

Pathophysiology- gastric acid stimulation on pud,gerd,gastritis

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Gastric acid dyspepsia Gastric acid dyspepsia Gastric acid is an acidic digestive fluid which is produced in the stomach and is comprised of hydrochloric acid, sodium chloride and potassium chloride. There are several factors that regulate the production of gastric acid and its secretion and these include gastrin, acetylcholine and histamine. Acetylcholine acts on parietal cells directly and is regulated by intramucosal reflexes and vagal nerve stimulation. As mentioned above, gastrin and histamine are two other factors involved in gastric acid production and these along with acetylcholine act on different receptors on parietal cells stimulating them to produce acid (Malfertheiner, 2009).

There are four main phases in the process of gastric acid production and these include basal phase which is constant acid release into the stomach. The cephalic phase involves the preparation for eating and acid secretion is triggered by impulses from higher CNS structures through CN X. Acid secretion in the gastric phase is due to distention of the abdomen and the intestinal phase is stimulated by amino acids and intestinal distension (Malfertheiner, 2009).

There are several disorders that can occur as a result of hypersacidity which include peptic ulcer disease, gastroesophageal reflux and gastritis. The acid accumulation in these cases is due to a series of aggressive factors such as alcohol, h. pylori and NSAIDs. For example in patients with hyperacid dyspepsia due to *Helicobacter pylori* there is an increase in gastrin production which stimulates the parietal cells to produce HCl. Dietary factors and consumption of alcohol leads to stimulation of gastric mucosa leading to hypersecretion of acid from the parietal cells (Patel & Gyawali,

2012).

Genetics have a role to play in the development of PUD, gastritis and GERD due to several reasons. Firstly, hyperacid dyspepsia can be a genetic condition whereby an individual naturally produces an elevated amount of acid therefore making him or her predisposed to developing the above mentioned conditions. Other genetic conditions such as hyperpepsinogemia play a role in the development of peptic ulcer disease. Genetic defects of lower esophageal sphincter function also predispose an individual to GERD. Autoimmune disorders, cancers and allergic reactions increase an individual's chances of developing peptic ulcers or gastritis (Patel & Gyawali, 2012).

Gastritis mind map

References

- Malfertheiner, P., Chan, F. K., & McColl, K. E. (2009). Peptic ulcer disease. *The Lancet*, 374(9699), 1449-1461.
- Patel, A., & Gyawali, C. P. (2012). PEPTIC ULCER DISEASE. *The Washington Manual of Gastroenterology Subspecialty Consult*, 128.