

Questions For Pharmacology GIS (Done by : Abdalrhman Froukh)

Q1: Which one of the following drugs is considered the drug of choice for the treatment of

Stronglyoidiasis :

- A. Albendazole
- B. Metronidazole
- C. Ivermectin
- D. Piperazine
- E. Tetracycline

Q2 : A 45-year-old male came to the clinician suffering from constipation, Blood tests have shown increased levels of ammonia, which one of the following drugs is highly indicated in this case:

- A. Senna
- B. Polyethylene Glycol
- C. Aloe
- D. Loperamide

E. Lactulose

It decreases the levels of ammonia, and acts as a laxative

Q3: The drug of choice for the treatment of schistosomiasis is :

- A. Niclosamide
- B. Praziquantel
- C. Mebendazole
- D. Amphotericin B
- E. Pyrantel pamoate

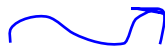
Q4 : The mechanism by which Albendazole and Mebendazole kill parasites is :

- A. Inhibiting Oxidative phosphorylation
- B. Increasing ATPase activity
- C. Inhibiting microtubule synthesis**
- D. Increasing calcium influx
- E. None of the above

Q5 : A 35-year-old female is diagnosed with early stage Primary biliary cirrhosis with ulcerative colitis involving the rectum only, which one of the following medications should be considered for her case :

- A. Pentasa
- B. Sulfasalazine

C . Canasa with ursodiol



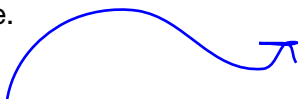
Recall that ursodiol would stabilize canalicular membranes of hepatocytes, and that would help in early stage of PBC

- D. Balsalazide with ursodiol
- E. Asacol

Q6 : A 68-year-old patient with cardiac failure is diagnosed with ovarian cancer. She begins using cisplatin but becomes nauseous and suffers from severe vomiting. Which of the following medications would be most effective to counteract the emesis in this patient without exacerbating her cardiac problem?

- A. Droperidol.
- B. Dolasetron.
- C. Prochlorperazine.

D. Palonosetron.



Both Dolasetron and Palonosetron could be used to counteract emesis , but cardiac problems are most pronounced with Dolasetron.

Q7 : Extrapyramidal symptoms (EPS) have been associated with which of the following drugs?

A. Metoclopramide. Because it crosses the blood brain barrier

B. Alprazolam.

C. Aprepitant.

D. Loperamide.

Q8 : Which of the following medications for gastrointestinal problems is contraindicated in pregnancy?

A. Calcium carbonate.

B. Famotidine.

C. Lansoprazole.

D. Misoprostol.

Q9 : A 48-year-old immigrant from Mexico presents with seizures and other neurologic symptoms. Eggs of T. solium are found upon examination of a stool specimen. A magnetic resonance image of the brain shows many cysts, some of which are calcified. Which one of the following drugs would be of benefit to this individual?

A. Ivermectin.

B. Pyrantel pamoate.

C. Albendazole.

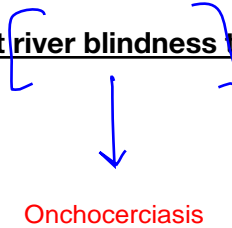
D. Diethylcarbamazine.

E. Niclosamide.

Q10 : Which of the following medications inhibits the phosphorylation of adenosine diphosphate?

- A. Albendazole.
- B. Mebendazole.
- C. Niclosamide.** It inhibits Oxidative phosphorylation
- D. Praziquantel.

Q11 : Which of the following medications used to treat river blindness targets chloride channels and can cause a Mazzotti reaction?



- A. Ivermectin.**
- B. Praziquantel.
- C. Pyrantel pamoate.
- D. Albendazole.

Q12 : After the acute infection, which of the following medications is given to treat the asymptomatic colonization state of E. histolytica?

- A. Chloroquine.
- B. Iodoquinol.**
- C. Metronidazole.
- D. Primaquine.

Q13 : Motion sickness occurs when your brain can't make sense of information sent from your eyes, ears and body. Which one of the following drugs is used to treat this condition:

A. Ondansetron

B. Tegasored

C. hyoscine (scopolamine)

D. Droperidol

Q14 : Metoclopramide and Domperidone are used in all of the following except :

A. Prevention of Vomiting

B. Diabetic gastroparesis

C. Nonulcer dyspepsia

D. Erosive esophagitis

E. Gastroesophageal reflux disease

Q15 : The triple therapy for H.Pylori is :

A. PPI +Clarithromycin + Doxycycline

B. PPI +Tetracycline + Metronidazole

C. PPI + Clarithromycin + Amoxicillin or Metronidazole

D. PPI +Bismuth +Metronidazole

E. PPI +Bismuth +doxycycline

Q16 : 5-HT₃ receptor Antagonists and NK1 receptor antagonists are indicated for all of the

following except :

- A. Post-operative nausea and vomiting
- B. Chemotherapy- induced Vomiting
- C. Carcinoid tumors**
- D. Radiotherapy induced nausea and vomiting

Q17 : All of the following are adverse effects of PPI except:

- A. Decrease in cyanocobalamine absorption .
- B. Increase in the absorption of Digoxin and Ketoconazole.**
- C. Increase in the risk of pulmonary and GI infections.
- D. Diarrhea and abdominal pain
- E. Increased serum Gastrin levels

Q18 : All of the following are stimulant laxatives except :

- A. Aloe
- B. Senna
- C. Castor oil
- D. Bisacodyl
- E. Docusate**

Q19 : The condition in which IV H2 antagonists are preferable over IV PPI because of their proven efficacy and lower cost is :

- A. Gastroesophageal reflux disease
- B. Peptic ulcer
- C. Prevention of bleeding from stress-related gastritis
- D. Non-ulcer dyspepsia

Q20 : All of the following are indications for Ocreotide except:

- A. Pancreatic fistula
- B. Pituitary tumors (acromegaly)
- C. Carcinoid and VIPoma
- D. Variceal bleeding
- E. Gallstones


Q21 : All of the following drugs could be used for the treatment of inflammatory Bowel diseases except:

- A. Anti-TNF (Adalimumab, Certolizumab, infliximab).
- B. Methotrexate
- C. Azathioprine or 6-mercaptopurine
- D. Tegasored
- E. 5-ASA


Q22: which one of the following drugs is used to treat post-operative ileus , but shouldn't be used for more than 7 days because of possible cardiovascular toxicity :

- A. Loperamide
- B. Ocreotide
- C. Alvimopan**
- D. Methylnaltrexone
- E. Bisacodyl

Q23 : All of the following are osmotic laxatives except:

- A. Lactulose
- B. Magnesium hydroxide
- C. Polycarbophil**  This is synthetic Bulk-forming laxative
- D. Polyethylene glycol
- E. Sodium phosphate

Q24 : A 21-year-old female came to the clinician suffering from Numb or tingling feeling in hands and feet and Trouble walking, after investigation, the doctor reported the she has Vitamin B12 deficiency , knowing that in the area where the lady lives there is increased incidence for the fish tapeworm infections and there is resistance to praziquantel, which one of the following medications is indicated for her case : (if you don't have enough time, skip it)

- A. Albendazole
- B. Niclosamide**  This is second line drug for the treatment of most tapeworm infections
- C. Piperazine
- D. Pyrantel pamoate
- E. Metronidazole

SUMMARY Drugs Used Primarily for Gastrointestinal Conditions

Subclass	Mechanism of Action	Effects	Clinical Applications	Pharmacokinetics, Toxicities, Interactions
DRUGS USED IN ACID-PEPTIC DISEASES				
<ul style="list-style-type: none"> Proton pump inhibitors (PPIs), eg, omeprazole, lansoprazole 	Irreversible blockade of H^+ , K^+ -ATPase pump in active parietal cells of stomach	Long-lasting reduction of stimulated and nocturnal acid secretion	Peptic ulcer, gastroesophageal reflux disease, erosive gastritis	Half-lives much shorter than duration of action • low toxicity • reduction of stomach acid may reduce absorption of some drugs and increase that of others
<ul style="list-style-type: none"> H_2-receptor blockers, eg, cimetidine: Effective reduction of nocturnal acid but less effective against stimulated secretion; very safe, available over the counter (OTC). Cimetidine, but not other H_2 blockers, is a weak antiandrogenic agent and a potent CYP enzyme inhibitor Sucralfate: Polymerizes at site of tissue damage (ulcer bed) and protects against further damage; very insoluble with no systemic effects; must be given four times daily Antacids: Popular OTC medication for symptomatic relief of heartburn; not as useful as PPI and H_2 blockers in peptic diseases 				

DRUGS STIMULATING MOTILITY

<ul style="list-style-type: none"> Metoclopramide 	D_2 -receptor blocker • removes inhibition of acetylcholine neurons in enteric nervous system	Increases gastric emptying and intestinal motility	Gastric paresis (eg, in diabetes) • antiemetic (see below)	Parkinsonian symptoms due to block of central nervous system (CNS) D_2 receptors
<ul style="list-style-type: none"> Domperidone: Like metoclopramide, but less CNS effect; not available in USA Cholinomimetics: Neostigmine often used for colonic pseudo-obstruction in hospitalized patients Macrolides: Erythromycin useful in diabetic gastroparesis but tolerance develops 				

LAXATIVES

<ul style="list-style-type: none"> Magnesium hydroxide, other nonabsorbable salts and sugars 	Osmotic agents increase water content of stool	Usually causes evacuation within 4–6 h, sooner in large doses	Simple constipation; bowel prep for endoscopy (especially PEG solutions)	Magnesium may be absorbed and cause toxicity in renal impairment
<ul style="list-style-type: none"> Bulk-forming laxatives: Methylcellulose, psyllium, etc: increase volume of colon, stimulate evacuation Stimulants: senna, cascara; stimulate activity; may cause cramping Stool surfactants: Docusate, mineral oil; lubricate stool, ease passage Chloride channel activator: Lubiprostone, prostanoic acid derivative, stimulates chloride secretion into intestine, increasing fluid content Opioid receptor antagonists: Alvimopan, methylnaltrexone; block intestinal μ-opioid receptors but do not enter CNS, so analgesia is maintained 5-HT₄ agonists: Tegaserod; activates enteric 5-HT₄ receptors and increases intestinal motility 				

ANTIDIARRHEAL DRUGS

<ul style="list-style-type: none"> Loperamide 	Activates μ -opioid receptors in enteric nervous system	Slows motility in gut with negligible CNS effects	Nonspecific, noninfectious diarrhea	Mild cramping but little or no CNS toxicity
<ul style="list-style-type: none"> Diphenoxylate: Similar to loperamide, but high doses can cause CNS opioid effects and toxicity Colloidal bismuth compounds: Subsalicylate and citrate salts available. OTC preparations popular and have some value in travelers' diarrhea due to adsorption of toxins Kaolin + pectin: Adsorbent compounds available OTC in some countries 				

DRUGS FOR IRRITABLE BOWEL SYNDROME (IBS)

<ul style="list-style-type: none"> Alosetron 	5-HT ₃ antagonist of high-potency and duration of binding	Reduces smooth-muscle activity in gut	Approved for severe diarrhea-predominant IBS in women	Rare but serious constipation • ischemic colitis • infarction
<ul style="list-style-type: none"> Anticholinergics: Nonselective action on gut activity, usually associated with typical antimuscarinic toxicity Chloride channel activator: Lubiprostone (see above); useful in constipation-predominant IBS in women 				

Subclass	Mechanism of Action	Effects	Clinical Applications	Pharmacokinetics, Toxicities, Interactions
ANTIEMETIC DRUGS				
<ul style="list-style-type: none"> Ondansetron, other 5-HT₃ antagonists 	5-HT ₃ blockade in gut and CNS with shorter duration of binding than alosetron	Extremely effective in preventing chemotherapy-induced and postoperative nausea and vomiting	First-line agents in cancer chemotherapy; also useful for postop emesis	Usually given IV but orally active in prophylaxis • 4–9 h duration of action • very low toxicity but may slow colonic transit
<ul style="list-style-type: none"> Aprepitant 	NK ₁ -receptor blocker in CNS	Interferes with vomiting reflex • no effect on 5-HT, dopamine, or steroid receptors	Effective in reducing both early and delayed emesis in cancer chemotherapy	Given orally • IV fosaprepitant available • fatigue, dizziness, diarrhea • CYP interactions
<ul style="list-style-type: none"> Corticosteroids: Mechanism not known but useful in antiemetic IV cocktails Antimuscarinics (scopolamine): Effective in emesis due to motion sickness; not other types Antihistaminics: Moderate efficacy in motion sickness and chemotherapy-induced emesis Phenothiazines: Act primarily through block of D₂ and muscarinic receptors Cannabinoids: Dronabinol is available for use in chemotherapy-induced nausea and vomiting, but is associated with CNS marijuana effects 				

DRUGS USED IN INFLAMMATORY BOWEL DISEASE (IBD)				
<ul style="list-style-type: none"> 5-Aminosalicylates, eg, mesalamine in many formulations 	Mechanism uncertain • may be inhibition of eicosanoid inflammatory mediators	Topical therapeutic action • systemic absorption may cause toxicity	Mild to moderately severe Crohn's disease and ulcerative colitis	Sulfasalazine causes sulfonamide toxicity and may cause GI upset, myalgias, arthralgias, myelosuppression • other aminosalicylates much less toxic
<ul style="list-style-type: none"> Sulfasalazine 				
<ul style="list-style-type: none"> Purine analogs and antimetabolites, eg, 6-mercaptopurine, methotrexate 	Mechanism uncertain • may promote apoptosis of immune cells • Methotrexate blocks dihydrofolate reductase	Generalized suppression of immune processes	Moderately severe to severe Crohn's disease and ulcerative colitis	GI upset, mucositis • myelosuppression • purine analogs may cause hepatotoxicity, but rare with methotrexate at the low doses used
<ul style="list-style-type: none"> Anti-TNF antibodies, eg, infliximab, others 	Bind tumor necrosis factor and prevent it from binding to its receptors	Suppression of several aspects of immune function, especially TH1 lymphocytes	Infliximab: Moderately severe to severe Crohn's disease and ulcerative colitis • others approved in Crohn's disease	Infusion reactions • reactivation of latent tuberculosis • increased risk of dangerous systemic fungal and bacterial infections
<ul style="list-style-type: none"> Corticosteroids: Generalized anti-inflammatory effect; see Chapter 39 				

PANCREATIC SUPPLEMENTS				
<ul style="list-style-type: none"> Pancrelipase 	Replacement enzymes from animal pancreatic extracts	Improves digestion of dietary fat, protein, and carbohydrate	Pancreatic insufficiency due to cystic fibrosis, pancreatitis, pancreatectomy	Taken with every meal • may increase incidence of gout
<ul style="list-style-type: none"> Pancreatin: Similar pancreatic extracts but much lower potency; rarely used 				
BILE ACID THERAPY FOR GALLSTONES				
<ul style="list-style-type: none"> Ursodiol 	Reduces cholesterol secretion into bile	Dissolves gallstones	Gallstones in patients refusing or not eligible for surgery	May cause diarrhea