5498

Osmotic Pressure of Plasma Proteins in Nephritis.*

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We have determined the osmotic pressure of the plasma colloids in normal persons and in cases of glomerulonephritis with and without edema, using the method of Schade[1] for the determination of the osmotic pressure of the plasma proteins at 37°C. against a collodion membrane. The normal values for the osmotic pressure of the plasma proteins were from 20 to 23 mm. Hg. The osmotic pressure of the plasma proteins was 11 mm. Hg. or lower in all our cases of nephropathic edema investigated up to the present time. Edema was not observed in cases of nephritis where the osmotic pressure of the colloids of the plasma was 17 mm. Hg. or above. Undoubtedly lowering of the osmotic pressure of the plasma proteins is a factor in the formation of edema in nephritis and nephrosis. It is best thought of as determining a "tendency to edema formation." Other factors as ability of the kidneys to excrete water, salt retention,

TABLE I.
Osmotic Pressure of Plasma Proteins in mm. Hg. at 37°C. in Nephritis.

Name	Diagnosis	Osmotic Pressure of Plasma Protein in mm. Hg. at 37°C.	Serum Albumin %	Plasma Proteins %	Edema
S. M.	Sub-chronic Glomerulo-nephritis	6		3.7	Present in large amount
S. M.	"	9			Present
S. M.	"	8		3.4	"
S. M.	"	10		4.6	"
S. M.	"	9	2	4.4	"
S. M.	"	17	3.1	4.8	None
D. G.	"	9	2.3	4.1	Present
E. W.	Nephrosis	10			"
D. H.	Chronic Glomerulo-nephritis	9		3.9	"
D. H.	"	10	1.8	3.8	"
D. C.	Amyloid kidney	11	1.3	4.7	"
O. M.	Sub-chronic Glomerulo-nephritis	10	2	4.1	"
L. J.	Chronic Glomerulo-nephritis in uremia	27	4.4	6.4	None

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[1] Schade, H., *Z. f. Klin. Med.*, 1924, **100**, 370.

anoxemia and toxins altering capillary permeability, etc., contribute to the formation of edema. By reducing water intake it was possible to reduce the extent of the edema in some cases with low osmotic pressure of the plasma proteins. We are now attempting to determine experimentally the level of osmotic pressure of the plasma proteins below which edema must form even with good renal function and no salt retention. When the osmotic pressure of the plasma proteins is below the hydrostatic pressure at the venous end of the capillary system, undoubtedly edema must form because water can not stay in the capillaries.

Our figures are in essential agreement with those obtained by Schade,[2] Govaerts,[3] and Krogh[4] on similar cases.

5499

A Method for Preparing an Active Adrenal Cortex Extract.

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(Introduced by P. E. Smith.)

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A number of investigators have recently[1, 2] reported active extracts of the adrenal cortex, but at the time we were ready to use cortical extracts on test animals we were unable to find detailed directions for their preparation. As a result we have developed the following method.

Beef adrenals obtained from the slaughter house immediately after the kill are transported to the laboratory, packed in ice. The connective tissue and fat are dissected off, and the glands ground in a meat chopper equipped with a fine cutting disc. The minced glands are weighed and placed in 95% ethyl alcohol, one liter of alcohol per kilogram of gland, and allowed to stand in the cold over night. The next morning the alcohol is poured off, employing

[2] Schade, H., *Ergeb. d. Inn. Med. Kinderh.*, 1927, **32**, 425.

[3] Govaerts, P., *Bull. d. l'Acad. Roy. d. Med. d. Beligigne.*, 1924, **4**, 161.

[4] Krogh, A., *Anat. and Physiol. of the Capillaries*, Yale Univ. Press, New Haven, 1922.

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[1] Swingle, W. W., and Pfiffner, J. J., *Science*, 1930, **71**, 321.

[2] Hartman, F. A., *Endocrinol.*, 1930, **14**, 229.