Abstract

BACKGROUND:

Age prevalence curves for areas in which schistosomiasis is endemic suggest that humans develop partial immunity to reinfection beginning in early adolescence. We conducted a 2-year longitudinal study to determine whether children infected with Schistosoma mansoni develop protection-related immune responses after treatment with praziquantel and whether the development of these immune responses is accelerated by frequent treatment after reinfection.

METHODS:

Children (8-10 years old) were tested for S. mansoni every 4 months and treated with praziquantel when positive (arm A; n=68) or were tested and treated at the end of the 2-year follow-up period (arm B; n=49).

RESULTS:

Children in arm A who remained free of infection during follow-up had significantly higher baseline levels of schistosome-specific immunoglobulin E (IgE) than did children with > or =2 repeat diagnoses of S. mansoni infection. Children with > or =2 repeat diagnoses of S. mansoni infection had significantly increased levels of anti-schistosome IgE and CD23(+) B cells after receiving > or =3 praziquantel treatments over the course of follow-up. No increase in either parameter was seen in children who received only the baseline praziquantel treatment.

CONCLUSIONS:

B cell activation and anti-schistosome IgE are associated with resistance to S. mansoni in children, and these immunological parameters can be increased by multiple rounds of infections and praziquantel-induced cures.