

Physiology. Q and A

1. Mention some factors that increase salivary secretions and others which decrease salivary secretions .

A/ (nausea - tactical stimulation - sour taste - irritation - smell - chewing) can increase salivary secretions .

(Fear - dehydration - sleep - fatigue) can decrease salivary secretions .

2. Define and describe (interstitial cells of cajal).

A/ they are the pacemaker cells in GIT smooth muscles which lie between the longitudinal and circular smooth muscle layer , they are noncontractile cells and have unstable resting membrane potential .

3. There are two types of peristalsis occurs at esophageal stage of swallowing, mention them.

A/ Primary peristalsis (continuation of peristalsis wave that begins in the pharynx).

Secondary peristalsis (results from distention of the esophagus causing stimulation of myenteric plexus) .

4. How does pepsinogen become activated?

A/ when pepsinogen comes in contact with hydrochloric acid it's activated to form active pepsin.

5. Mention some of proteolytic pancreatic enzymes, classify them into endopeptidase or exopeptidases and explain how can they convert into the active form.

A/ proteolytic enzymes secreted in inactive form , become activated in small intestine by Enterokinase enzymes

Trypsinogen convert into trypsin (endopeptidase).

Chemotrypsinogen convert into chemotrypsin (endopeptidase).

Procarboxypeptidase convert into carboxypeptidase (exopeptidases).

6. What's the principle gland of salivation which secretes about 70% of saliva.

A/ It's submandibular gland which secrets both serous and mucus secretions.

7. What's Achalasia and what do you think the cause of this disease?

A/ Achalasia: aperistalsis of muscles of body of esophagus and failure of relaxation of lower esophageal sphincter

Cause: damage of the myenteric plexus in the lower two thirds of the esophagus.

8. Mention types of cells that appear in the pyloric glands.

A/ -G cells which secrete Gastrin

-D cells which secrete somatostatin

-Enterochromaffin - like cells which secrete histamine.

9. Talk about the formation of secondary bile acids.

A/- Deoxycholic (which will be reabsorbed in colon) is formed from cholic acid .

- Lithocholic (which will lost in stools) is formed from chenodeoxycholic acid.

these steps occur by bacterial action in colon.

10. Why is the mucosa of gut is highly folded?

A/ To increase the surface area for absorption.

11. What are the functions of segmentation movement in intestinal motility?

A/ Mixing the contents with intestinal secretions and spread out of the chyme along the intestinal mucosa.

12. Mention some factors that increase stomach emptying and others which decrease stomach emptying.

A/ - increase stomach emptying (Gastrin hormone, gastric food volume).

- inhibit stomach emptying
(enterogastric reflex, hormones like somatostatin and secretin and CCK and GIP) .

13. Why do all proteolytic pancreatic enzymes are secreted in an inactive form?

A/ To protect the pancreas against Autodigestion.

14. Mention the site and function of both (Meissner's plexus and Auerbach's plexus).

A/ -Meissner's plexus is located in submucosal layer and it's responsible for GIT secretions.

- Auerbach's plexus is located in the muscularis between the outer longitudinal and inner circular layer and it's responsible for GIT motility.

15. Describe by summarized points the steps of vomiting act.

A/ deep breath , UES is opened , closing glottis , lifting up soft palate , strong contractions of diaphragm and all abdominal muscles , LES is relaxed.

16. What's the functional unit of liver and describe it.

A/ It's liver lobule (hepatocytes around a central vein separated by wide fenestrated blood sinusoids with Kupffer cells).

17. How can bile salts help in fat digestion?

A/ They help fat digestion by decreasing surface tension of fat globules into small droplets (fat emulsification).

18. What's Achlorhydria and how can you diagnose it?

A/ Achlorhydria: means that stomach fails to secrete HCL .

Diagnosed when PH of the gastric secretions fails to decrease below 6.5 after maximal stimulation .

19. What's the functions of ilioceccal valve?

A/ prevent backflow of fecal content from the colon and emptying about 1000 milliliters of chyme into the cecum each day.

20. Saliva contain two major types of protein secretions. What are they and mention their functions.

A/- ptyalin (alpha amylase) : serous secretion which is responsible for starch digestion.

- Mucin: mucus secretion which is responsible for lubricating and for surface protective purpose.

21. Mention some toxic substances that can damage the gastric barrier.

A/ NSAIDs , Aspirin , vinegar , bile salts , alcohol , steroids , cortisone .

22. Mention the most common causes of acute pancreatitis.

A/ - blockage of the papilla of vatar by gallbladder stone.

- drinking excess Alcohol.

these two together account for more than 90% of all cases.

23. What are the cells of small intestine.

A/ -mainly Enterocytes (secrets large quantities of water and electrolytes)

- goblet cells (secrets mucus)

- peneth cells (IgA)

- Enterochromaffin cells.

24. What are the main sympathetic Autonomic innervation of gut?

A/ Relaxation of wall , contraction of sphincter , and decrease secretions.

25. 94% of bile salts are reabsorbed, explain the two ways of reabsorption.

A/ 50% of reabsorption occurs by (diffusion) through the mucosa in the early portions of the small intestine, and the remainder by (active transport) from the terminal ileum and returned to the liver to be secreted.

26. Describe pharyngeal Stage of swallowing.

A/ it's involuntary stage: (UES is relaxed) , (epiglottis closes trachea) , (vocal cords are closed) , (respiratory center is inhibited)) to keep swallowed material out of the airway.

27. What's Choleretics and mention examples of it.

A/ Choleretics: are substances that increase bile formation by the liver and bile flow.

EX// bile salts, secretin hormone.

28. How can (distention of ileum) and (distention of cecum) affect on ileocecal valve?

A/ -distension of ileum leads to relaxing of ilioceccal valve (ilioceccal reflex).

- distention of cecum leads to contraction of ileocecal valve (colo-entric reflex) .

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Alhewihi.