

## THE GLUCOSE TOLERANCE CURVE IN EPILEPSY.

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CERTAIN findings in the course of routine biochemical investigations at this Hospital suggested to us that the glucose tolerance test in epilepsy might show interesting results, and accordingly a series of 66 cases was submitted to this examination.

The usual technique of the glucose tolerance test was adhered to. The resting blood specimen was taken at 8 a.m., and, following the ingestion of 50 grm. of glucose, further specimens were removed at half-hourly intervals for two hours. The protein-free filtrate was prepared immediately after the withdrawal of each specimen, and the glucose content estimated by the colorimetric method. Samples of urine were also taken at the same half-hourly intervals, and Benedict's test was applied in determining the presence or absence of glycosuria.

For the purpose of studying our results we have divided the cases into four groups:

- I. *The hyperglycæmic group*, in which the maximum blood sugar content in the curve exceeds '18 mgrm. per 100 c.c.
- II. *The normal group*: the maximum blood sugar content is within the limits of '150 mgrm. to '18 mgrm. per 100 c.c.
- III. *The subnormal group*: the maximum blood sugar content is within the limits of '125 mgrm. to '15 mgrm. per 100 c.c.
- IV. *The markedly subnormal group*: the maximum blood sugar content is less than '125 mgrm. per 100 c.c.

The following are examples of the results obtained in some of the cases of this last group :

Resting specimen, mgrm.	¼ hour, mgrm.	1 hour, mgrm.	1½ hours, mgrm.	2 hours, mgrm.
·079	·088	·094	·097	·088
·075	·079	·075	·071	·053
·083	·093	·079	·088	·071
·075	·093	·115	·075	·068
·075	·093	·062	·068	·071
·083	·093	·093	·093	·085
·075	·093	·088	·065	·071
·075	·093	·062	·068	·071

Thirty-five male and 31 female patients were thus investigated, making a total of 66 patients in all. Using the above classification, the results obtained were as follows :

Group.	Male.	Percentage of total males.	Female.	Percentage of total females.
I	6	17	..	..
II	7	20	8	25·8
III	5	14	9	29·03
IV	17	49	14	45·16

In certain of our cases fits occurred during the taking of the specimens: these were followed by a temporary fall in the blood sugar content, succeeded by some degree of recovery. Appended are some of the findings obtained in such cases :

Resting, mgrm.	¼ hour, mgrm.	1 hour, mgrm.	1½ hours, mgrm.	2 hours, mgrm.	Remarks.
·087	·125	·075	·125	·107	Fit between half hour and one hour.
·088	·079	·100	·096	·083	Fit between resting and half hour.
·087	·125	·075	·125	·107	Fit between half hour and one hour.
·088	·079	·100	·096	·083	Fit between resting and half hour.

The half-hourly specimens of urine were tested for the presence of glucose by means of Benedict's solution, and in 9 female cases and 4 male cases, *i.e.*, 20% of the total cases, the presence of glucose was demonstrated in one or more specimens during the period observed. In none of these cases did the sugar content of the blood at any time exceed normal limits, suggesting that all these cases of glycosuria were due to a low renal threshold for glucose.

A survey of our results suggests the following points of interest :

(a) While there is no typical glucose tolerance curve in epilepsy, a high percentage of epileptic patients present a glucose tolerance curve of a definitely subnormal type.

(b) We have attempted to correlate the type of epileptic (*e.g.*, irritable, confused, demented) with the blood sugar level, but have been unable to determine that there is any such relation. Examples of all these types are found in each of the groups mentioned above.

(c) Similarly we have been unable to establish any definite relation between frequency of fits and the blood sugar level.

(d) The comparatively high percentage of cases with renal glycosuria in our series is worthy of note.

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