

sex difference of that nervous structure.

Summary. Estrous behaviour in hypophysectomized female and male mice bearing hypophyseal grafts has been studied. The results were: (1) Hypophysectomized female mice bearing either female or male hypophyseal grafts, showed complete and normal estrous cycles. (2) Castrated males bearing ovarian and vaginal grafts showed a continuous noncyclic type of vaginal stimulation regardless of whether they had been grafted with male or female pituitaries. (3) The characteristic cyclic function of the female hypophysis may be related to the cyclic function of some other controlling structure rather

than being dependent upon the pituitary gland itself.

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Threshold of the Enterogastric Reflex.* (22309)

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Introduction of acid into the duodenum causes a prompt and complete inhibition of gastric motility. This phenomenon has been named by Thomas, *et al.*, the "enterogastric reflex"(1). In a previous study, we reported this inhibition in the human subject and found that it occurred in patients with vagotomy, extensive sympathectomy, partial gastric resection, and spinal cord transection(2). It is the purpose of the present study to explore the threshold of this inhibitory mechanism and to determine its presence in patients with gastric achlorhydria.

Method. As previously described(2), a duodenal tube was passed under fluoroscopic control. A second tube with an attached balloon was passed into the antral portion of the stomach, and gastric motility was recorded. Studies were performed on 11 normal human subjects, varying both the volume and concentration of hydrochloric acid solutions instilled via the duodenal tube. In most pa-

tients, 2 or more determinations were made during the same study period—a total of 25 studies. In addition, the same study was performed on 3 patients with persistent gastric achlorhydria as determined by histamine stimulation.

Results. 1. *0.075 N HCl:* In 4 patients, 100 cc of 0.075 N HCl introduced into the duodenum caused a prompt inhibition of gastric motility varying from 26 to 39 minutes. Twenty-five cubic centimeters of the same solution in one patient caused only a 10 minute period of inhibition. 2. *0.05 N HCl:* One hundred cubic centimeters of 0.05 N HCl infused into the duodenum of 5 subjects resulted in cessation of gastric motor activity varying from 9 to 26 minutes. In 2 patients, 25 cc of the same solution instilled into the duodenum caused a 5 and a 6 minute inhibition, respectively. 3. *0.025 N HCl:* One hundred cubic centimeters of 0.025 N HCl was introduced into the duodenum of 3 subjects and was immediately followed by inhibition of gastric motility lasting for 9 to 16 minutes. In 1 patient, 25 cc of this solution produced a 10-minute period of inhibi-

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tion. 4. *0.01 N HCl*: One hundred cubic centimeters of 0.01 N HCl was instilled into the duodenum of 3 patients and resulted in a gastric motor inhibition lasting 5 to 8 minutes. In 1 patient, 50 cc of this solution inhibited gastric activity for 5 minutes; in 2 patients, 25 cc of the same solution inhibited gastric contractions for only 3 minutes.

In the 3 patients with persistent histamine achlorhydria, 0.1 N HCl instilled into the duodenum resulted in prompt and profound inhibition of gastric motility. It was indistinguishable in latent period, degree, and duration from that occurring in subjects with normal gastric secretion.

Conclusions. 1) Duration of inhibition of gastric motility varies directly with volume

and concentration of HCl solutions introduced into the duodenum. 0.075 N HCl produces definitely shorter inhibition than was previously found with equal volumes of 0.1 N HCl. When concentration of HCl is reduced to 0.01 N and volume reduced to 25 cc, the inhibitory period is very brief, lasting only 3 minutes. 2. In 3 patients with complete histamine achlorhydria, the inhibitory effect of intraduodenal acid on gastric motility was the same as that in individuals with normal gastric secretion.

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Organ-Specific Effects of Cortisone on Protein Synthesis in Protein Depleted Rats.* (22310)

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The mechanism of action of cortisone and other adrenocortical steroids on protein metabolism has been the subject of many investigations. The theories and observations of some investigators(1-3) seem to favor a primary anti-anabolic effect while other workers(4-6) favor a primary catabolic mechanism. Still other reports(7) support a more complex interpretation.

Previous work(8) indicated that rats maintained on a completely protein-free diet offered a unique situation in which to study the effects of cortisone. The present communication is a preliminary report of results obtained from a study of the incorporation *in vitro* of glycine-2-C¹⁴ into protein fractions of liver slices and intact isolated diaphragms from

protein depleted rats treated with cortisone. The liver and diaphragm were studied in the hope that they might show differences in their ability to incorporate labeled amino acids and that these changes would reflect the influence of cortisone on protein synthesis or breakdown.

Material and methods. Young male rats were maintained on 3 experimental regimens (8). These regimens included: 1) normal synthetic diet; 2) protein-free synthetic diet; 3) protein-free synthetic diet plus daily subcutaneous injections of 2.5 mg of cortisone/100 g body weight. All groups were maintained on the experimental regimens for 12 to 17 days. Following the period of treatment the rats were lightly anesthetized with ether and sacrificed by exsanguination from the heart. The livers and diaphragms were removed, weighed, and placed immediately in chilled Krebs-Hensleit media equilibrated with 95% oxygen and 5% CO₂. The incu-

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