

Agglutinating phenotypes of parasite isolates from severe complicated and uncomplicated *Plasmodium falciparum* infections

Agglutination of *Plasmodium falciparum* infected erythrocytes is an antibody mediated phenomenon that phenotypically characterizes *P. falciparum* parasites based on their expression of variant surface antigen, *P.falciparum* erythrocyte membrane protein 1 (PfEMP-1). In this study, agglutinating properties of parasite isolates obtained from uncomplicated (UC) and 7 severe and complicated (SC) patients with the autologous and heterologous acute sera were investigated.

There was significantly high agglutination observed in parasite isolates of the UC category with autologous sera obtained from patients who have had 7 or more days of symptoms at the time of diagnosis compared to those who had less than 7 days of symptoms ($p=0.03$). Similarly there was significantly high agglutination with heterologous sera from patients with longer duration of symptoms in both UC and SC categories ($p=0.03$ and $p=0.04$ respectively). These results suggest that the rate of maturation of the immune response in both UC and SC infections are similar.

Agglutination of parasites of UC isolates by autologous and heterologous UC sera was significantly higher than that of parasite isolates of SC ($p=0.04$). Similarly agglutination of parasite isolates of SC with SC sera was significantly higher than that of UC isolates ($p=0.04$). This suggests that the agglutinating phenotypes expressed by parasite isolates of these two disease categories could be different and may thus be related to the observed degree of disease severity. Further, the overall agglutination reactivities indicate that the agglutinating phenotypes of SC isolates may represent rare phenotypes that are more virulent.