5709

Effect Upon the Kidney of Feeding Large Amounts of Amino Acids for a Short Period of Time.

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It has been claimed by many investigators that high protein diets produce renal injury.[1] Newburgh and Curtis[2] have shown that the type and degree of injury is dependent on the nature and amount of the protein and the duration of feeding. In an earlier study Newburgh and Marsh[3] had definite renal injury in 24 to 48 hours following the intravenous injection of certain amino acids. During the course of an investigation on the metabolism of creatine[4] a series of animals became available for histological study of the effects of large quantities of ingested amino acids for short periods of time.

A total of 81 rats, weighing between 40 and 60 gm. have been examined, 48 were fed amino acids, 10 other nitrogenous substances, and 6 were normal. All food except water was removed from the cage at night and the next morning 1 gm. of the substance to be fed was mixed with Sherman's diet B (consisting of whole wheat flour two-thirds, whole milk powder one-third, NaCl and $CaCO_3$, each, to the extent of 1% of the wheat flour) and placed in the cage. Twenty-four hours later the animals were sacrificed by a blow on the head. The kidneys were weighed, sectioned saggitally, fixed in Zenker's solution, embedded in paraffin and stained with hematoxylin and eosin. Two animals were fed phenylalanine, 5 glutamic acid, 6 tyrosine, 5 glycine, 3 alanine, 11 arginine, 3 aspartic acid, 1 leucin, 6 cystine, and 3 histidine. In the second group 7 were fed creatine and 3 glycocyamine.

The absolute kidney weight and the kidney weight body weight ratio show no differences in the several groups. Sections were examined with concealed key numbers and later with knowledge of the source of each specimen. In neither case could any deviation from normal in the structure of the glomerulus or tubules be demonstrated.

We conclude that the ingestion of 1 gm. of certain amino acids, 24 hours previous to examination, produces no morphological change in the kidney of the young white rat.

[1] Editorial, *J. Nutrition*, 1929, **1**, 271.

[2] Newburgh, L. H., and Curtis, A. C., *Arch. Int. Med.*, 1928, **42**, 800.

[3] Newburgh, L. H., and Marsh, P. L., *Arch. Int. Med.*, 1925, **36**, 682.

[4] Beard, H. H., PROC. SOC. EXP. BIOL. AND MED., 1931, **28**, 454.