

Abstract

Longitudinal investigations of an adult male population of Kenyan car washers who have heavy and quantifiable occupational exposure to *Schistosoma mansoni* cercariae revealed that some individuals develop resistance to reinfection while others remain highly susceptible. We sought to characterize immune correlates associated with host protection in this population. Previous studies have demonstrated an association of peripheral eosinophilia with resistance to reinfection with schistosomes. Thus, we investigated the relationship between the percentage of circulating eosinophils and the effect of human immunodeficiency virus type 1 (HIV-1) coinfection on the susceptibility of the car washers to reinfection with schistosomes. Elevated percentages of circulating eosinophils were associated with resistance to reinfection by *S. mansoni* in HIV-1-seronegative persons. In the HIV-1-seropositive cohort, low CD4⁺-T-cell counts were associated with a less intense eosinophilia. Moreover, eosinophils from the car washers expressed high levels of FcεRI beta chain, a molecule important in immunoglobulin E (IgE)-mediated immunity. Levels of FcεRI beta chain expression correlated with serum levels of total and antigen-specific IgE for HIV-1-negative car washers, but this was not the case for individuals coinfecting with HIV-1. Overall, these data further implicate eosinophils as having a potential role in development of protective immunity against schistosomes and suggest that changes associated with HIV-1 coinfection increase susceptibility to reinfection.