

SYNOPSIS

- Children, 10-11 years of age, with (n=112) and without (n=112) current wheeze.
- Wheezing and cat ownership were based on a questionnaire.
- IgE antibodies to cat, mite, rye grass and *Aspergillus* were measured by ImmunoCAP™ (Pharmacia Diagnostics AB, Uppsala, Sweden).
- Only mite (OR 3.3, p<0.05) and cat (OR 3.1, p<0.05) sensitization showed a significant relation to wheezing in a multivariate analysis.
- The prevalence of IgE antibodies to cat was significantly (p=0.04) lower among children who had lived in houses (20/141) with a cat compared with those who never had lived with a cat (21/83).
- Atopic children who had lived with a cat had significantly (p<0.001) lower prevalence of IgE antibodies to cat (28% vs 66%) than those who had never.
- Cat ownership had no effect on the prevalence of sensitization to mites (67/141 vs. 32/83, p=0.23) or prediction of wheezing.

Citation: Erwin EA et al. Cat and dust mite sensitivity and tolerance in relation to wheezing among children raised with high exposure to both allergens. *J Allergy Clin Immunol* 2005;115:74-9.

SYNOPSIS

- Patients (n=58) with rhinoconjunctivitis were studied.
- IgE antibodies (ImmunoCAP™) were analyzed to timothy grass pollen (including 8 allergen components), 3 tree pollens (including 3 allergen components from birch), 3 weed pollens, 5 grass-related foods, 13 tree-related foods and 6 weed-related foods.
- The pan-pollen sensitized group had significantly (p=0.005) higher IgE antibody levels to timothy grass pollen (median levels 13.7 kU_A/l) than the grass/tree group (2.2 kU_A/l) and the grass group (2.8 kU_A/l).
- The pan-pollen group also demonstrated significantly higher IgE levels against the tested trees compared to the grass/tree pollen group.
- Phl p 1, p 4 and p 5 were recognized by > 50% of the patients.
- The number of patients stating any allergic symptoms to tested plant foods was significantly higher in the pan-pollen group than in the grass group (p=0.017).
- All patients who reported symptoms associated to plant food-allergens had IgE-reactivity against Bet v 1.

Citation: Ghunaim N et al. Antibody profiles and self-reported symptoms to pollen-related food allergens in grass pollen-allergic patients from northern Europe. *Allergy* 2005;60:185-91.

SYNOPSIS

- Serum samples from two adult (25-54 years of age) timothy-sensitized populations from Finnish and Russian Karelia were studied.
- Self-reported clinical symptoms were more common in the Finnish group (71%) than in the Russian (31%, p<0.01).
- The Finnish (n=67) and the Russian (n=15) populations were tested for IgE antibodies to timothy pollen extract and the timothy components rPhl p 1, p 2, p 5, p 6, p 7, p 11, p 12 and nPhl p 4.
- The median IgE antibody levels to pollen extract in Finnish and Russian populations were 5.2 (0.35 to >100) kU_A/l and 1.8 (0.43-25.2) kU_A/l respectively (p<0.01).
- IgE reactivity to nPhl p 4 followed by rPhl p 1 were most frequently found.
- Higher (p<0.01) IgE antibody levels to timothy extract (median=5.8 kU_A/l, range 0.44-94.3) were found in subjects with symptoms compared to without (median=1.6 kU_A/l, range 0.43-7.6).
- All patients with IgE antibody to timothy pollen extract of a concentration above 7.6 kU_A/l had clinical symptoms.
- The IgE level to timothy extract was significantly correlated (r=0.87, p<0.0001) to the number of components with IgE antibody reactivity.

Citation: Movérare R et al. IgE reactivity pattern to timothy and birch pollen allergens in Finnish and Russian Karelia. *Int Arch Allergy Immunol* 2005;136:33-8.

IgE sensitization to cat allergens is controlled by an unknown immunological mechanisms in contrast to mite sensitization

The objective was to study the relationship of sensitization to cat and mite allergens and wheezing in children in an environment (New Zealand) with high exposure to both allergens. Sera from wheezing children and controls were analyzed for allergen-specific IgE antibodies to mite, cat, dog, rye grass and *Aspergillus*. A multivariate regression analysis including IgE antibodies was used to determine association to wheezing. Only mite and cat sensitization showed a significant relation to wheezing. The prevalence of IgE antibodies to cat was significantly lower among children who had lived in houses with a cat compared with those who never had lived with a cat. In atopic children, those who had lived with a cat had significantly lower prevalence of IgE antibodies to cat. Cat ownership had no effect on the prevalence of sensitization to mite or prediction of wheezing. The effect of cat ownership was present both in subgroups who lived with cat in the first years of life and those currently were living with cats. Significance remained even if families who chose not to live with cats were excluded. The mean mite and endotoxin levels were not significantly influenced by current cat ownership.

The authors suggest that the induction of tolerance to cat allergen is an allergen-specific phenomenon not related to endotoxin or family choice. Furthermore, this allergen-specific tolerance mechanism does not exist for mite sensitization.

Allergic symptoms to plant foods in grass pollen sensitized patients are due to a broader pan-pollen sensitization including Bet v 1

Association between pollen-related food allergy and grass sensitization was studied in an adult Swedish population with rhinoconjunctivitis. Of the patients, 63% reported clinical symptoms to plant food allergens.

Three groups of patients were identified based on the sensitization profiles; one monosensitized to grass (19%), one sensitized to grass and tree (29%), and a pan-pollen sensitized group sensitized to grass, tree and weed (48%). Two individuals sensitized to grass and weed (4%) were excluded.

Both the number of positive IgE antibody results to plant food allergens (p<0.0001), and the IgE antibody levels to timothy grass pollen (p=0.005) and tree pollen (p<0.05) were significantly higher in the pan-pollen group compared to the two others. The number of patients reporting allergic symptoms to the tested plant foods were higher in both tree groups compared to the grass group. Only one patient in the grass pollen group had IgE antibodies to pollen-related food allergens (wheat). All patients who reported symptoms associated to plant foods had IgE-reactivity against Bet v 1. The pan-pollen group also exhibited higher levels of allergen-specific IgE to most food allergens compared to the grass-tree group but the difference was not significant in the used study design. The results indicate that food allergy to plant foods is uncommon in monosensitized grass pollen allergic patients and are due to a broader pan-pollen sensitization including Bet v 1.

IgE reactivity to rPhl p 2, p 5, p 6 and p 11 and IgE antibody levels to timothy pollen extract are markers of clinical relevant timothy grass sensitization

Serum samples from two adult timothy-sensitized populations, randomly drawn from the population registers in Finnish and Russian Karelia, were analyzed for IgE antibodies to timothy extract and 8 different timothy components. Not only a higher frequency of sensitizations to different timothy components, but also higher serum levels of IgE antibodies (p<0.01) to timothy extract were seen in the Finnish population. IgE antibodies to the timothy pollen components rPhl p 2, p 5 and p 6 were significantly more common in this group. The Russian population mostly (75%) had IgE antibodies to only one component (rPhl p 1 or p 4), whereas monosensitization was rather uncommon (23%) in Finnish subjects.

Subjects with symptoms had significantly higher IgE antibody levels to timothy pollen extract, and it was associated with IgE reactivity to rPhl p 2, p 5, p 6 and p 11. IgE reactivity to rPhl p 2, p 5 and p 6 was absent in the Russian population. In conclusion, the Finnish population was more sensitized to timothy than the Russian. Furthermore, the concentration of allergen-specific IgE to timothy extract and the specific components rPhl p 2, p 5 and p 6 and p 11 were biological markers of clinical expression.