Response of Serum Gastrin and Gastric Acid Output after Administration of Various Drugs

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Using CIS gastrin kit, we examined the alteration of serum gastrin level in relation with gastric acid secretion after administration of tetragastrin, cholecystokinin-pancreozymin, secretin and insulin.

The stimulation test of the gastric acid secretion was performed by the intramuscular injection of 4 μg per kg body weight of tetragastrin. Cholecystokinin-pancreozymin, secretin and insulin were injected intravenously 1, 1 and 0.1 unit per kg body weight, respectively. Blood was drawn 30 minutes before and 15, 30, 45, 60, 90 and 120 minutes after injection.

In 10 subjects including 4 with duodenal ulcer, 4 with gastric ulcer and 2 gastric cancer, the gastric acidity caused by tetragastrin did not induce any significant changes in serum gastrin level, and there observed no relation between maximal acid output and fasting serum gastrin level.

Cholecystokinin-pancreozymin produced no significant changes in serum gastrin in 3 subjects but secretin induced significant fall after 15 to 30 minutes in 3 subjects.

The relation between serum gastrin and in sulin hypoglycemia was examined in 4 normal volunteers and 5 subjects with gastric ulcer. Three normal volunteers showed maximal fall in the blood sugar level at 15 to 30 minutes after insulin injection, and serum gastrin levels also elevated at 15 minutes after the maximal fall in blood sugar. But in one subject there was no remarkable changes in serum gastrin regardless of considerable hypoglycemia. In the gastric ulcer patients the grade of response was quite similar to normal subjects, and there found again one patient who showed no remarkable changes in serum gastrin in spite of hypoglycemia. The gastric acid secretion was examined simultaneously in 3 subjects with gastric ulcer, and gastric acidity showed a rise 10 to 20 minutes after the maximal blood sugar fall in all subjects but in one of them the serum gastrin level did not associate with increased acid output.