IMMUNOPATHOLOGY AND HISTOPATHOLOGY OF MURINE CEREBRAL MALARIA

BY

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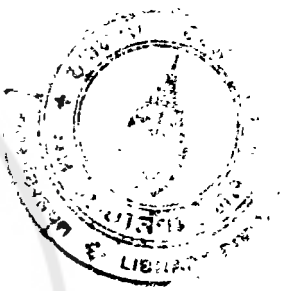

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ABSTRACT

Cerebral malaria was studied in three species of malaria parasite infections; P. berghei, P.chabaudi and P.yoelii. Mice were intravenously inoculated with 10^5 parasitized erythrocytes of each malaria parasite. For P.berghei infected group mice were sacrificed daily from day 2 to day 6 and thereafter sacrificed alternative day. While for P.chabaudi and P.yoelii infected groups, mice were sacrificed daily for 5 days and then sacrificed 3 days interval until day 20. Circulating immune complexes (CIC), antimalaria antibody, hematocrit and parasitemia were studied in relation to the immunopathological and histopathological findings. Immunofluorescent study, corpuscular

form of malarial antigen was firt detected is the choroid plexus of P.yoelii infected mice on day 5. From day 8 onwards in all groups, both corpuscular and granular forms of malarial antigens were detected in all parts of the brain and were absent in mice infected with P.chabaudi and P.yoelii examined on day 20. High mortality and acute deaths occurred in P.berghei and P.chabaudi infections and, histopathologically, marked cerebral lesions were found in these groups by day 9, including congestion of meningeal and cerebral veins and capillaries, plugging of these vessels by heavy parasitized or "agglutinated" red cells and hemorrhage. Such lesions were minimal in P.yoelii infection and those sacrificed during the course of infection of all groups. The presence of cerebral lesions were not directly related to the level of CIC or antimalaria antibody or anemia. Most mice died with cerebral involvement showed no presence of antimalaria antibody. Markedly increase of parasitemia with a high proportion of irregular or spur-shaped red cells was observed in all acutely dead mice. Histopathological studies on tissue sections of liver, kidney, lung and spleen and immunopathological study of kidney sections were also described. The results suggest that less immune status of host and the alteration of rheologic properties of parasitized and non-parasitized erythrocytes may play in

important role in the pathogenesis of cerebral malaria in this study.