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IgM antibody naturally acquired to Plasmodium vivax blood stage antigen (MSP119) in individuals living in a low malaria transmission area in Amazon region, Brazil

Alencar R.C.B.¹, Rodrigues J.C.¹, Jesus T.P.¹, Cunha-Santos M.², Viana G.P.³, Póvoa M.M.³, Cunha M.G.¹

¹Federal University of Pará, Belém, Brazil, ²Sate University of Pará, Belém, Brazil, ³Evandro Chagas Institute, Ananindeua, Brazil

The acquired antibody immune response has been reported in human malaria, including antibodies against antigens from asexual stage. However, few studies have evaluated the acquisition of IgM antibody in Plasmodium vivax malaria. Among the best characterized antigens of this stage is the Merozoite Surface Protein 1 (MSP1). This study evaluated the naturally acquired IgM antibody in infected and residents (exposed) individuals living in low malaria transmission area, in Pará state, Brazil, where P. vivax is the most prevalent species. The IgM against the C-portion of MSP1 (MSP119) was detected by ELISA in sera from 84 malaria patients (infected) and 164 non-infected individuals (exposed). In infected, the median age was 32 years, 73% male and the median parasitaemia was 1,500 parasites/µL. The sera were collected on the day of parasite detection by thick blood smear. At the moment of diagnosis all patients received treatment. In non-infected group, the median age was 33.5 years and 70% were male. The percentage of positive sera that recognized the recombinant protein used as antigen (PvHIs,MSP119) was 31.0% (26/84) and 6.1% (10/164) in infected and non-infected groups, respectively. Among these 26 infected and IgM positive individuals, 22 had had previous malaria episodes, and the parasitaemia in 20 of them ranged from 10 to 5,000 parasites/µL. In non-infected, the IgM was not maintained for long time although they were living in malaria transmission area. It showed that the infection can induce an IgM short lived primary immune response in P. vivax malaria.