

Sensitization to fungi and its relation to asthma and allergic rhinitis

Alexander Diaz Rodriguez, MD. Allergist. Havana. Cuba.

E-mail: alexdr@infomed.sld.cu

Background: Atopic sensitization to environmental fungi has been described as a relevant risk factor for the development of asthma and allergic rhinitis. *Penicillium*, *Cladosporium* and *Alternaria* are one of the most important fungi related with these diseases. The purpose of this study was to determine the skin sensitization to environmental fungi and its relation to the presence of asthma and allergic rhinitis in school children.

Methods: A randomized, cross-sectional and analytical study was conducted in 100 school children aged 6-7 years in a primary school of San Antonio de los Baños, La Habana, Cuba. The ISAAC (International Study of Asthma and Allergies in Childhood) questionnaire was applied to determine the presence of asthma and allergic rhinitis. Asthma was considered when the children had wheezing without respiratory infection in the last 12 months and allergic rhinitis with the presence of nasal pruritus, sneeze, mucous discharge and nasal obstruction during the last 12 months without respiratory infections. The term allergic respiratory disease was considered when the children suffered from asthma, allergic rhinitis or both.

The sensitization to the environmental fungi *Penicillium notatum*, *Cladosporium herbarum* and *Alternaria tenuis* was explored by skin prick tests (SPT). The statistical association between sensitization to each environmental fungus and the presence of asthma and allergic rhinitis was determined by chi-square tests.

Results: The 27% of the selected sample suffered from asthma, the 40% from allergic rhinitis and 56% showed asthma, rhinitis or both, which was grouped in the term allergic respiratory disease. From these 56 children, the 32% (18 children) had positive SPT to one or more environmental fungi; from this group, 9 children showed cutaneous sensitization to *Cladosporium* (50%), 9 to *Penicillium* (50%) and 5 to *Alternaria* (28%). There was a significant statistical association between positive SPT to *Penicillium* and the presence of allergic rhinitis ($\chi^2=5.46$ $p=0.05$). There were no other associations between any other fungal sensitization and the presence of asthma or allergic rhinitis.

Conclusions: Allergic sensitization to environmental fungi was relevant in children with asthma, rhinitis or both; there was statistical association between skin sensitization to *Penicillium* and the presence of allergic rhinitis.

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