THE ANTIBODY RESPONSE TO *PLASMODIUM FALCIPARUM*-MSP1p19 IS POSITIVELY CORRELATED WITH PROTECTION AND NEGATIVELY ASSOCIATED WITH THE FREQUENCY OF CLINICAL ATTACKS IN SENEGALESE INDIVIDUALS LIVING IN A MESOENDEMIC SETTING. Perraut R, Marrama L, Longacre S, Diouf B, Tall A, Dieye A, Garraud
The conserved C-terminal region of the *Plasmodium falciparum* major merozoite surface protein 1 (MSP1p19) is currently considered a prime vaccine candidate. Recombinant MSP1p19 was expressed in baculovirus-transfected insect cells to ensure appropriate folding its two epidermal growth factor-like domains. To further document the relationship of the anti-MSP1p19 Ab to naturally acquired protection in humans exposed to malaria, we conducted a prospective study in 206 Senegalese individuals living in Ndiop, a mesoendemic village where transmission is seasonal. Serological responses to MSP1p19 were explored before the onset of the 2000 rainy season and villagers were enrolled in an active clinical survey during the following six months. Before the transmission season, seroprevalence was 79%, with a mean IgG OD ratio of 8.1 ± 6.1 (median=6.8), and was age-associated (P<0.001, Rho=0.37). Interestingly, elevated anti-MSP1p19 IgG levels (OD ratio >7; approx. ELISA mean titer 2x10^-5) were associated the total IgG's capacity to inhibit *in vitro* erythrocyte invasion (P=0.01) and to promote an elevated Ab-mediated merozoite phagocytosis index (measured by a chemoluminescence assay) (P<0.01). Analysis of clinical attacks during the subsequent six months period, including the transmission season, in an age-adjusted model showed that presence of anti-MSP1p19 IgG reduced occurrence of malaria attacks (P=0.014, relative risk= 1.24). Altogether, these results indicate that the naturally acquired IgG response monitored using the baculovirus-expressed MSP1p19 antigen is strongly associated with protection. The *in vitro* and *in vivo* correlations are remarkable, because the recombinant antigen, derived from the ENKG Palo Alto allele represents only one of two major allelic families. This indicates that the limited polymorphism of this domain is not a critical issue. Our results suggest that anti-MSP1p19 Ab could contribute to protection against clinical malaria via two additive mechanisms, namely inhibition of invasion and phagocytosis of merozoites.

The antibody response to Plasmodium falciparum-MSP1p19 is positively correlated with protection and negatively associated with the frequency of clinical attacks in Senegalese individuals living in a mesoendemic setting.

In : Programme and abstracts of the 52nd annual meeting of the American Society of Tropical Medicine and Hygiene. American Journal of Tropical Medicine and Hygiene, 69 (Suppl. au no 3), 542-543.

Annual Meeting of the American Society of Tropical Medicine and Hygiene, 52.

ISSN 0002-9637