

Week 6 Discussions

Topic 6 DQ 1

Aug 22-24, 2024

Choose a medical condition from the gastrointestinal or genitourinary systems and explain the pathophysiological changes that may occur. What patient education would need to be included relating to this disorder? Make sure that you select a different medical condition than your peers. Include the name of the medical condition (bolded) above your answer so that the medical condition can easily be identified. Cite your references in APA style.

GASTROESOPHAGEAL REFLUX DISEASE (GERD)

“Gastroesophageal reflux disease (GERD) is a condition that develops when there is a retrograde flow of stomach contents back into the esophagus. It can be presented as non-erosive reflux disease or erosive esophagitis” (Antunes et al., 2023). The back of stomach contents is often referred to as reflux. The causes of GERD can be from lower esophageal sphincter (LES), the presence of a hiatal hernia, esophageal mucosal defense against the refluxate and esophageal motility.

Pathophysiology

Lower esophageal sphincter (LES)

There can be many causes that can make a person suffer from GERD. GERD results when a condition or item affects the closure strength and the efficacy of the lower esophageal sphincter (LES). Because the LES does not have the strength to close, items such as fatty food, smoke, alcohol, caffeine, and sleep position can allow the LES not to close appropriately. The relaxation of the LES can also be caused by pregnancy and certain medications such as nitrates, and calcium channel blockers (Antunes et al., 2023).

Hiatal Hernia

Hiatal hernias are a common cause of GERD. Patients that have a diagnosis of hiatal hernia may not have symptoms associated with GERD. The amount and frequency of reflux depends on the size of the hiatal hernia (Antunes et al., 2023).

Impaired esophageal mucosal defense against the gastric refluxate

“Esophageal mucosa comprises various structural and functional constituents that function as a protective defense barrier against the luminal substances encountered with GERD” (Antunes et al., 2023). This barrier can be damaged by repeated exposure to stomach acid. Some patients have been diagnosis with “impaired esophageal peristalsis leading to decreased clearance of gastric reflux resulting in severe reflux symptoms and mucosal damage” (Antunes et al., 2023).

Patient Education

Treatment for GERD is based on the degree and severity of GERD. Lifestyle modifications, medical management with antacids and antisecretory agents, surgical, and endoluminal therapies (Antunes et al., 2023). Modifications to diet including specific foods and avoiding meals at least three hours prior to bed, have been shown to improve GERD symptoms. Weight management has also been shown to improve GERD symptoms.

Medications can help to reduce and control GERD symptoms. “In the US, there are six PPIs that are currently available, of which three (omeprazole, lansoprazole, and esomeprazole) are available over the counter, and the remaining three (pantoprazole, dexlansoprazole, and rabeprazole) are prescription-only medications. Of the available medical options, PPI therapy is the most effective for both erosive and non-erosive GERD based on multiple large-scale studies” (Antunes et al., 2023).

When GERD is too uncontrolled and other treatment options such as lifestyle modifications and medication have not been effective or no longer are effective treatments such as surgery and endoluminal therapy can work.

Reference

Antunes, C., Aleem, A., & Curtis, S. (2023, July 3). *Gastroesophageal reflux disease - StatPearls - NCBI bookshelf*. National Center for Biotechnology Information.
<https://www.ncbi.nlm.nih.gov/books/NBK441938/>

Topic 6 DQ 2

Aug 22-26, 2024

Select a medication used in evidence-based treatment guidelines for the condition you chose in the first discussion question. Share the mechanism of action of this medication and hints for monitoring, side effects, and drug interactions of which one should be aware. Make sure that you select a different medication than your peers. Include the name of the medical condition and medication (bolded) above your answer so that the medical condition and medication can easily be identified. Cite your references in APA style.

Omeprazole

“Omeprazole is a proton-pump inhibitor used to manage and treat several conditions, including uncomplicated heartburn, peptic ulcer disease, gastrointestinal reflux disease, Zollinger-Ellison

syndrome, multiple endocrine adenomas, systemic mastocytosis, erosive esophagitis, gastric ulcers, and helicobacter pylori infection” (Shah & Grossman, 2023).

Mechanism of Action

Omeprazole is a proton pump inhibitor (PPI). This medication “inhibits the parietal cell H⁺ / K⁺ ATP pump, the final step of acid production” (Shah & Grossman, 2023). The function of omeprazole begins to function quickly within an hour. The total max effect takes 2 hours. The effects of omeprazole last up to 72 hours. Baseline activity returns in 3-5 days and will plateau on day 4 if the medication is taken daily (Shah & Grossman, 2023). The hepatic cytochrome P450 enzyme system metabolizes Omeprazole. It is excreted by the urinary system. The half-life of omeprazole is 30-60 minutes in healthy adults and up to 3 hours in unhealthy adults. The effect of omeprazole last longer due to the concentration of the drug in the parietal cells that form a linkage with H⁺/K⁺ ATPase (Shah & Grossman, 2023).

Monitoring

Patients should monitor for signs and symptoms of GERD and peptic ulcer disease. When using omeprazole long-term, patients should monitor for C.difficile-associated diarrhea and hypomagnesia. This medication is on the Beers list. The geriatric population is advised to not be used longer than 8 weeks, especially without treatment reassessment. If patients are using wafarin while taking omeprazole, INR and prothrombin should be monitored (Shah & Grossman, 2023).

“Caution should be exercised when co-administered with CYP2C19 substrates (e.g., clopidogrel, citalopram, cilostazol, phenytoin, diazepam, digoxin) (Shah & Grossman, 2023).

Contraindications

“Omeprazole is contraindicated in patients taking dosage forms containing rilpivirine (Shah & Grossman, 2023).

Side Effects

Patients taking omeprazole may experience headaches, abdominal pain, diarrhea, nausea, vomiting, and flatulence. Some patients experienced cough, rash, asthenia, back pain, regurgitation, upper respiratory infection, constipation, and dizziness (Shah & Grossman, 2023). Patients who are warfin could notice increased INR.

Prolonged use of omeprazole could cause osteoporosis issues such as fractures to the hip, wrist and spine. Some studies show that this is not accurate (Shah & Grossman, 2023).

Drug Interactions

Some antibiotics such as penicillin can create hypersensitivity when administered with omeprazole. Clarithromycin can cause an increase in plasma levels when administered with omeprazole (Shah & Grossman, 2023).

References

Shah, N., & Grossman, W. (2023, February 7). *Omeprazole - StatPearls - NCBI bookshelf*. National Center for Biotechnology Information.
<https://www.ncbi.nlm.nih.gov/books/NBK539786/>