: none">a) Abscessb) Anti-androgenic effectc) Inflammatory responsed) Neoplastic processe) Overwhelming edema	B
<p>2. A 78-year-old woman with osteoporosis and occasional gastroesophageal reflux presents to her primary care physician for follow-up. Which of the following agents would be best to treat both of her underlying conditions?</p> <ul style="list-style-type: none">a) Aluminum hydroxideb) Calcium carbonatec) Magnesium hydroxided) Sodium bicarbonatee) Warm milk	B
<p>3. One of the following drugs is designed to selectively treat ulcers of a patient using NSAIDs for chronic pain:</p> <ul style="list-style-type: none">a) Famotidineb) Bismuth Subsalicylatec) Aluminum Hydroxided) Misoprostole) Muscarinic Antagonists	D

<p>4. The most serious side effect of sucralfate is:</p> <ul style="list-style-type: none"> a) Ototoxicity b) Neurotoxicity c) Heart failure d) Encephalopathy in patients with renal failure 	D
<p>5. Activation of sucralfate occur in:</p> <ul style="list-style-type: none"> a) Basic environment b) Acidic environment c) Neutral environment d) Is independent of pH 	B
<p>6. The widely used anticoagulant warfarin is often implicated in drug interactions. If a patient takes warfarin but later begins self-medicating for ulcer pain, what drug useful for ulcers would increase the risk for bleeding?</p> <ul style="list-style-type: none"> a) Ranitidine b) Sucralfate c) Misoprostol d) Cimetidine e) Metoclopramide 	D
<p>7. The plasma levels of ketoconazole are lower than normal following its oral absorption in patients treated with lansoprazole. What is the reason for this?</p> <ul style="list-style-type: none"> a) The induction of enzymes that metabolize ketoconazole b) Ketoconazole requires an acid environment for its oral absorption c) Lansoprazole binds acidic drugs in the gastrointestinal tract d) Increased gastrointestinal transit time because of the Prokinetic effects of lansoprazole e) Competition for transport mechanisms in the gastrointestinal tract 	B

<p>8. Which of the following is a drug that irreversibly inhibits the H⁺/K⁺ ATPase in the parietal cells?</p> <p>a) Cimetidine b) Diphenoxylate c) Esomeprazole d) Metoclopramide e) Sulfasalazine</p>	C
<p>9. This is a small molecule that polymerizes in stomach acid and coats the ulcer bed, resulting in accelerated healing and reduction of symptoms:</p> <p>a) Aluminum hydroxide b) Balsalazide c) Castor oil d) Cimetidine e) Sucralfate</p>	E
<p>10. Which of the following drugs works by inhibition of ATPase on surface of parietal cell:</p> <p>a) Atropine b) Cimetidine c) Misoprostol d) Octreotide e) Omeprazole</p>	E
<p>11. Which of the following antacids was most likely causing diarrhea?</p> <p>a) Aluminum hydroxide b) Bismuth c) Calcium carbonate d) Magnesium hydroxide e) Sodium bicarbonate</p>	D

<p>12. Which of the following medications for gastrointestinal problems is contraindicated in pregnancy?</p> <p>a) Calcium carbonate. b) Famotidine. c) Lansoprazole. d) Misoprostol.</p>	D
<p>13. Which of the following drugs has been known to cause discoloration of the tongue?</p> <p>a) Amoxicillin. b) Omeprazole. c) Bismuth compounds. d) Lubiprostone</p>	C
<p>14. The most efficacious drug for inhibiting round the clock gastric acid output:</p> <p>a) Omeprazole b) Cimetidine c) Pirenzepine d) Misoprostol</p>	A
<p>15. Antacids administered concurrently reduce efficacy of the following anti peptic ulcer drug:</p> <p>a) Cimetidine b) Omeprazole c) Sucralfate d) Pirenzepine</p>	C
<p>16. The drugs employed for anti-H.pylori therapy include the following except</p> <p>a) Ciprofloxacin b) Clarithromycin c) Tinidazole d) Amoxicillin</p>	A

17. The fastest symptomatic relief as well as highest healing rates in reflux esophagitis are obtained with:

- a) Prokinetic drugs
- b) H₂ receptor blockers
- c) Proton pump inhibitors
- d) Sodium alginate

C