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Serum Proteins and Lipoids in Infantile Eczema.*

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A comparison was made of infants and children with eczema and an essentially normal group of similar age distribution without eczema or known allergic disturbance, in respect to the concentration in the serum of total protein, albumin, globulin, cholesterol and lipoid phosphorus. The protein determinations were made by the gravimetric method of Barnett, Jones and Cohn,[1] so modified as to permit the separate measurement of the albumin and globulin fractions, the latter by difference.† Cholesterol was determined by the method of Myers and Wardell.[2] The lipoid phosphorus was determined by a combination of the methods, slightly modified, of Bloor[3] (preliminary extraction), Benedict and Theis[4] (determination of phosphorus). The protein osmotic pressure was calculated from the figures for albumin and globulin.

There were 31 children in the eczema group and 25 in the control group. The results—excluding lipoid phosphorus in which no differences of interest were found in the two groups—can be summarized by giving the mean, the 10 percentile and 90 percentile values, in order.

1. Total protein. Eczema: 7.13; 6.13; 7.95 (gm. %). Controls: 6.82; 6.01; 7.73.

2. Albumin. Eczema: 5.29; 4.62; 5.93. Controls: 4.72; 4.05; 5.37.

3. Globulin. Eczema: 1.84; 1.26; 2.66. Controls: 2.10; 1.25; 3.17.

4. Albumin: globulin ratio. Eczema: 3.19; 1.96; 4.14. Controls. 2.52; 1.45; 3.77.

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[1] Barnett, C. W., Jones, R. B., and Cohn, R. B., *J. Exp. Med.*, 1932, **55**, 683.

† The globulin was also determined directly, and fair agreement obtained with the figures by difference. The absolute amounts of globulin in the small samples of blood available were low and we believe that the estimation by difference is somewhat more accurate.

[2] Myers, V. C., and Wardell, E. L., *J. Biol. Chem.*, 1918, **36**, 147.

[3] Bloor, W. R., *J. Biol. Chem.*, 1918, **36**, 33.

[4] Benedict, S. R., and Theis, R. C., *J. Biol. Chem.*, 1924, **61**, 63.

5. Protein osmotic pressure. Eczema: 32.2; 28.0; 35.9 (mm. Hg.). Controls: 29.0; 25.3; 32.8.

6. Cholesterol. Eczema: 195.7; 187; 139 (mgm. %). Controls: 173.1; 132; 194.

The more striking differences observed were: (1) Marked elevation of the serum albumin, albumin-globulin ratio, and protein osmotic (oncotic) pressure in the serum of the eczema group; (2) Marked elevation of the serum cholesterol in the eczema group, 40% of which showed figures in excess of 200 mg. %; (3) Slight, possibly not significant, lowering of the serum globulin in the eczema group; (4) Moderate elevation of the total protein in the eczema group, due mainly to the high albumin fraction; (5) No difference between the 2 groups in respect to lipoid phosphorus.

The exact significance of the differences noted is not clear. All the children were receiving milk in considerable quantities. In a few instances, precipitin tests for bovine lactalbumin were made on the sera and positive results obtained but these occurred in the controls as well as in the patients with eczema. Even assuming that the increase in serum albumin was wholly due to absorption of undigested lactalbumin—an assumption that is not supported by convincing proof—this might be the result either of increased absorption or from failure to dispose of a normal amount of absorbed protein at a normal rate.

In any case, it may be pointed out that a definite increase, such as has been observed here, in the albumin fraction of human serum is an unusual phenomenon.

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Experimental Granulopenia.

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The etiology of so-called "agranulocytosis"[1] has not been explained. Kracke[2] has recently produced the disease in rabbits by repeated small injections of benzene, but there is little evidence that such a substance is responsible for the syndrome in man. However,

[1] Schultz, *Deutsche med. Eschnschr.*, 1922, **48**, 1495.

[2] Kracke, *Am. J. Clin. Path.*, 1932, **2**, 11.