Identification of a subpopulation of immune Nigerian adult volunteers by antibodies to the circumsporozoite protein of Plasmodium falciparum.

Nwagwu M, Anumudu CA, Sodeinde O, Ologunde CA, Obi TU, Wirtz RA, Gordon DM, Lyon JA.

Source

Department of Zoology, University of Ibadan, Nigeria.

Abstract

Collections of human sera from malaria-endemic areas would be valuable for identifying and characterizing antigens as malaria vaccine candidates if the contributing serum donors’ ability to resist infection were fully characterized. We prepared such a serum collection from 26 apparently immune Nigerian adults who failed to develop patent parasitemia for at least 20 weeks following a documented increase in antibodies to the circumsporozoite protein (CSP) from Plasmodium falciparum. Volunteers were evaluated five times per week for malaria symptoms and bimonthly for parasites by examining thick blood smears. The incidence rate over 13 months for the cohort was 42% (47 malaria-confirmed volunteers) and the risk of infection was 1.3 infections/year. Responses to CSP did not correlate with protection. Because antibody responses to antigens other than CSP may be associated with protection, the sera from these immune individuals may be useful for identifying and characterizing other potential malaria vaccine candidates.