



Prevalence of Plasmodium falciparum transmission immunity in two different endemic areas in Senegal

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Introduction

Malaria continues to cause alarming morbidity and mortality in more than 100 countries worldwide. Immunity against the transmission stages of the malaria parasite represents an important approach to reduce malaria transmission and is believed to become an important tool for gradual elimination of malaria.

Research questions:

Is there a difference between mosquito infectivity and immune response innaturally exposed individuals in areas with malaria transmission intensity different?

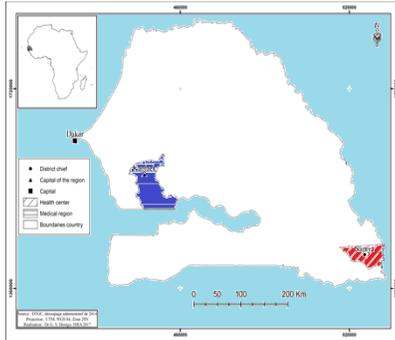
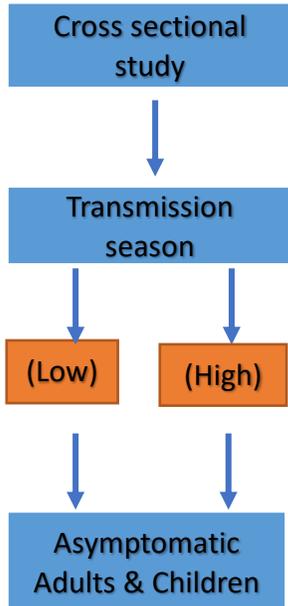


Figure 2: Study sites

Method:

Antibody prevalence was assessed using luminex assay and patients and mosquito infection were done using Standard Membrane Feeding assay

Results

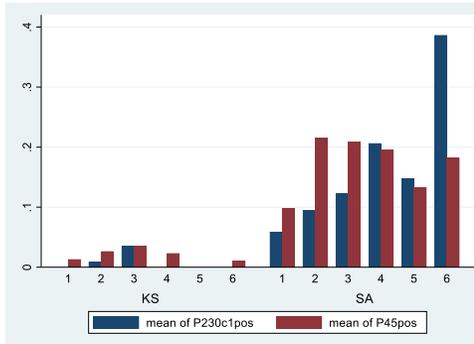


Figure 3: Seropositivity of anti-pfs230C1 & pfs48/45 antibody by age group

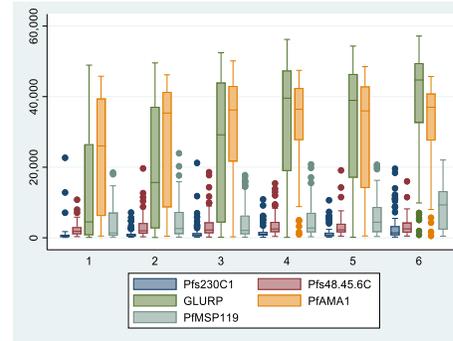


Figure 4: Prevalence of antibody against some asexual antigens

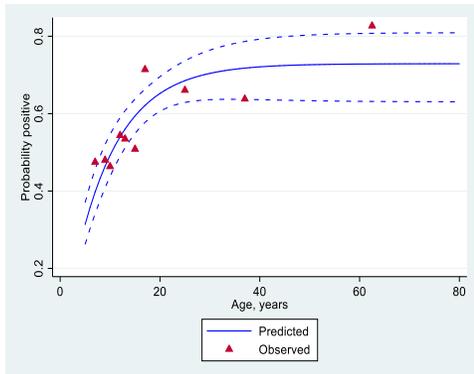


Figure 5: Comparison of probability positive value between antibody against sexual & asexual stage antigens

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Table 1: Infectivity of patients & mosquitos by SMFA

	Saraya	keur Soce
infected patients	7/13 (53.8%)	1/5 (20%)
infected mosquito	5/198 (4.5%)	5/102 (5%)

Discussion

Antibody profiles for sexual and asexual antigens are higher in Saraya where *P. falciparum* parasite prevalence is high. Antibody level against MSP1 no longer increases after 25 years, while the prevalence level of anti- pfs230 antibody increased with age.

Infectivity to *Anopheles gambiae* was tested on 32 *P. falciparum* positives samples in both sites. In Keur Soce, 1 in 5 samples was infective and in 102 mosquitoes, 5 were oocyst infective. While in Saraya 7 in 13 positive samples were mosquito infective and 7 mosquitoes were oocyst infective 7 days after experimental feeding.

Comments:

These results suggest a regulation in anti-sexual stage parasite antibody pattern and shows that protective immunity can be observed with appropriate antibodies. Malaria transmission remains in both study sites.

References

Noah H P, Arthur V, Takafira M, James C, Nicholas, Geetha P B, and Nirbhay K Prevalence of *Plasmodium falciparum* transmission reducing immunity among primary school children in a malaria moderate transmission region in Zimbabwe. Acta Trop. 2016 November ; 163: 103–108. doi:10.1016