On the Hyperglycemia in Man, Produced by Duodenal Introduction of Glucose

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Variations in the sugar content in the general blood on the introduction of glucose into the duodenum by means of a duodenal tube will be illustrated in the following paragraphs.

The test was done in healthy persons, i.e. those without any disturbances re the carbohydrate tolerance. In fact this was carried out as the control of the double administration experiments, previously reported.¹⁾

Introduction into duodenum of glucose in various doses

The routine diet consists of 440 g. carbohydrate, 90 g. protein and 40 g. fat, and involves about 2500 Calories. In the early morning after the night fast a certain amount of glucose, solved in 100 cc. distilled water and warmed at 37°, was introduced into the duodenum by means of the tube. 2-50 g. were given to 18 individuals.

In general the general blood sugar sets in to increase two minutes after introduction. 10 g. glucose are enough to see a definite increase in the sugar concentration; the greater the dose, the greater the hyperglycemia and the faster the increase. And when 20 g. glucose is administered the rapidity with which the sugar concentration increases, reaches the maximum, that is the ascending limb of hyperglycemia there wholly coincides with that on 50 g. glucose. The peak of hyperglycemia is however higher in the case of 50 g. glucose than that of 20 g. glucose.

And the duration of hyperglycemia depends also to the doses, and when the dose large enough the hypoglycemia develops finally; the larger the dose, the larger the hypoglycemia.

In short: The blood sugar fluctuations in healthy persons due to the direct administration of glucose into the duodenum are figured according to doses.

References

- 1) Uyeda, Tohoku J. Exp. Med., 1952, 55, 195.
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