Is Secretin Enterogastrone?

JOHNSON and GROSSMAN[1] have maintained that the inhibition of gastric acid secretion from Heidenhain pouches by an acid duodenum can be explained entirely by the resulting liberation of secretin from the duodenum. We have maintained[2] that secretin alone is an insufficient explanation since an acid duodenum augments cholinergically stimulated pouch secretion. Currently available pancreozymin preparations (CCK-PZ) from Jorpes and Mutt also augment cholinergically stimulated pouch gastric acid secretion[3]. Secretin by contrasts antagonizes secretion per 10 min fell slightly and the pepsin rose. From pH 3 to pH 1 both acid and pepsin fell precipitously. It is concluded that as the pH falls from 7 to 3 the pattern of acid inhibition and pepsin augmentation is consistent with the action of secretin liberated from the duodenum by virtue of the falling pH. The pattern below pH 3 is not consistent with the action of secretin since pepsin and acid both fall. We suggest that some other inhibitory hormone, perhaps CCK/PZ, is responsible for the acid and pepsin inhibition at duodenal pH values below 3.

Effect of duodenal pouch pH on gastrin pentapeptide stimulated acid and pepsin secretion from a Heidenhain pouch

pH	7	5	3	1
Acid m-equiv/10 m	0.566 ± 0.013	0.508 ± 0.015	0.505 ± 0.016	0.380 ± 0.013
Pepsin/mg tyrosine liberated from Hb/10 min	26.0 ± 4.0	37.5 ± 7.5	43.0 ± 8.0	22.0 ± 2.5

it. We have recently gathered additional evidence which supports our previous contention.

Intravenous secretin stimulates pepsin production independently of gastric acid[4]. Therefore, if secretin is the enterogastrone liberated by low duodenal pH as the gastric acid falls, pepsin should rise.

Four dogs were prepared with pouches of the first part of the duodenum and Heidenhain pouches. The duodenal pouches extended to the opening of the main pancreatic duct. The common bile duct was tied and cut and a cholecystenterostomy performed. Continuity was established by way of a gastroenterostomy 10–15 cm distal to the ligament of Treitz.

Gastric secretion was stimulated throughout using 2 µg/min of gastrin pentapeptide i.v. To change the pH within the duodenal pouch it was bathed at the rate of 115 ml/h with isotonic citrate buffer. The pH used were 7, 5, 3 and 1 in random order. The duodenal pouches were exposed to a given pH for at least 50 min. Changes in pH during infusion were compensated for. Heidenhain pouch collections were taken at 10 min intervals. 25 ml of isotonic saline was introduced into the pouch, removed after 10 min and then amalgamated for titration with a further 25 ml saline rinse. Samples were titrated to pH 7 and pepsin was estimated using NORTHRUP's method[5,6]. As the pH in the duodenal pouch fell from 7 to 3 the acid

Résumé. On a prétendu que la sécrétine est l'«entérogastrone» libérée quand le pH du duodénum est 3 ou moins. Nous croyons que ce n'est pas possible parce que la sécrétine fait augmenter la pepsine tandis que si le pH d'une poche de duodénum est plus bas que 3, la sécrétion de l'acide et de la pepsine gastriques diminuent.

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The Part Played by Temperature in the Rhythm of Formation of Markings on the Shell of Cuttlefish (*Sepia officinalis* L.) (Cephalopoda, Mollusca)

The rings on the shells of Mollusca are considered by many authors[1] as biological indications of growth and of age. As far as cephalopods are concerned, CHOE[2] recently summarized previous research in this field, particularly drawing attention to the important part played by external factors on the stripe pattern of *Sepia esculenta* Hoyle, *Sepia subaculeata* Sasaki and *Sepiella maindroni* de Rochebrune, reared in tanks[3]. One of these external factors was modified independently of others[4–6], while rearing *Sepia officinalis* L. in the aquarium, and a study of the effects of temperature has been carried out.

The shells used came from cuttlefish kept from the moment of hatching in thermostatically controlled rearing conditions: the first batch at 25 °C, the second at 20 °C, the third at 15 °C and the fourth at 13 °C. For the cuttlefish of these different batches (Figure and Table) the relationship between the number of stripes and the age, allowing for the temperature of experimental rearing has been established.

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