ASSOCIATION OF THE VIRUS OF LYMPHOCYTIC CHORIOMENINGITIS WITH ERYTHROCYTES OF INFECTED ANIMALS

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The virus of lymphocytic choriomeningitis is found in organs and body fluids of infected man and animals [Rivers and Scott (1935, 1936), Armstrong, Wooley and Onstott (1936), Traub (1935, 1936a, c), Smadel and Wall (1941, 1942), Findlay and Stern (1936) and Kreis (1937)]. Traub (1936b) reported that the cellular sediment of leucocytes and erythrocytes from the blood of one out of four mice tested contained the virus.

In attempts to determine whether the mechanism of transfer of the virus through the blood bears any relation to the pathogenesis of the disease the following observations were made:

Erythrocytes from heparinized blood of infected mice and guinea pigs were separated from the silvery layer of leucocytes, washed 6–7 times in Locke solution and hemolyzed by addition of distilled water in proportion 1:3. The stroma of hemolyzed cells was also washed 6–7 times in Locke solution. The preparations each injected intracranially into several mice in a dose of 0.03 ml. were, as follows: blood serum; erythrocyte washings; the supernatant, washings of the sediment, and the sediment of hemolysed erythrocytes; and intact erythrocytes.

The virus was recovered from the erythrocytes of infected mice and guinea pigs. Depending on the virulence for the host, strains1 of the virus differed from one another in their ability to enter into association with the erythrocytes of mice and guinea pigs. The results are summarized in table 1.

When a strain showed a decidedly greater virulence for one species than the other, there was observed consistent infectivity of erythrocytes of the species for which the strain possessed the greater virulence. The virus was recovered only irregularly from erythrocytes of mice and guinea pigs when the strain possessed low virulence for both species.

The concentration of the virus in the erythrocytes had no relationship to the

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amount of the virus in the blood serum; the virus could be obtained from the hemolysed erythrocytes when the washings preceding hemolysis were free from the virus; although intact erythrocytes also proved infectious, the yield of the virus was lower than in hemolysed erythrocytes. Hemolysis failed, however to liberate the entire amount of virus associated with erythrocytes, since as many as 6–7 washings of the stroma, as well as the washed stroma itself remained infectious.

Thus, there occurs a firm association of the virus of lymphocytic choriomeningitis with the erythrocytes of infected mice and guinea pigs. The ability of the virus to enter into this association markedly depends on the virulence of the strain for the animal species infected. Consistent infectivity of the erythrocytes is observed when the strain is capable of eliciting in the animal species a severe and fatal infection.

BIBLIOGRAPHY


ANTIBACTERIAL ACTION OF A PYRIDINE ANALOGUE OF THIAMINE

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The pyridine analogue of thiamine, 2-methyl-4 amino-5-pyrimidyl-methyl-(2-methyl-3-β-hydroxyethyl) pyridinium bromide, has been reported by Robbins (1941) to be without thiamine activity for fungi and actually to inhibit their growth. Wooley and White (1943) have produced a thiamine deficiency syndrome in mice by feeding this analogue which they have named pyrithiamine. We have studied the quantitative aspects of the competition between pyrithiamine and thiamine as measured by bacterial growth and are reporting an