Investigating the impact of Schistosoma haematobium infection on immunity to Plasmodium falciparum malaria in populations from Burkina Faso.

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INTRODUCTION. Several studies indicate that infection with helminths might modulate the immune response towards intracellular pathogens including *Plasmodium*. We recently reported that in rural villages of Burkina Faso the seroprevalence of *Strongyloides stercoralis*, *Wuchereria bancrofti* and *Schistosoma haematobium* was 5%, 16% and 63% respectively, in line with estimates of infection prevalence in the region for the three parasites. The aim of the present investigation was to assess the impact of serological markers of *S. haematobium* infection on the prospective risk of *Plasmodium falciparum* parasitaemia among study populations, using a repeated cross-sectional surveys design. MATERIALS AND METHODS. IgM and IgG against *S. haematobium* Soluble Worm Antigen Protein (SWAP) and Soluble Egg Antigen (SEA) were measured by an in-house ELISA protocol in plasma samples collected from *N*=452 subjects. Statistical analysis was performed using STATAv13. Association analysis between the presence of *S. haematobium*-specific antibodies at baseline and the number of *P. falciparum* infections over 5 surveys was conducted using Poisson regression adjusting for age, sex, ethnicity and haemoglobin genotype. RESULTS AND CONCLUSIONS. Association analysis showed a significant increase in the incidence of *P. falciparum* infections among anti-*S. haematobium* seropositive subjects (IRR=1.30, 95%CI= 1.09-1.57, p-value= 0.004). These observations are in line with those of a systematic review and meta-analysis indicating an association between *S. haematobium* infection and increased prevalence of *P. falciparum* asymptomatic/uncomplicated malaria.