

Dear Editor

How Much Asthma is Due to Atopy?

This question has been already addressed in previous studies,^{1,3} but although it was agreed that atopy is a risk factor for asthma, it remains controversial as to what extent atopy accounts for asthma.

The ISAAC study^{4,5} revealed a considerable geographic variation in the prevalence of asthma, allergic rhinoconjunctivitis and atopic eczema, which poses the question of whether or not the same factors are the culprits for asthma at an international level. The geographic variation among different countries was remarkable reaching a 20-fold difference between the lowest and the highest prevalence,⁵ whereas the respective variation within the same country did not seem to play such a significant role, although there were some exceptions.

There are countries with similar prevalence of atopy, which, however, does not always correspond to the "ceiling" levels of asthma in the respective countries.^{4,6} Although allergens such as house dust or other common allergens were proved to be a significant risk factor for asthma in univariate logistic regression model, this impact disappeared in multiple logistic regression analysis after adjustment for confounders.^{3,7} The paradigm of Albania is striking, as in this region the asthma prevalence is quite low in contrast to skin prick test positivity to house dust which is very high. To be more analytical, as Albania and the UK were at the extremes of the worldwide distribution of asthma, the former being at the lower extreme (3% asthma prevalence) whereas the latter at the highest (32%), a study⁶ was conducted to compare directly asthma frequency in Albanian children aged 9-11 years with that of their British counterparts. The exercise-induced bronchial reactivity was 0.8% in children from Albania versus 5.4% noticed in their counterparts from the UK. At the same time the frequency of allergic sensitization was closely similar, 15% versus 17.8%, respectively. This paradigm emphasized that even early exposure and sensitization to house dust was not responsible as a unique factor for the development of asthma. It seems that the allergen supply which may depend on environmental factors such as climate may contribute to the population attributable fraction of asthma owing to atopy.⁸ Furthermore, it was shown by others that there is an inverse association between endotoxin levels of house dust and asthma in children.⁹

A study conducted by Clough and Warner⁷ in the UK determined a predicting model for asthma which did not include any skin prick test positivity, although allergy surrogates had been tested prior to the formation of the final equation. This is of importance, tak-

ing into account, the high levels of atopy, especially to house dust noticed in the UK, a country with a concomitant high prevalence of asthma.

It should therefore be pointed out that any international study for atopy and asthma should be analyzed at a country and at a worldwide level and the conclusion from each region should be used for analysis for better understanding of the relationship of atopy and asthma in general and each specific area in particular. The equations which are useful as predicting tools for asthma in childhood may be applicable only in countries where the study had been performed and they should be replicated before being used in other countries.

In conclusion, the problem to be resolved is what makes an atopic child asthmatic rather than what makes a child sensitized to an allergen. We should therefore watch carefully not only the association of atopy and asthma as a core fact but also atopy as a specific factor interacting with many others for the development of asthma.

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