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**The interpretation of a positive nitrogen balance in nephritis.**By **HERMAN O. MOSENTHAL, M.D.**

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In studying nitrogen metabolism in certain cases of nephritis, a retention of this substance was observed. The conception of the retention of nitrogen in nephritis, as understood by the clinician, generally implies two facts: Firstly, that a positive nitrogen balance is usually due to kidney insufficiency; secondly, that the retained nitrogen is present in the body as waste-nitrogen and circulates in the blood, in part, at least, as non-protein nitrogen. It is known from the work of Marshall and Davis<sup>1</sup> that urea is evenly distributed throughout the body, except in certain tissues, as the fat, bone, cartilage, etc., which do not take up urea. In calculating the theoretical amounts of non-protein nitrogen to be expected in the blood, it has been assumed that all the nitrogen which the body has metabolized and is about to excrete, in

TABLE I.

THEORETICAL AND ACTUAL VALUES OF NON-PROTEIN NITROGEN  
OF THE BLOOD RESULTING FROM NITROGEN RETENTION  
IN CERTAIN CASES OF NEPHRITIS.

	N. of Blood—Mg. per 100 c.c.			N. Grams Retained During Observation.
	At Beginning of Observation.	At End of Observation.	Theoretical Value at End of Observation. <sup>2</sup>	
Case 1	30	37	152	92.0
" 2	30	38	116	65.0
" 3	25	34	93	51.0
" 4	30	37	165	101.4
" 5	29	27	119	69.1
" 6	71	74	117	35.3

contradistinction to the nitrogen which the tissues are storing is evenly distributed throughout the body as is the case with urea.

<sup>1</sup> Marshall and Davis: *Jour. Biol. Chem.*, 1914, XVIII, 53.

<sup>2</sup> These figures represent the values obtained for non-protein nitrogen of the blood at the beginning of the observation plus the theoretical value due to retained nitrogen.

Applying these principles to the total non-protein nitrogenous products, it is found that in a subject of average weight, for every gram of nitrogen retained, the non-protein nitrogen of the blood should be increased 1.33 mg. per 100 c.c. According to these calculations, in the cases presented here, if none of the retained nitrogen were assimilated or stored, and all of it circulated as waste-nitrogen because the kidneys did not excrete it, the figures shown in the table would be obtained.

This table shows that a positive balance of nitrogen in cases of nephritis on a mixed diet is not necessarily followed by a corresponding increase in the non-protein nitrogen of the blood. It is evident that discretion must be exercised in interpreting a normal figure for non-protein nitrogen of the blood as indicating that no nitrogen retention has taken place, and in considering a positive nitrogen balance as an absolute indication of the inability of the kidney to excrete this substance.

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### **On the occurrence and distribution of potassium in normal and nephropathic kidney cells.<sup>1</sup>**

By **WM. DEB. MAC NIDER.**

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The observations which are contained in this summary are based on the microchemical demonstration of potassium in the kidney cells of thirty-four dogs. The animals have varied in age from four months to something over ten years. Four of the animals may be grouped as "normal animals." They did not receive any nephrotoxic substance and neither were they subjected to the action of an anesthetic. After a period of three days of observation these animals were killed by shooting.

The remaining thirty animals were rendered nephropathic by uranium nitrate in the dose of 4 mg. or 6.7 mg. per kilogram. They were anesthetized by either Gréhant's anesthetic in 60 per cent. strength, or by morphine-ether.

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