Abstract

BACKGROUND:

Elevated immunoglobulin E (IgE) levels are often associated with resistance to reinfection in human schistosomiasis. However, Although B cells are the source of schistosome-specific IgE, little is known about B cell subsets or their functions in this infection. We evaluated B cells and their expression of the low-affinity IgE receptor (CD23) in a unique cohort of men occupationally exposed to Schistosoma mansoni and longitudinally followed up through multiple treatments with praziquantel, cures, and reinfections.

METHODS:

Resistance levels were calculated on the basis of documented water exposure and reinfection data over many years. The CD23(+) B cell subset was evaluated in whole blood by flow cytometry. Serum antibody isotype and soluble CD23 (sCD23) concentrations were measured by enzyme-linked immunosorbent assay.

RESULTS:

Expression of membrane CD23 (mCD23) on B cells correlated with the development of resistance against S. mansoni. Higher levels of plasma sCD23, the cleaved form of mCD23, also correlated with resistance and other markers of resistance to reinfection, such as eosinophilia.

CONCLUSIONS:

CD23 may be involved in the development of resistance to schistosome infection through its role in IgE regulation. Understanding these complex host-parasite interactions may lead to insights into the development, mechanisms, and regulation of resistance to reinfection with S. mansoni.