10530 P

Anterior Pituitary Growth Factor and Blood Sugar.*

R. C. WEINSTEIN. (Introduced by C. I. Reed.)

From the Department of Physiology, University of Illinois, College of Medicine.

That the growth acceleration induced by the growth factor of the anterior lobe of the pituitary body profoundly affects protein metabolism has been demonstrated by a number of workers. However, there appears to have been little attention given to a possible influence of *this particular factor* as such on carbohydrate metabolism. A survey of the literature by Van Dyke[1] does not contain any reference to a relationship between the growth factor and carbohydrate metabolism. Long[2] cited a few experiments in which a certain growth hormone preparation produced glucosuria but this preparation is obviously not the same as the one used in this investigation.

As an initial approach to this problem, the following group of experiments was undertaken.

Two dogs, weighing respectively 14 and 16 pounds, were fasted 12-15 hours. Blood samples were drawn and 50 units of Antuitrin Growth were injected intravenously. Blood samples were drawn at 1, 2, 24, and 48 hours. The results are shown in the chart (Fig. 1). Experiments were repeated at weekly intervals. The dogs were fed lightly after the 2-hour and 24-hour sampling, but each subsequent determination was made after 12-15 hours fast. Both dogs maintained approximately constant weight. Autopsy did not reveal any significant changes in any tissue.

Blood sugar was determined by the Somogyi modification of the Shaffer-Hartman method.

Both dogs became markedly depressed about 30 minutes after injections and after the first injection in each dog this depression was accompanied by violent sneezing which persisted for 15 to 20 minutes. This was attributed to an allergic reaction.

It will be noted in the two graphs that in both cases the fasting level was progressively lower with each succeeding experiment. The *exact* composition of Antuitrin Growth is not known, but according to assays by the manufacturers it contains negligible amounts of the

* Antuitrin Growth was made available by Parke, Davis and Company. This cooperation is gratefully acknowledged.

1 Van Dyke, H. B., *The Physiology and Pharmacology of the Pituitary Body*, University of Chicago Press, 1936.

2 Long, C. N. H., *Medicine*, 1937, **16**, 215.

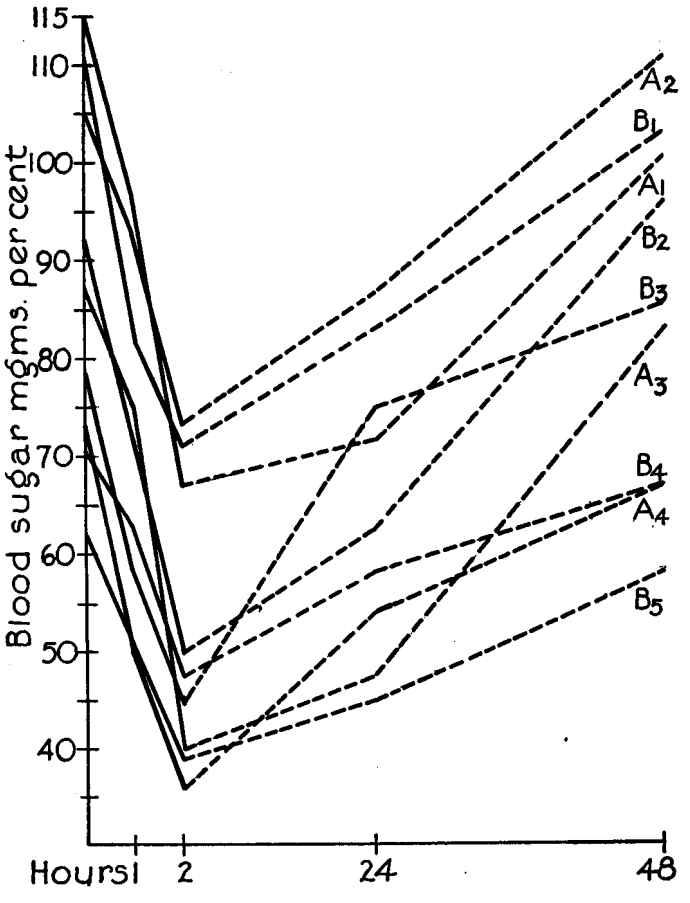

FIG. 1.

A—Male dog, 14 pounds, A_1, A_2, etc., blood sugar curve after 50 units growth hormone at successive weekly intervals.

B—Male dog, 16 pounds weight, B_1, B_2, same as above.

other anterior lobe factors that are more specifically related to carbohydrate metabolism. Also the solvent has no hypoglycemic action.

Summary. Intravenous injection of 50 units of Antuitrin Growth into adult healthy dogs induced progressive depression of fasting blood sugar for 2 hours. At 24 hours the level approached that found at 1 hour, and after a lapse of 48 hours the fasting level closely approximated the initial level.