103. STUDIES ON THE GASTRIC MAST CELLS AND HISTAMINE CONTENTS IN THE SECRETION OF GASTRIC JUICE (V)

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For the purpose of clarifying the metabolism of endogenous histamine in hepatic disorders on the secretion of the gastric juice, the relationships among the pH in gastric juice, the number of mast cells and the histamine contents in glandular stomach, were examined in the rats with liver injured by carbon tetrachloride. The results obtained were as follows. After the administration of histamine hydrochloride, gastrin, reserpine, serotonine or Compound 48/80, the pH of gasric juice was lowered and the number of degranular mast cells as well as the histamine contents in gandular stomach were increased in all cases. The administration of atropin or urogastrone resulted in an opposite effect on the pH of gastric juice, the histamine contents and the number of mast cells. The rats with injured liver showed generally a sensitive response as compared with the normal controls.

104. AN ATTEMPT FOR QUANTITATIVE ASSAY OF HUMAN GASTRIC INTRINSIC FACTOR BY GUINEA PIG ANTISERUM AGAINST THE HUMAN GASTRIC INTRINSIC FACTOR

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Quantitative assay of the intrinsic factor (IF) in human gastric juice has been possible by utilization of autoantibody against IF which is occasionaly found in the serum of the patient with pernicious anemia. This method gives significant results, but has not been widely used, because of difficulties in obtaining the serum mentioned above. Therefore, we tried to produce antibody against human gastric IF in guinea pigs. For this purpose, five guinea pigs were immunized with purified human gastric IF, fractionated with sephadex G 200 and DEAE cellulose column chromatography. Three of five guinea pigs produced antibody against human gastric IF alone while the other two produced not only antibody against IF but also antibody against non IF component of gastric juice. Results obtained in the Quantitative assay of IF by these guinea pig antisera were accord with those measured by autoantibody to IF from the patient with pernicious anemia.

105. EFFECT OF CONTINUOUS ADMINISTRATION OF HUMAN CIRCULATING PARIETAL CELL ANTIBODY (P. C. A.) ON GASTRIC SECRETION IN RATS

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High incidence of P. C. A. in pernicious anemia and atrophic gastritis has well known since Taylor et al. and Irvine et al. works in 1962. However, the etiology of atrophic gastritis has not been established. Most recently, Fiasse et al. reported the lack of inhibitory effect of human circulating parietal cell and intrinsic factor antibodies on parietal cell secretion in rats in acute experiments.

We studied the effect of continuous and intravenous administration of IgG contained P. C. A. on gastric secretion in rats with pyloric ligation. Sera from 6 normals, 6 patients with atrophic

gastritis, and 3 patients with pernicious anemia were chromatographied on DEAE-cellulose columns. IgG fractions obtained were dialyzed, lyophilized, tested for purity by immunoelectrophoresis, and for the P. C. A. activity by immunofluorescence technique on rat gastric mucosa. One hundred and twenty male Sprague Dowley rats with an initial weight of 220~250 g were divided by random allocation into three groups; saline solution, normal IgG (3 mg/0.2m*l* saline), and IgG contained P. C. A. (3 mg/0.2 m*l* saline) treated groups. These groups were sacrificed after 4, 6, and 8 week's duration of treatment on 8~11 rats each.

Hydrochloric acid output per unit body weight in P. C. A. treated group decreased as compared with other two groups after 6 week's duration of treatment, and intrinsic factor (GPIMH method and RIMH method) output in P. C. A. treated group also after 8 week's duration of treatment. The total counts of parietal cell (Cox and Barnes's method) in the stomach of P. C. A. treated group decreased as compared with other two groups after 8 week's duration of treatment, and serum B-12 level also decreased after 8 week's duration of treatment.

106. HYPERSECRETION OF GASTRIC ACID FOLLOWING MASSIVE RESECTION OF SMALL INTESTINE IN THE RAT

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1) A total of 74 adult female rats (inbred Moriyama so-o) were served for a series of experiment, in which proximal 50%, proximal 75% distal 50%, distal 75% and more than 90% of the small intestine distal to the ligament of Treitz was resected, and after complete recovery, gastric secretion and gastrointestinal motility were examined by means of Shay's method as well as Nylander's technique.
2) It was proved with the method of Shay that postoperative gastric hyperacidity occurs on the rats, in which over 75% of small intestine was removed (referred to massive resection, here after), favoring the incidence of peptic ulcer after massive resection. This fact is consistent with the result from Heiden-hain pouched dogs which were reported by previous workers.
3) The Nylander's approach to the motility of gastrointestinal tract, using ^{51}Cr as an indicator, depicted that the gastric emptying was significantly depressed and the duodenal motility was slightly retarded after massive resection.
4) The above finding could be accounted for on the basis that the massive resection induce an excess of functional load on the remaining intestinal segment, leading to an imbalance of gastrointestinal activity, which may result in an acceleration of acid secretion and a delay of emptying in the stomach.

107. GASTRIC BLOOD FLOW OF THE CORPUS AND THE ANTRUM MEASURED BY A THERMOELECTRICAL METHOD

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In a previous report by authers at last meeting of this society, it was reported that a modified double thermocouple element did measure the stomach wall circulation of an anesthetized dog. The element was placed in submucosal layer of the corpus through a small upper midline incision. The purpose of this article is to observe and investigate difference of the gastric blood flow between the corpus and antrum stimulated with histamine, Leo-gastrin, pentagastrin or secretin.

METHOD: 16 healthy mongrel dogs weighing 6.5 to 20 kgs were anesthetized with chloralose and urethane intravenously. A thermocouple element was inserted into submucosal layer of corpous and the other element was inserted into the same layer of antrum through a small