

palpable thrill the lumen is in danger of becoming obliterated—as by the formation of a cylindrical fibrous cord beneath the band—and thus cancel the experiment; and in the cervical rib cases we may assume, argumentatively, that the subclavian artery, compressed to the stage sufficient to produce an aneurism, is likely to become totally occluded in the presumably considerable time required for the manifestation of the dilatation. Thus, in dogs a number of months must apparently elapse after the application of the band before a dilatation in striking degree can occur. In the two cases, observed just one year apart, 5 months and 20 days, and 6 months and 19 days, respectively, had elapsed. In the second of these, however, a dilatation of less than one mm. was found at the expiration of 2 months.

2 (1066)

A comparison of the effects of glucose and of meat administration upon the non-protein blood nitrogen and the duration of life in experimental renal insufficiency.

By J. H. AUSTIN and S. S. LEOPOLD.

[From the John Herr Musser Department of Research Medicine and the William Pepper Clinical Laboratory.]

The following study was undertaken to determine (1) whether those dietary factors that tend to increase the non-protein blood nitrogen in acute insufficiency also tend to shorten the duration of life, and (2) the value of glucose in prolonging life in acute renal insufficiency. The method adopted was to observe the daily curve of non-protein blood nitrogen and the duration of life after complete renal insufficiency had been induced by bilateral ureteral ligation in a series of dogs; half the animals being given glucose, the other half, meat.

Six dogs were divided into two groups of three each. One group was fed upon beef heart, the other upon glucose dissolved in water. On the third day, 5 c.c. of blood was taken from the jugular vein for estimation of the total non-protein nitrogen by the Folin method, and immediately thereafter each dog was etherized and both ureters ligated. On the following day, blood

was again taken in the same manner and the diet resumed as before operation. Every day thereafter blood was taken before feeding. When the stomach became unretentive, the glucose dogs were given ten per cent. solution of dextrose in distilled water intraperitoneally. The meat dogs when they refused the meat were allowed water as desired.

At autopsy, all the ureters were found satisfactorily ligated, the pelvis of the kidney was filled but not materially distended and there was no evidence of infection. In the animals receiving glucose solution intraperitoneally, there was no evidence grossly of free fluid in the peritoneal cavity.

The following facts were noted. After forty-eight hours on the diets, but before ureteral ligation, the blood nitrogen of the two groups was the same. The day after operation, neither meat nor glucose having been given the day of the operation, the blood nitrogen in both groups was almost the same, possibly a little lower in the glucose group; the loss of weight at this time was the same in the two groups. Forty-five hours after operation, the meat animals having retained their feeding the day previous, while the glucose animals had vomited, the loss of weight was distinctly greater in the glucose group; the blood nitrogen was distinctly lower in the glucose group. Sixty-nine hours after operation only one of the meat group was surviving. All of the glucose group were surviving, and exhibited blood nitrogens comparable with those of the meat group of twenty-four hours earlier. Duration after operation was practically the same in animals 39 (meat) and 34 (glucose); the two other meat animals survived a distinctly shorter time than the two other glucose animals.

In these experiments, the condition that makes for a lower blood nitrogen also appears to make for a longer duration of life after acute renal insufficiency, but for confirmation of these findings and for further investigation of the factors involved, additional studies are in progress.