Abstract

Background: The effects of Plasmodium falciparum on B-cell homeostasis have not been well characterized. This study investigated whether an episode of acute malaria in young children results in changes in the peripheral B cell phenotype.

Methods:

Using flow-cytofluorimetric analysis, the B cell phenotypes found in the peripheral blood of children aged 2–5 years were characterized during an episode of acute uncomplicated clinical malaria and four weeks post-recovery and in healthy age-matched controls.

Results:

There was a significant decrease in CD19+ B lymphocytes during acute malaria. Characterization of the CD19+ B cell subsets in the peripheral blood based on expression of IgD and CD38 revealed a significant decrease in the numbers of naive 1 CD38- IgD+ B cells while there was an increase in CD38+IgD- memory 3 B cells during acute malaria. Further analysis of the peripheral B cell phenotype also identified an expansion of transitional CD10+CD19+ B cells in children following an episode of acute malaria with up to 25% of total CD19+ B cell pool residing in this subset.

Conclusion:

Children experiencing an episode of acute uncomplicated clinical malaria experienced profound disturbances in B cell homeostasis.