

ABSTRACT

Allergic diseases in children are a common paediatric problem affecting approximately one third of children worldwide. Attempts have been made to explain the rising prevalence of allergic diseases, of which the "Hygiene Hypothesis" gained much attention. Though an inverse association between a variety of infection and allergy has been demonstrated, the relationship between helminth infections and allergy remains unclear.

A cross-sectional study was carried out in 640 school children selected by stratified random sampling from schools in the Western Province. Data regarding allergic diseases was collected using a validated questionnaire. Children were assessed for intestinal helminth infections by examining their stool samples using the modified Kato-Katz technique. Total IgE and specific IgE for a panel of five allergens (*Dermatophagoides pteronyssinus*, *Blomia tropicalis*, cockroach, cat dander and grass pollen) were studied using ImmunoCAP technique in a sub sample of 203. Prior exposure to *Toxocara* was determined using a commercially available ELISA kit, which detected IgG antibodies.

A prevalence of 33.7% for allergic diseases (asthma, rhinitis and eczema) was observed. Rhinitis was the commonest disease (21.4%). 15.5% of children had one or more intestinal nematode infections. 66.7% of children had antibodies indicative of prior exposure to *Toxocara*, while 30.6% had evidence of recent infection with *Toxocara*.

Total IgE levels in our study population were intermediate between African and Western populations, but higher than other Asians. The levels were higher in children with intestinal nematode infections and those who were exposed to

Toxocara. Total IgE correlated poorly with allergic disease status in the presence of helminth infections.

80.3% of children were found to be sensitized to one or more of the allergens tested; most commonly to dust mites. Children with rhinitis or eczema (but not asthma) were more likely to be sensitized to cat dander. No association was found between sensitization and helminth infections in our study population.

Multivariate analysis using logistic regression showed that after adjusting for sex and atopy, children with intestinal nematode infections (especially trichuriasis) had a lower risk of having atopic diseases, especially asthma. Seropositivity for *Toxocara* spp. was not found to be associated with any atopic disease or atopy.