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Is severe and complicated malaria a Th 2 phenomenon ?

The basis of the pathogenesis of malaria is only now beginning to be understood. Recent research incriminates immunopathology, as a large component of malaria morbidity & mortality, implicating disease-mediators of host origin such as cytokines viz, TNF-alpha, TNF-beta, IL-6, IL-10, and IgE in the causation of much of the clinical disease and even complications of severe malaria.

The study population consisted 35 severe & complicated (sc) malaria patients and 60 uncomplicated (uc) malaria patients whose ages ranged from 15-60 years. Patients were categorized as sc malaria patients according to the modified WHO criteria. There was a significant increase in the sc malaria patients ($p=0.003$) and an increase in the uc malaria patients as compared to the sc malaria patients when compared to the uc malaria patients. There was a significant decrease in the plasma IFN-y levels in the the sc malaria patients compared to the uc malaria patients ($p=0.0002$).

Results indicate that in the sc group of malaria patients there was a positive but not a significant correlation between the plasma IgE levels and plasma IL-10, Il-4 and IFN- y levels ($p=0.320,0.960$& 0.831 respectively). In contrast in cersbral malaria (cm) patients

(n=5) we observed a positive significant correlation between plasma IgE and plasma IL-10 and IL- 4 levels (P=0.020, 0.05 respectively) and a significant negative correlation between plasma IgE and IfN-y levels (p=0.02). In the same group of patients i.e., cm patients there was a significant negative correlation between plasma IFN-y and IL-10 and IL-4 ($p<0.05$, $p<0.05$ respectively). When the parasitaemia in the two groups were compared the sc malaria patients had a higher paraitaemia than the uc malaria patents. In both group of patients there was a positive significant correlation between paraitaemia and total IgE levels.

Above results show that during an acute malaria infection there is an increase in the plasma IgE and IL-10 in sc disease and a significant increase in cm patients suggesting that these cytokines may be associated with pathogenesis of severe manifestations. Th2 subsets of CD4 lymphocytes may be disease promoting and they do so probably by producing Il-10 which inhibits production of IFN-y. The higher levels of Il-4 in uc malaria patients may suggest that Il-4 may be produced during early infection and might be associated with protection against severe disease.