4839

Effect of Insulin on Alimentary Lipemia in Normal Dogs.

H. R. RONY AND T. T. CHING. (Introduced by A. C. Ivy.)

From the Department of Physiology and Pharmacology, Northwestern University Medical School.

The blood fat curve following ingestion of a test meal of fat was studied by us on adult dogs. The fat meal consisted of 2 cc. olive oil per pound body weight by stomach tube. Venous blood was removed before and at certain intervals after the meal, and the plasma analyzed for total fatty acids and cholesterol by Bloor's new method. The test meals were given after 7 to 14 days' fasting. Such dogs invariably responded with a marked increase in blood fat beginning about 2 hours after the test meal, reaching a peak in about 5 hours and returning to the previous level in 10 hours.

In a series of 8 dogs, 20 to 40 units insulin were given hypodermically at the same time the fat meal was given. The result was that the amount of the total fatty acids remained practically unchanged. This shows that the insulin prevented alimentary lipemia from occurring.

We then determined the effect of glucose administration on the blood-fat curve in connection with a fat meal. In 5 experiments, 1 gm. of glucose per pound body weight in 20% solutions was given by stomach tube along with the olive oil to dogs starved from 7 to 14 days. Again the blood fat remained practically unchanged in all cases, demonstrating that oral administration of glucose prevents the alimentary lipemia.

TABLE I.

Dog No.	Fasting Days	Amt. of Insulin Units	Total Fatty Acids Mgm.		
			Before	2 hrs.	5 hrs.
102	8	20	305	314	310
103	10	30	289	268	304
105	7	25	410	425	432
106	14	25	324	316	318
107	10	30	194	176	205
108	12	40	343	340	338
109	8	30	259		270
110	11	25	428	415	402

This suggests that the effect of insulin on alimentary lipemia is in some way connected with the effect of insulin on the carbohydrate metabolism. Whether both insulin and glucose prevent ali-

mentary lipemia by increasing the glycogen content of the liver is yet to be proven.

4840

The Support Reaction in Spinal Animals.

S. W. RANSON AND J. C. HINSEY.

From the Institute of Neurology, Northwestern University Medical School, Chicago.

Rademaker observed what he called the "Stütz" reaction in decerebellate dogs. Pressure against the pads of the toes, simulating that exerted by the floor against the foot, causes contraction of the muscles of the entire leg in such a way as to convert it into a prop or Stütz. This reflex is a very important factor in reflex standing. Since its discovery by Rademaker,[1] it has been described in detail by Schoen[2] and Pritchard.[3]

Pressure against the pads of the foot stimulates the nerve endings in the skin (exteroceptive) and by stretching the muscles which flex the toes and extend the ankle it also stimulates the nerve endings in these muscles (proprioceptive). Both of these types of stimuli take part in producing the reflex. According to Schoen it occurs after section of all of the nerves to the skin of the foot and must then be purely proprioceptive. In decerebellate animals it can be evoked by touching the pads of the toes, which shows that it can be elicited by tactile stimuli acting alone.

It is most easily studied in animals in which all of the brain in front of the thalamus has been removed. Schoen was unable to demonstrate it in spinal animals except that there was some indication of its presence in decapitate animals when the neck reflex was exerting an influence favorable to extensor tonus.

We have observed the support reaction in decapitate dogs, decapitate cats, and in both acute and chronic low spinal cats. In acute experiments with decapitate and low spinal preparations the reflex can best be demonstrated when reinforced by extraneous stimuli. Pinching the tip of the tail will often furnish the required reinforcement. We have studied the animals when supported in a hammock with the legs hanging pendant through 4 openings in the support.

[1] Rademaker, G. G. J., *Dtsch. Z. f. Nervenheilk.*, 1926, xciv, 144.

[2] Schoen, R., *Pflüger's Arch. f. d. ges. Physiol.*, 1926, ccxiv, 21 and 48.

[3] Pritchard, E. A., Blake, *Pflüger's Arch. f. d. ges. Physiol.*, 1926, ccxiv, 148.