LETTER TO THE EDITOR

Pregnant rats and antral gastrin content

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The acid gastric secretory response alone and to some gastric acid secretagogues, particularly gastrin, varies in rats during different phases of pregnancy. Bolarinwa & Amure (1976) have shown that rats in late pregnancy appear to secrete more acid in response to gastrin than rats in either mid or early pregnancy. While there is no significant difference in the basal gastric acid secretion between the early and mid pregnancy rats, late pregnancy rats again secrete more acid than these two groups. Pregnant rats have been shown to secrete less acid than non-pregnant rats (Lozzio, Gagliardi & others, 1961). Since the antral gastrin content in rats varies during the different phases of the oestrous cycle (Amure & Bolarinwa, 1975), we have estimated antral gastrin activity in rats during the different stages of pregnancy.

Male and female albino rats of Wistar strain 180–230 g were mated and the first appearance of sperm in the daily vaginal smear was taken as day 1 of pregnancy. Pregnant rats were divided into early, mid and late pregnancy groups, early being 2–3 days, mid 12–14 days and late 18–20 days. Animals were allowed free access to food and water until used, stomachs were removed from freshly killed rats and freed of detritus and weighed. The surface of the antral mucosa was then scraped and transferred to a mortar. The weight of surface was obtained by difference from the weight of the stomach before and after scraping. The scraped surface was gently ground in the mortar and made up into solution with saline to give a 10 g litre^{-1} concentration of antral mucosa. This was then boiled in a water bath for 5 min, filtered through glass wool and centrifuged at room temperature (20°) at 9000 rev min^{-1} for 20 min. The supernatant was decanted and incubated for 45 min at 37° with diamine-oxidase 10 mg ml^{-1} solution. This method is a modified form of that used by Blair, Harper & others (1961) and similar to that used by Brown (1968).

For the assay of gastrin, male rats were anaesthetized with urethane (6 ml of 25% w/v kg^{-1}, i.m.) and the method of Ghosh & Schild (1958) was modified by perfusing the stomach with 0·15 M NaCl instead of the NaOH. The acidic effluent collected and titrated to the endpoint against NaOH using phenolphthalein as indicator. Also, instead of the continuous recording process used by Ghosh & Schild (1958), 5 ml of the 10 ml ± 2 ml of effluent collected every 10 min, was titrated to the end-point. A 2 point assay was adopted for the standard which was synthetic human gastrin (SMG) and from the results a log-dose response regression line was established for each animal. From it the amount of gastrin contained in a known volume of the test solution was derived from matching the response regression. All injections were given intravenously, slowly through a cannulated femoral vein.

In early pregnancy (n = 20) the yield of gastrin expressed as SHG was 1·33 ± 0·20, in mid pregnancy (n = 23) 1·13 ± 0·12, and in late pregnancy (n = 18) 0·86 ± 0·06 μg SHG ml^{-1} test solution. The control (n = 12) at oestrous was 1·42 ± 0·19 μg SHG ml^{-1} test solution. The values are significantly different (oestrous > early, $P < 0.04$; early > mid, $P < 0.003$; mid > late $P < 0.03$).The antral gastrin content is thus highest in early pregnancy and lowest in late pregnancy.

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