9th International Congress on tropical medicine and malaria Athens 14-24 October 1973 Abstracts of invited papers.

77. **The trypanocidal activity of normal human blood against *Trypanosoma brucei*.**

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We have shown previously that the blood incubation infectivity test (BIIT) developed by Rickman and Robson (1970) to distinguish between *T. brucei brucei* and *T. brucei rhodesiense* does not give consistently positive results with some *T. brucei rhodesiense* strains (Targett and Wilson, 1973). It is clear too from these and other experiments that most *T. brucei rhodesiense* organisms do not remain infective after exposure to human blood or serum. In order to obtain a better understanding of the trypanocidal effect we are modifying the BIIT, determining the infectivity of trypanosomes by titration before and after *in vitro* incubation in human blood, carrying out the test with stabilates, and studying the action of serum on populations of trypanosomes isolated at different stages during an infection. The results of these experiments will be reported.

78. **Antigenic similarities among isolates of *Trypanosoma gambiense*.**

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Recent research has shown that isolates of *Trypanosoma gambiense* from several different countries in Africa have a similar antigenic constitution. Three isolates of *T. gambiense* collected from sleeping sickness patients in different places in Nigeria were cyclically transmitted to rabbits and monkeys by *Glossina morsitans* and *G. tachinoides*. Agglutination tests with sera from these animals and a collection of antigens prepared from rodent-adapted serological variants (serotypes) of other Nigerian isolates of *T. gambiense* showed that the first antibodies produced in each infection reacted with the same serotypes, suggesting that the tsetse-transmitted isolates had a basic antigen in common. The patterns in which antibodies to other serotypes developed suggested that there were similarities in the sequences in which variant antigens were produced by different isolates. A survey of the occurrence of nineteen different serotypes in syringe-passaged isolates of *T. gambiense* from other parts of Nigeria showed that the trypanosomes produced many variant antigens in common, but the antigens characterising three serotypes were produced only by isolates with a limited geographical distribution. Isolates of *T. gambiense* from Senegal, Nigeria, Zaire and Uganda also produced agglutinogenic antigens in common.

79. **Valeur du test d'immunofluorescence indirecte pour le «contrôle» de la trypanosomiase humaine à *T. gambiense*.**

J. CARRIE, J.L. FREZIL et F. RIO, *Brazzaville, Rép. du Congo.*

Après quatre prospections, suivies d'une lomidinisation, le Test d'Immunofluorescence Indirecte permet encore le dépistage de 9 nouveaux malades dans un petit groupe de hameaux, reconnus depuis 20 mois foyer de trypanosomiase. Les enquêtes antérieures avaient mis en oeuvre, outre les examens classiques, la recherche systématique de l'augmentation des macroglobulines sériques. L'enquête épidémiologique explique la répartition quelque peu particulière de la totalité des cas, qui voisine la centaine. Bien que rien ne permette de dire que la transmission ait été interrompue, nous pensons que plusieurs malades suivis pour augmentation des IgM et tout dernièrement dépistés sont atteints de trypanosomiase depuis de nombreux mois. Cette enquête souligne : a) les difficultés

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du dépistage exhaustif de la trypanosomiase (certains diagnostics n'ayant été portés que grâce à la filtration sur DEAE cellulose), et b) surtout, l'intérêt de l'étroite sélection des suspects par le Test d'Immunofluorescence Indirecte, qui nous semble être le meilleur procédé actuel de dépistage en raison de son degré de spécificité. La décision thérapeutique applicable aux foyers devra tenir compte les résultats de ce test.

80. **Immunology and pathogenesis of African trypanosomiasis in rhesus monkeys.**

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A marked acquired resistance to infection with *Trypanosoma rhodesiense* was produced in monkeys by vaccination with irradiated trypanosomes of the same strain. Conversely, unimmunized controls became patent usually within a week after challenge with 10,000 unirradiated organisms, showed signs of progressive severe illness and died within two months after challenge. Pathophysiological findings in rhesus monkeys experimentally infected with *T. rhodesiense* were compared with those in monkeys which were immunized and subsequently challenged. The infected animals developed high parasitemias of up to 700 million organisms per cubic milliliter of blood and lost weight steadily until death. Hematological changes in the parasitized monkeys included dramatic decreases in hematocrit values and hemoglobin levels as well as erythrocyte and platelet counts. Reticulocyte counts increased. Biochemical alterations consisted of increased transaminases, creatinine, blood urea nitrogen and gamma globulin. The levels of total serum proteins decreased due to albuminemia. Fluorescent antibody reactions were obtained with sera from both immunized and infected monkeys although higher titers occurred in the latter group. Pathological features of the infections were reticuloendothelial hyperplasia of the spleen, liver, kidneys and lymph nodes and a perivascular mononuclear infiltrate in the liver, kidneys and heart. A proliferative glomerulonephritis was also seen in the kidneys of these animals. This proliferative glomerulonephritis develops in association with heavy deposits containing properdin and C3 but no C4. The trypanosomal glomerulonephritis appears to be associated with deposits of proteins of the alternate (properdin) complement pathway.

81. **An immunological enzyme-inhibition test showing the Trypanosome species infecting rabbits.**

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The diluted supernatants from ultracentrifuged lysates of various trypanosome species were incubated in sera from normal rabbits and rabbits infected with *Trypanosoma brucei brucei*, then stored in the cold overnight and centrifuged. The sera from infected rabbits considerably reduced the activity of alanine aminotransferase (E.C. 2.6.1.2 L-alanine 2-oxoglutarate aminotransferase) in the supernatants originating from *T.b. brucei* or its closely related trypanosomes. In contrast, much less inhibition occurred in the supernatants from *T. congolense* and *T. vivax*, and the enzyme activity was scarcely affected in the supernatants from *T. lewisi*.