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UNIVERSITY OF MICHIGAN

Gastric Motility

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11:00 AM

18. States the effects of acid, fat and solutions of high osmolarity in the duodenum on gastric secretion and how these effects are mediated.
    See intestinal phase acid secretion notes…luminal stimuli cause inhibition of gastric secretion
19. Defines receptive relaxation of the stomach and states mechanism.
    a. Resting pressure within fundus is slightly below atmospheric
    b. Fundus further relaxes with swallowing
    c. Food passes into stomach and fundic pressure returns to initial levels
    d. Relaxation is mediated by vagal inhibitory fibers
20. Describes the origin and progression of peristaltic waves across the body and antrum of the stomach.
    a. Pacemaker cells in midportion of greater curvature initiate peristalsis
    b. Basal electrical rhythm of 3 times/minute propagating towards pylorus
    c. Contraction by action potentials when smooth muscle cell depolarizes below threshold
    d. AP causes Ca2+ influx (smooth muscle)
    e. AP and contraction increased by vagal and gastrin stimulation, decreased by vagotomy or sympathetic stimulation
21. Describes the effects of peristalsis on the mixing and propulsion of stomach contents.
    a. Stomach mixes contents and pushes them toward pylorus
    b. Contents get grinded in antrum
    c. If too large to pass through pylorus (>1mm) get pushed back into body (retropulsion)
22. Compares the peristaltic activity of an empty and full stomach.
    a. Empty stomach does not normally have peristaltic contraction
    b. Contraction is brought about by presence of full stomach
23. Describes the effect of particle size on the rate of exiting through the pylorus.
    a. Max particle size is 1mm
    b. Large particles take longer to exit because they must be ground up
    c. Particles that can't be ground up do not exit
24. States the duodenal stimuli that alter the rate of gastric emptying.
    a. FA, acidity, osmolarity, volume, AA
    b. Dudoenum releases CCK
    c. CCK inhibits stomach emptying
25. Predicts the effects of meal content (osmolarity, fat content, etc.) and volume on the rate of gastric emptying.
    a. See 23