

the large flaking agglutinins differ somewhat from those of common typhoid immune sera.

The substance P_2 was found to be highly toxic for rabbits and rats.

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Relation of Cholesterol and Lecithin to Remission in Pernicious Anemia.

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It has been recognized that the cholesterol and lecithin content of the blood are low in severe relapses of pernicious anemia and that these constituents tend to increase with the improvement of the patient's health. Whether the increase of cholesterol and of lecithin bears any definite relationship to the remission of the anemia has not been determined.

Determinations of cholesterol and lecithin in the plasma of 25 cases of typical pernicious anemia have been made, usually every other day over a period of many weeks. Cholesterol was determined by Bloor's method¹ and the lecithin according to the method described by Whitehorn.² On admission 4 cases had less than 1.0 million red blood cells, 7 had between 1.0 million and 2.0 million, and the other 14 had over 2.0 million per cu. mm. Of the 4 cases with less than 1.0 million red blood cells per cu. mm., all showed low values for both cholesterol and lecithin; in some instances less than 50% of normal. Two of these 4 cases had a rapid remission, one died soon after entering the hospital, and the fourth is still under observation.

The first case entered the hospital with a red blood cell count of 950,000 per cu. mm. The plasma cholesterol was 93 mg., and the lecithin phosphorus 4.3 mg. per 100 cc. For 17 days the patient was fed a test preparation. During this time the red blood cells fell to 644,000 per cu. mm., the cholesterol fluctuated between 56 and 93 mg. per 100 cc., while the lecithin phosphorus varied between 4.3 to 5.7 mg. per 100 cc. The patient was then given another test preparation of the same cholesterol content. A remission promptly

¹ Bloor, W. R., Pelkan, K. F., Allen, D. M., *J. Biol. Chem.*, 1922, lli, 191.

² Whitehorn, J. C., *J. Biol. Chem.*, 1924, lxii, 133.

set in, and a typical response of the reticulocytes occurred, accompanied by a considerable rise in the cholesterol and lecithin values. As the red blood cells and the hemoglobin rose the cholesterol and lecithin increased still further and approximately normal values were reached when the red blood cells had increased about 1.0 million per cu. mm.

A second case during a 9 day control period was fed with an inert preparation, and the red blood cells remained about 700,000 per cu. mm.; the plasma cholesterol varied from 48 to 91 mg. per 100 cc., and the lecithin phosphorus from 3.9 to 5.0 mg. A transfusion of 500 cc. of blood was given on the ninth day and the patient placed upon a daily dose of a liver extract preparation. Directly after the transfusion, the red blood cells rose from 600,000 to 1,500,000 per cu. mm. without any appreciable rise of the cholesterol and the lecithin. On the seventh day after commencing the liver extract, the reticulocytes reached the peak of their rise which indicated the onset of remission. This was accompanied by an increase of both cholesterol and lecithin which reached 101 and 6.2 mg. per 100 cc. respectively, when the red blood cells numbered only 1.3 million per cu. mm.

The observations in these 2 cases of pernicious anemia, which are comparable to those upon others, indicate that cholesterol and lecithin increase in the plasma coincident with the onset of remission. The increase is evidently not dependent upon the actual number of red blood cells in the circulation. Whatever fundamental changes occur with the onset of the remission in pernicious anemia, the increase of cholesterol and lecithin seems to be one phase of this change.

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Permeability of the Fundulus Egg to Ions: Chorion versus Skin.

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In previous studies on the permeability of the Fundulus egg, little attention has been paid to the fact that the embryo is enclosed by 2 membranes. One of these is the skin of the embryo itself; or, at very early stages before the blastodisc has completely enclosed the yolk, the delicate vitelline membrane which covers the yolk. The