

## SYNOPSIS

- Tree nut allergic children (n=117, > 4 years) were recruited from a database of children (n=278) with diagnosed TN allergy and TN specific serum IgE below 10 kU<sub>A</sub>/L.
- Serum IgE antibodies were analyzed to almond, brazil nut, hazelnut, pecan, walnut, cashew, pistachio, macadamia nut and pine nut with ImmunoCAP™ (Pharmacia Diagnostics AB, Uppsala, Sweden).
- Thirty nine children underwent double-blind, placebo-controlled food challenges to the same tree nuts as above.
- Of those with a clinical history of TN allergy 45% passed challenge.
- About 9 % (9/101) of children with clinical reactivity to tree nuts and evidence of IgE sensitization outgrew their TN allergy.
- Below a TN-IgE level of 2 kU<sub>A</sub>/L 63% passed, 33% between 2.01 to 5 kU<sub>A</sub>/L, 58% below 5 kU<sub>A</sub>/L and 75% below 0.35 kU<sub>A</sub>/L.

Citation: *Fleischer DM et al. The natural history of tree nut allergy. J Allergy Clin Immunol 2005; 116:1087-93.*

## Children aged 4 years or older with tree nut IgE levels of 5 kU<sub>A</sub>/L or less should be considered for challenge

Tree nut (TN) allergy is typically severe and is generally thought to be lifelong. The objective of this study was to estimate the prevalence of outgrowing TN allergy and to identify factors that predicts outgrow. TN allergic children were recruited from a database of children with diagnosed TN allergy and TN-specific serum IgE below 10 kU<sub>A</sub>/L. They were analyzed for TN-specific IgE to nine different TNs and food challenges were performed to the same allergens. Fifty-nine percent of the children passed the challenges. Of those with a clinical history of TN allergy 45% passed. Below a TN-IgE level of 2 kU<sub>A</sub>/L 63% passed compared to 33% between 2.01 to 5 kU<sub>A</sub>/L. There was no significant difference in the age at diagnoses between children that passed and failed challenges. The TN-IgE levels at diagnosis were significantly higher in children that failed challenges in the study. Severity of initial nut reaction and clinical atopic expression did not differ between children that passed or failed the challenge test. Patients that passed challenges were significantly less likely to have other current food allergy. Patients who had outgrown peanut allergy were significantly more likely to outgrow TN allergy.

The authors confirmed that at least 8.9% of patients with clinical reactivity to TN and evidence of TN-IgE will acquire oral tolerance. They suggest TN-IgE levels of less than 5 kU<sub>A</sub>/L should be used as a practical decision cut-off for challenge test.

## SYNOPSIS

- Patients (n=274) with physician- or self-reported symptoms of atopic allergy were recruited.
- Patients were divided into three groups; respiratory symptoms (allergic rhinitis and/or asthma), atopic dermatitis or both.
- Total IgE and allergen-specific IgE to mites (*D. pteronyssinus*, *D. farinae*) and staphylococcal enterotoxin A and B were analyzed in serum by ImmunoCAP™.
- Sensitization to enterotoxins were significantly (p<0.005) more prevalent in atopic dermatitis (45.5%) than in respiratory allergy (24.5%).
- Total serum IgE and mite sensitization were significantly (p<0.001) higher in enterotoxin sensitized patients of all three groups.
- Patients with clinical asthma (p<0.02) and rhinitis patients with bronchial hyperreactivity (p<0.03) had significantly higher total serum IgE in enterotoxin sensitized patients than patients with rhinitis alone.

Citation: *Lee J-H et al. Increased levels of serum-specific immunoglobulin E to Staphylococcal enterotoxin A and B in patients with allergic rhinitis and bronchial asthma. Int Arch Allergy Immunol 2005; 138:305-11.*

## Sensitization to staphylococcal enterotoxins is related to increased total serum IgE and increased mite sensitization in patients with asthma and bronchial hyperreactivity but not to allergic rhinitis alone

Enterotoxins of *Staphylococcus aureus* function as superantigens and are known to induce polyclonal IgE production *in vitro*. Sensitization to staphylococcal enterotoxins is well studied in atopic dermatitis but not in respiratory allergy. The aim of this study was to evaluate the association between specific sensitization to staphylococcal enterotoxins, the clinical atopic expression (respiratory allergy and atopic dermatitis) and sensitization to mites.

Patients with symptoms of atopic allergy were divided into three groups; respiratory symptoms (allergic rhinitis and/or asthma), atopic dermatitis or both. Total IgE and allergen-specific IgE to mites and staphylococcal enterotoxins were analyzed. Sensitization to enterotoxins was significantly more prevalent in atopic dermatitis than in respiratory allergy. Total IgE and mite sensitization were significantly higher in enterotoxin sensitized patients of all three groups. However, when looking at subgroups of patients with respiratory allergy only patients with clinical asthma and rhinitis patients with bronchial hyperreactivity had significantly higher total serum IgE in enterotoxin sensitized patients.

The authors conclude that the effect of sensitization to staphylococcal enterotoxins in asthmatic patients were more pronounced and might play a role in exacerbating allergic airway disease.

## SYNOPSIS

- A cross sectional study of 925 children, men age 8.9+9.1 years with suspected food allergy.
- They exhibited at least one symptom of allergy; atopic dermatitis (35%), gastrointestinal (26%), respiratory (8%), anaphylactic shock (4%) and combined symptoms (27%).
- Total IgE and IgE to a mixture (fx5) of food allergens (egg, milk, fish, peanut, soy, and wheat) were measured in serum by ImmunoCAP™.
- The level of IgE antibodies to the food mixture peaked at 6-12 months of age.
- Maximal fx5 values above 100 kU<sub>A</sub>/L were obtained from 6 months to 6 years of age.
- The highest total IgE level observed (>5000 kU/L) peaked at 4-6 years and then declined.

Citation: *Kalach N et al. Time course of total and food specific IgE antibodies (RAST Fx5) in the developing allergic child. Eur Annals Allergy Clin Immunol. 2005; 37:257-61.*

## IgE antibodies to a food mixture (fx5) peak at 6-12 months of age in children investigated for food allergy

The aim of this study was to describe the age related pattern of IgE sensitization in a population of children investigated for food allergy. Serum total IgE and IgE antibodies were measured to a mixture of 6 common food allergens (ImmunoCAP™ fx5). The children exhibited at least one clinical symptom of allergy.

The percentage of children with detectable IgE antibodies to the food mixture was 18.3% in children below 6 months of age, increased to 46% at 4-6 years and then decreased significantly (p<0.05) for each age group to 21.8% in children above 12 years. However, the 90<sup>th</sup> percentile level of IgE antibodies to the food mixture peaked in the 6-12 months age group at 100 kU<sub>A</sub>/L and then progressively declined to 4.4 kU<sub>A</sub>/L in children above 12 years of age.

The percentage of children with increased total IgE increased significantly with age from 10.3% in children below 6 months to 56.9% in 4-6 years old children and then leveled off to 41.3% in children above 12 years.

The authors conclude that the changes in IgE sensitization to a mixture of food allergens seen from 4-6 years correlate timely with the clinical spontaneous decrease of food allergy in the developing child.