

Measurement of Gastric Emptying Time Using Radioisotope

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For the purpose of evaluate the emptying activity of stomach, gastric emptying time (G.E.T.) was measured in 20 volunteer cases, varifying their posture as supine position, prone position and sitting position.

In addition to, the influence of the volume of test meal and the dosis of some drugs upon the G.E.T. was examined in naimal.

T 1/2 of G.E.T. indicated about 29 minutes in supine position about 18 minutes in prone position and about 20 minutes in sitting position. These results means that emptying of stomach is inhibited by gastric fundus retention in supine and accerelated by the compression of abdomen in

prone but controled most naturally in sitting.

Experiments in rabbits showed good correlation between the volume of test meal and G.E.T. With this results it is speculated that the volume of meal is one of the afferent stimulation which facilitate the peristalsis of stomach.

Intravenous or intrmuscular administration of butyl scopolamine bromide inhibited the emptying of stomach and beginning time and duration of this effect correlated to the administration route.

Usefullness of measuring G.E.T. with which one can study emptying activity of stomach under most natural condition and medicated condition easily was reported.

Radioimmunoassay of Secretin

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We have established specific Radioimmunoasay of Secretin, and studied about responses of human serum levels in several stimulations.

Material and Method

A highly specific antiserum for secretin and Squibb synthetic secretin were kind gift from Dr. W. Y. Chey. Iodination of synthetic secretin was performed under basic pH condition (pH 8.5) in 0.5 M sod. borate buffer. For the purification after labeling, S-P sephadex C-25 was used. In this column chromatography, 2 step elution with 0.02 M $\text{NH}_4\text{CO}_3/\text{CO}_2$ pH 6.1 (initial) and 0.05 M $\text{NH}_4\text{HCO}_3/\text{CO}_2$ pH 6.5 (later) was undertaken. The intact ^{125}I -Secretin was eluated in the peak of later elution. The stability of this ^{125}I -secretin was satisfactory, and useful practically for 1 month. For B. F. separation of incubation mixture, dextran coated charcoal was used. In this assay system, 25-1000 pg/ml of secretin was detectable.

Results

Using this assay system, we investigated about the responses of serum secretin levels in several stimulation, i.e. gastrin test in duodenal ulcer patient, oral G.T.T. in diabetic and normal subjects, and taking the meal in normal subject. In the normal subjects the serum levels slightly elevated after meal. In duodenal ulcer patient, the response in gastrin test on r-decubitus position showed the lack of 2nd peak in some cases, compared with the response to the duodenal infusion of 0.1 N HCl in normals.

In the oral G.T.T., the discrepancy of response among diabetic patients and normals was observed, i.e. in diabetics, serum secretin failed to elevate, white in normals, it gradually elevated in the course of O-G.T.T.

These data was very intesting, and further investigation was necessary.