

SYNOPSIS

- Children (n=170, mean age 5.4 months, range 1-12 months) with challenge-verified milk allergy were recruited to a prospective follow-up study.
- IgE abs to cow's milk (f2) and casein (f78) were measured by ImmunoCAP® (Phadia AB, Uppsala, Sweden).
- Open controlled oral challenges were performed with a recently established protocol (Allergol Immunopathol 2006;34:46).
- Decision points for 95% prediction of positive challenge test could be defined by ROC-analyses, but varies between the different follow-up time points but the negative predictive values were only around 50%.
- Decreasing the decision points resulted in an increased efficiency to about 80% and a positive predictive value to around 90% depending on allergen and time point.

Citation: Martorell A et al. The predictive value of specific immunoglobulin E levels in serum for the outcome of the development of tolerance in cow's milk allergy. *Allergol Immunopathol (Madr)* 2008;36:325-30.

ROC analyses of IgE antibody concentrations to milk and casein are useful to identify levels for clinical reactivity or tolerance development in milk allergic children

Most children with milk allergy will outgrow their disease before five years of age. However, the dietary restriction during these years will have a profound effect upon patient and family quality of life. The aim of this study was to use the level of food-specific serum IgE to differentiate between tolerant and non-tolerant children in those early years.

IgE antibodies to milk and casein were measured yearly during the first four years of life in children with challenge verified milk allergy. Open controlled milk challenge was also performed yearly to differentiate between tolerance and non-tolerance. After 4 years 82% of the children had become tolerant whereas 69.3% became tolerant already during the two first years of life. There were significantly higher serum-IgE concentrations to milk and casein in non-tolerant children at each follow up points. Median IgE antibody level at the follow up points increased in the non-tolerant population up to the three years, but not later. Based on ROC analyses, decision cut-off levels for 95% prediction of positive challenge test at all follow up time points were defined. Decision points aimed at optimal efficiency to increase the negative predictive value were also calculated.

The authors conclude that the concentration IgE antibodies to milk and casein could be used to predict and monitor the clinical reactivity in milk allergic children by defining decision points based on ROC-analyses.

SYNOPSIS

- Cow's milk allergic children (n=56, mean age 11 months, range 3-8 months), were studied.
- Open oral controlled challenge tests (n=98) to cow's milk were performed.
- Cow's milk (CM)-specific IgE antibodies were measured in serum by ImmunoCAP®.
- Median IgE antibody level was 2.5 kU_A/l, 25th percentile = 0.71 kU_A/l and 75th percentile = 9.05 kU_A/l.
- Children above median age of the population had higher CM-specific IgE than those below; 6.2 vs. 1.41 kU_A/l.
- There was a significant dose response between CM-specific IgE and positive challenge at 2 ml (13.9 kU_A/l; p<0.0001), 10 ml (6.7 kU_A/l; p<0.0001) and 25 ml (3.5 kU_A/l; p<0.017) CM but not at 50 ml.

Citation: García-Ara MC et al. Eliciting doses of positive challenge test in cow's milk allergy are related to cow's milk specific IgE levels. *Allergol Immunopathol (Madr)* 2008;36:315-9.

The eliciting dose of cow's milk in milk allergic children is related to the serum concentration of cow's milk-specific IgE

It was stated in a recent report (Clin Exp Allergy 2004;34:689) that little information is known about the threshold doses of allergic food reaction in children with IgE-mediated food allergies. The aim of the present study was to retrospectively analyze the results of positive oral challenge tests in milk allergic children and the relation to cow's milk (CM)-specific serum IgE concentration.

An inverse relation was shown between the CM-specific IgE antibody level and the dose of CM eliciting clinical symptoms. This was significant at doses of CM at 2 ml, 10 ml and 25 ml CM but not at 50 ml. Most children (~71%) with CM-specific IgE levels ≥ 10 kU_A/l reacted to CM doses of 10 ml or less. When CM-specific IgE was below 10 kU_A/l, more than half (~65%) of the children needed 25 ml or more of CM to get symptoms. Children with lower respiratory symptoms had higher CM-specific IgE concentration than those with other symptoms. However, there was no significant association between the expression of clinical symptoms and dose of CM eliciting symptoms.

The authors conclude that the eliciting dose of CM in milk allergic children is related to the serum concentration of CM-specific IgE antibodies.

SYNOPSIS

- Children (n=296 < 6 and n=271 ≥ 6 years old) were recruited from a family-based food allergy study.
- The food allergy and asthma diagnoses were based on validated questionnaire-based interviews conducted by trained research staff and IgE-sensitization to associated food.
- IgE antibodies to 9 food allergens (egg, sesame, peanut, soy, milk, shrimp, walnut, fish, wheat) and 6 aeroallergens (*D. pteronyssinus*, *D. farinae*, cat, dog, cockroach, *Alternaria*) was measured by ImmunoCAP®.
- The cut-off was set to 0.1 kU_A/l.
- Prevalence of clinical food allergy or asthma was 71% and 24% in children < 6 years of age, and 56% and 48% in children ≥ 6 years of age.
- Association of clinical food allergy to asthma was OR=4.9 (p<0.0001) in children ≥ 6 years of age with OR=5.3 (p=0.0034) in younger children.
- The OR for asthma increased from OR=3.2 (p=0.0021) to OR=8.6 (p<0.0001) in children ≥ 6 years of age with clinical food allergy to more than one allergen.
- No associations were seen between asymptomatic food sensitization and asthma.

Citation: Schroeder A et al. Food allergy is associated with an increased risk of asthma. *Clin Exp Allergy* 2009;39:261-70.

Children with allergies to > 1 food or severe food-related symptoms have a 6-8 times increased risk to develop asthma compared to children with no food allergies

According to the authors, the numbers of publications are few and the results are conflicting in earlier studies evaluating the association between clinical food allergy and asthma. The aim of the present study was to determine the strength of the association of clinical food allergy and asthma in a large, well-phenotyped child population. IgE antibodies to nine food allergens and six aeroallergens, often associated to asthma, were analyzed.

Children with clinical food allergy had a significant five times higher risk to develop asthma. This increased risk was not associated to the sensitization to aeroallergens known to be related to asthma. In children 6 years of age or above the risk increased to over eight times if the child had allergic symptoms to two or more food allergens. The risk for asthma development was also higher in children with severe food allergic reaction compared to children with non-severe reactions (OR; 6.1-6.2 vs. 2.9-3.8). In contrast to children with clinical food related symptoms, children sensitized to food allergens but without symptoms had no increased risk.

The authors conclude that the severity of the food-related reactions and the numbers of food-sensitizations are strong risk factors for development of asthma in children with clinical food allergy. They further raise the clinical question how to reduce the risk and if infant-feeding intervention can modify this risk.