proportions of immunizing strain tended to decline further during the period of sample collection.

Conclusion

These results show that a parasite strain specific protective immunity to *P. cynomolgi* was induced following a sporozoite induced pre-erythrocytic infection. This immunity has been directed against the liver stages or against the blood stage parasites, or against both.

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PP4 Association between interleukin – 13 gene polymorphisms and anti – malarial antibodies in a Sri Lankan population

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Background

Number of malaria cases reported from Kataragama, which was an endemic area for malaria has reduced over past 5 years. Preliminary studies revealed that in spite of low incidence rates, certain anti-malarial antibodies are fairy high in this population. Genetic markers known to be associated with malaria were looked at in relation to anti-malarial antibody levels in residents of 8 villages in Kataragama. Association between markers in IL – 13 gene and elevated levels of antibodies are presented here.

Methods

Blood samples were collected from 1011 individuals over 14 years in eight villages in Kataragama MOH area. Data on age, sex, history of malaria attacks were collected.

Levels of six antibodies i.e. anti-AMA1, anti-MSP1, anti-MSP2, anti-NANP, for *Plasmodium falciparum*, anti- AMA1 and anti-MSP1 for *P. vivax* were determined using ELISA. Stained thin and thick blood smears were examined for presence of malaria parasites. Four Single Nucleotide Polymorphisms (SNPs) in the gene IL -13 namely, rs1881457, rs2069744, rs20541 and rs848 were analyzed in detail.

Ethical clearance was obtained from the Ethics Review Committee, Faculty of Medicine, Colombo.

Outcomes

50.8% of the study population were males, and of ages 14–89 years. Over 99% was Sinhala and most (>95%) used bed nets during the time which the study carried out. Only 18.4% confirmed having malaria within past ten years and none within past five years. Over 80% and over 97% were seropositive for *P. falciparum* and *P. vivax* respectively. Anti–AMA1 (*P. falciparum*), Anti–MSP2 (*P. falciparum*), Anti–NANP (*P. falciparum*) and Anti–MSP1 (*P. vivax*) levels were significantly higher in people having malaria within past ten years, than those who had no evidence of exposure. A significant increase of Anti–MSP1 (*P.f)* and of Anti–AMA1 (*P.v)* could be seen in age group 45–59 years. Antibody levels were not different between males and females and there was no correlation between antibody levels and number of attacks. Associations of selected SNPs with high levels of antibodies were looked at. Significant associations were seen between higher levels of anti–AMA1 (*P.f.*); anti–NANP (*P.f.*) and rs1881457 and anti–MSP1 (*P.v.*) and rs848. Strong linkage disequilibrium was observed between the tested SNPs of IL13 gene: rs848 / rs2069744; rs848 / rs20541 and rs2069744 / rs20541.

Conclusions

High anti-malarial antibody levels seems to be maintained in the population despite current very low malaria transmission conditions. The increase in sero-prevalence of anti-malarial antibodies with age suggests an age-acquired exposure. Association between IL-13 polymorphisms and anti–malarial antibodies might suggest a role for IL-13 in inducing/maintaining serological response in malaria. Some of these polymorphisms could be acting individually or together as strong linkage was observed between these markers.