

lipoid-containing membranes, and again we seem to be dealing with some effect specific for the thiocyanate ion.

In the case of collodion membranes containing varying amounts of lecithin, from 0.01 to 0.1 p.c. of lecithin per gm. of dry membrane, together with varying amounts of cholesterol, from 0.01 to 0.1 p.c. per gm. of dry membrane, the carbamates again produce an acceleration of the diffusion rate of thiocyanate, but the effect becomes less as the amount of cholesterol is increased. The passage of the other ions studied was not affected by the addition of the narcotics.

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Adrenalectomized-Depancreatized Dogs.

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We have previously reported¹ that removal of the adrenal glands from the cat ameliorates the effects of pancreatic diabetes to an extent comparable to that obtained by hypophysectomy and, furthermore, that the removal of the adrenal cortex is responsible for this effect of adrenalectomy. Houssay and Biasotti² have recently reported a similar effect of adrenalectomy upon pancreatic diabetes in the toad. Since the dog has been extensively used in the study of experimental diabetes and since several workers have reported that adrenalectomy does not modify an experimental diabetes^{3, 4, 5} in this species, it was of some interest to prepare long surviving animals in which all adrenal and pancreatic tissue had been removed. This was accomplished by first removing one adrenal and at a later date, the pancreas. The animals were then maintained by use of protamine insulin until in good health, when the second adrenal was removed and the insulin discontinued. During the remainder of their lives, they received a diet of meat and raw pancreas and, in addition, from 4 to 8 gm. of NaCl daily. They also received 5-10 cc. of cortical extract (Upjohn) daily. Analyses of the blood at

¹ Long, C. N. H., and Lukens, F. D. W., *J. Exp. Med.*, 1936, **63**, 465.

² Houssay, B. A., and Biasotti, A., *Rev. Soc. Argent. Biol.*, 1936, **12**, 104.

³ Stewart, G. N., and Rogoff, J. M., *Am. J. Physiol.*, 1923, **65**, 319.

⁴ Tureatti, E. S., *Rev. Soc. Argent. Biol.*, 1929, **5**, 173.

⁵ Leloir, L. F., *Rev. Soc. Argent. Biol.*, 1934, **10**, 216.

the end of the experiment indicated that no gross disturbances in the electrolyte balance had occurred. In consequence, it is assumed that the alterations in the character of the diabetes were not to be attributed to a distorted water and salt metabolism.

Table I shows that the glucose, nitrogen and acetone excretion of the 5 dogs studied was strikingly reduced compared to the quantities reported by Chaikoff⁶ in fasting depancreatized dogs from which

TABLE I.

Dog No.	Survival days	Period of Observation days	Urine			Notes
			Glucose g./k./d.	Nitrogen g./k./d.	Acetone mg./k./d.	
A. Adrenalectomized-Depancreatized Dogs.						
16	32	6	0.2	0.7	0	400 gm. meat and pancreas daily
17	21	3	0.9	0.8	0	150 gm. meat, 100 cc. milk daily
18	11	6	1.9	0.9	29	350 gm. meat daily
19	25	10	0.7	0.8	17	350 gm. meat daily
26	9	4	0.1	0.6	3	Fasted
B. Fasting Depancreatized Dogs (Six).						
			2.9	0.8	187	After Chaikoff. ⁶

insulin had been withdrawn. While we have no comparable figures for the survival of depancreatized dogs, it would appear that as in the cat, the length of life of the adrenalectomized-depancreatized dog is also appreciably extended. None of our dogs relapsed into acidosis or coma but slowly became free from glycosuria as their weight declined. This occurred even if the food intake remained constant. Hypoglycemic episodes relieved by glucose also were observed in one animal.

In 2 animals the ketonuria for a short period was greater than we have observed in adrenalectomized-depancreatized cats (40-70 mg. a kilo a day) but this appears to be a species difference as hypophysectomized-depancreatized dogs exhibit a greater ketonuria than do similarly operated cats.

It is therefore concluded that adrenalectomy produces the same modification of pancreatic diabetes in the dog as has already been observed in the cat.

⁶ Chaikoff, I. L., *J. Biol. Chem.*, 1927, **79**, 203.