

SYNOPSIS

- Children (n=108, age range 14 months - 13 years, median age 34.5 months) with suspected egg allergy were recruited.
- 62% (n=67) had a positive DBPCFC to raw egg white and 35% (n=38) to heated egg white (90°C, 60 min).
- Serum IgE antibodies to egg white (f1), ovalbumin (f232) and ovomucoid (f233) were measured by ImmunoCAP® (Phadia AB, Uppsala, Sweden).
- Patients reacting to heated egg white had more food allergies (32% vs. 3%).
- All patients (n=3) with a history of anaphylaxis reacted clinically to heated egg white.
- The sensitivity to detect clinical allergy to heated egg white was 100% with ImmunoCAP Egg white (f1).
- Ovomucoid-specific IgE showed superior performance (ROC-analysis) and a decision point for the 95% probability to react to heated egg white in the challenge test was > 20 kU_A/l.

Citation: Ando H et al. Utility of ovomucoid-specific IgE concentrations in predicting symptomatic egg allergy. *J Allergy Clin Immunol* 2008; 122:583-8.

IgE antibodies to ovomucoid showed superior diagnostic performance in diagnosing clinical allergy to heated egg in children

General clinical experience is that some egg allergic children tolerate low amounts of heated egg. Based on that observation, there is a need for more differentiated avoidance advice to parents according to the authors. The aim of the present study was to evaluate the clinical usefulness of measuring IgE antibodies to ovomucoid in children with egg allergy to make such advices.

Children with suspected egg allergy were divided into three groups depending on their immediate reactions to oral provocation tests based on double-blind placebo-controlled food challenges.

Children with immediate reaction to heated egg white had significantly higher IgE antibodies to all tested allergens and also higher total serum IgE compared to children who reacted only to raw egg or didn't react at all. The decision points for the 95% probability to react to heated egg white in the challenge test were > 20 kU_A/l for ovomucoid, > 62 kU_A/l for ovalbumin and > 100 kU_A/l for egg white extract. In ROC-analyses, ovomucoid-specific IgE showed superior performance compared to ovalbumin and egg white extract in diagnosing clinical allergy to heated egg white. However, all children with positive provocation test to heated egg white had IgE antibodies to egg white extract.

The authors conclude that quantitative measurements of IgE antibodies to both egg white extract and ovomucoid will be useful in the diagnosing of egg allergy.

SYNOPSIS

- Peanut-sensitized children (n=118, < 15 years of age, median age 1.5 years) with a history of an acute allergic reaction were recruited.
- 61% manifested other food allergies (tree nuts 57.3%, egg 49.3%, cow's milk 37%).
- 43% had asthma, 38.1% rhinitis and 21.1% atopic dermatitis.
- Peanut-specific IgE antibody measurements (ImmunoCAP®) at least 1 year apart were studied.
- A decline/elevation was defined as a change in ImmunoCAP class.
- Children with increasing PN-IgE were (p=0.025) younger at baseline (median 1.65 vs. 2.47 years) and had a (p=0.01) lower peanut-specific IgE level (18.91 vs. 50.52 kU_A/l).

Citation: Borici-Mazi R et al. Monitoring of peanut-allergic patients with peanut-specific IgE. *Allergy Asthma Proc* 2008;29:329-35.

Most peanut-allergic children with first reaction at an age above 2 years showed a decrease in peanut-specific IgE antibodies within 3 years

It has recently been shown that peanut allergy is not necessarily a life-long condition. Several studies have shown that the serum level of peanut-specific IgE (PN-IgE) can be used to predict a positive food challenge test or the development of tolerance and thus reduce the need of double-blind placebo-controlled food challenge tests. The aim of this study was to determine the optimum frequency of PN-IgE to monitor the development of tolerance.

Peanut-sensitized children with a history of an acute allergic reaction to peanut and serial PN-IgE measurements (ImmunoCAP®) at least 1 year apart were studied.

A gradual decline in PN-IgE was shown in 79.6% of the children during the follow-up. In children with the first reaction at an age above 2 years the PN-IgE started to decline rapidly after 2 years and a decrease was seen in roughly 80% of this population within 3 years. For the whole population, the decline was 12.9% within 2 years and 66.2% years after 5 years. Children with PN-IgE 17.5-100 kU_A/l showed the highest rate of significant decrease after 5 years. Those children showing an increase in IgE antibodies were significantly younger at the time of first reaction and had a significantly lower peanut-specific IgE level at baseline.

The authors conclude that more frequent measurements of PN-IgE should be considered in older children with PN-IgE below 100 kU_A/l.

SYNOPSIS

- Children (n=221, 6-17 years) with seasonal allergic rhinitis (> 2 years, median duration 5 years) were recruited from of a well powered, placebo-controlled, multi-center treatment (anti-IgE) study.
- Symptom load was based on a four-point symptom scale and three-point rescue medication scoring.
- Children with grass pollen-specific serum IgE above 50 kU_A/l, before or during season, had higher (p=0.015/p=0.019) symptom load during season compared to children with lower (0.7-50 kU_A/l) IgE antibody levels.
- A weak but significant correlation was shown between symptom load and IgE antibody levels both before (r=0.34, p=0.011) and during pollen season (r=0.36, p=0.011).

Citation: Rolinck-Werninghaus C et al. Specific IgE serum concentration is associated with symptom severity in children with seasonal allergic rhinitis. *Allergy* 2008; 63:1339-44.

High grass-specific IgE levels are associated with more severe rhinitis in children during pollen season and also better outcome from anti-IgE therapy

There are some controversy regarding the association between IgE antibody levels and symptoms of seasonal allergic rhinitis. According to the authors, some of the controversy may be due to the age of the studied population. Children with seasonal grass pollen rhinitis from a treatment study made it possible to study if the serum levels of pollen-specific IgE before and during the pollen season were associated to clinical symptoms and efficacy of anti-IgE treatment. Clinical outcome was expressed as symptom load based on the sum of symptom score and mean daily rescue medication score.

Children with grass-specific IgE antibodies above 50 kU_A/l, before or during season had significantly higher symptom load during season compared to children with lower IgE antibody levels. A weak but significant correlation between symptom load and IgE antibody levels was abolished if the children were treated with anti-IgE since the symptom load decreased more in children with high grass-specific IgE. These results demonstrate the role of the concentration of allergen-specific IgE for the symptom severity in children with allergic rhinitis. Furthermore, this subpopulation of patients will clearly benefit best from anti-IgE therapy.