

Relationship between total and specific IgE in patients with asthma from Siberia

To the Editor:

Erwin et al¹ compared levels of total IgE and specific IgE to dust mite and cat, prevailing allergens in New Zealand and Sweden, respectively, in children with wheezing and found a significant correlation of mite-specific IgE with high total IgE (≥ 200 IU/mL) in New Zealand, whereas cat-specific IgE did not contribute significantly the high total IgE in either country.

Previously we demonstrated that cat is a major allergen in patients with asthma from Siberia, other important allergens being dog, dust mites (*Dermatophagoides pteronyssinus* and *Dermatophagoides farinae*), and birch.² Prevalence of wheezing (based on International Study of Asthma and Allergies in Childhood [ISAAC] questionnaires) and asthma (diagnosed according to Global Initiative for Asthma [GINA] guidelines) in children from Siberian cities is 11.4% and 3.1%, respectively,³ similar to Sweden. Because of the importance of findings of Erwin et al,¹ we investigated the relationship of the prevailing specific IgEs and total IgE in patients with asthma from the cities Tomsk, Thumen, and Irkutsk (Siberia, Russia). We determined total IgE and specific IgEs to cat, dog, dust mites, and birch in 127 patients with bronchial asthma (mean age, 11.5; range, 4–18 years, male/female ratio, 0.72/0.28) by using the IgE-EIA-BEST-strip (VECTOR-BEST, Novosibirsk, Russia) and the EUROLINE system (EUROIMMUN; Medizinische Labordiagnostika GmbH, Lübeck, Germany),² respectively. Relationship between total and specific IgEs was evaluated by nonparametric Spearman correlation (STATISTIKA for Windows 5.0; StatSoft, Inc, Tulsa, Okla).

The geometric mean of the total IgE in patients with asthma from Siberia (193.0 kU/L) was lower than in New Zealand, but almost 3 times higher than in patients from northern Sweden.¹ In Russian patients with asthma, we observed a higher correlation between levels of total IgE and specific IgE to cat, birch, and dog allergens than to mite allergens (Table I). However, the subgroup of 70 patients with total IgE ≥ 200 IU/mL showed a weak tendency to correlation only between birch-specific and total IgE. Thus, similar to data from Sweden,¹ cat-specific IgE did not contribute significantly to high total IgE even though cat is a major allergen in Siberia. This might reflect the mechanism of sensitization to cat allergens or climatic similarities between Siberia and northern Sweden.

It would be interesting to compare levels of specific and total IgE in other regions where dust mites are dominant allergens in asthma such as Virginia⁴ to see whether correlation of mite-specific IgE to high total IgE is a common or a region-specific phenomenon. Because IgE reactivity to individual birch pollen allergens varies between 6 European populations,⁵ the response to individual dust mite allergens might also differ in different countries, causing a different contribution of mite-specific IgE to total IgE.

The data of Erwin et al¹ have an additional important implication not emphasized in the article. Genetic linkage or association studies of allergic diseases using total IgE levels might fail to reveal some of the critical genes, if levels of specific IgE to the major allergen do not correlate with total IgE. Information about the relationship between total IgE and specific IgE to the most prominent allergens can provide clues about operation of IgE-controlling genes in different human populations.

TABLE I. Correlation between total and specific IgE in patients with asthma from Siberia

Allergen		All patients (n = 127)		Total IgE ≥ 200 IU/mL (n = 70)	
		r	P value	r	P value
Cat	e1	0.36	.00003	0.18	.15
Dog	e2	0.26	.0037	0.05	.66
Birch	t3	0.28	.0015	0.23	.054
<i>D pteronyssinus</i>	d1	0.20	.028	−0.06	.61
<i>D farinae</i>	d2	0.19	.033	−0.06	.64

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Reply

To the Editor:

We thank Gusareva et al¹ for sharing data relating specific IgE antibody measurements and total IgE among their patients with asthma in Siberia. It is interesting to compare their data with our own. The Russian cities where the children live, Tomsk, Thumen, and Irkutsk, are all south of the cities in northern Sweden (ie, below 60°N latitude). Although the climate of western Siberia would be similar to northern Sweden and not New Zealand, the prevalence of dust mite sensitivity was strikingly lower in northern Sweden. Gusareva et al¹ previously reported that among children with asthma living in the areas they studied, the prevalence of sensitization to cat allergen was highest (57%), followed by dog and dust mite (30% to 40%).² In Sweden, among wheezing