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RATSAMEE FONGKHUM: EFFECTS OF MALARIA IMMUNE PLASMA ON THE ADHERENCE PROPERTY OF *PLASMODIUM FALCIPARUM* INFECTED ERYTHROCYTES. THESIS ADVISOR; PEERAPAN TAN-ARIYA Ph.D., RACHANEE UDOMSANGPETCH Ph.D., ARAYA CHUSATTAYANOND Ph.D., BUSABA PIPITAPORN Ph.D. 123P. ISBN 974-664-826-8

The anti-adherence properties of malaria immune plasma on the adherence of *Plasmodium falciparum* isolates to CD36-transfected mouse fibroblasts were investigated. All 25 clinical isolates used in this study were found to adhere to CD36. The levels of the adherence appeared to be higher in uncomplicated malaria compared with severe malaria. Cytoadherence inhibition assay demonstrated that autologous plasma could inhibit the binding of parasitized red blood cells to CD36 but the population proportions showing such activity of both uncomplicated and severe malaria plasma were rather poor (30% and 40%, respectively). The heterologous plasma, both uncomplicated and severe malaria plasma, were also able to inhibit the binding whereas cerebral malaria plasma was not. The population proportion of severe malaria plasma and uncomplicated malaria plasma demonstrating inhibition were not significantly different (30% and 25%, respectively), although uncomplicated malaria plasma were more effective than severe malaria plasma in inhibiting the cytoadherence of uncomplicated isolate, MS14. Dividing by malaria severity, plasma appeared to inhibit the binding of parasite isolates obtained from the plasma donors in the same clinical group rather than in different clinical groups. Among these three clinical groups, cerebral malaria plasma enhanced binding at the highest population proportion (70%). Antibody to RESA showed low effects on the cytoadherence inhibition. This study has provided evidence that antibodies to cytoadherence are cross-reactive and can be influenced by the level of malaria immunity of the infected hosts. In addition, the results also suggest that individuals with severe malaria produce antibodies that recognise more antigenic variants than the uncomplicated malaria. The enhanced binding effect observed in cerebral malaria plasma strengthened the association between parasite sequestration and severity of *P. falciparum* infection reported elsewhere.