

SYNOPSIS

- Wheat sensitized food allergic children (n=88, age range 0.6-8.8 years) with atopic dermatitis and/or asthma were consecutively recruited.
- Serum IgE to wheat extract, gluten and recombinant omega-5 gliadin (ω -5 gliadin) was analyzed by ImmunoCAP® (Phadia Laboratory Systems, Thermo Fisher Scientific, Uppsala, Sweden) at baseline and after 2 years.
- Assay cut-off was 0.35 kU_A/l.
- The patients were defined as wheat allergic (n=67) or not (n=21) by convincing clinical history or oral food challenge.
- Elevated IgE to ω -5 gliadin were observed in 88.1% of wheat allergic patients compared to 52.4% in non-allergic and at significantly higher concentration (2.05 vs. 0.4 kU_A/l).
- Only 26.7% of children who had outgrown their allergy were positive to ω -5 gliadin, but were all positive to wheat and gluten.

Citation: Shibata R et al. Usefulness of specific IgE antibodies to ω -5 gliadin in the diagnosis and follow-up of Japanese children with wheat allergy. *Ann Allergy Asthma Immunol* 2011;107:337-43.

SYNOPSIS

- Children diagnosed with both atopic dermatitis and milk allergy within the first 2 years of age were consecutively recruited.
- Cow's milk-specific IgE antibodies were analyzed by ImmunoCAP®.
- Clinical onset of atopic dermatitis was at about 3.0 months of age both in children that resolved the allergy and in those who did not.
- Lack of family history of allergic diseases predicts tolerance development (OR=0.19, p < 0.001)
- Milk allergy was diagnosed by convincing clinical history (n=72) together with sensitization to milk, or a milk-specific IgE \geq 5 kU_A/l (n=43) even with less convincing history.
- Roughly 50% of children with peak value below 15 kU_A/l before 2 years of age resolved the milk allergy within three years.
- Roughly 80% of children with peak value at 15 kU_A/l or more before 2 years of age were still allergic after 5 years.

Citation: Suh J et al. Natural Course of Cow's Milk Allergy in Children with Atopic Dermatitis. *J Korean Med Sci* 2011;26:1152-8.

SYNOPSIS

- Adult (median age 32, rang 18-79 years) patients (n=1,025) referred to an allergy clinic in Northwest Spain due to suspected respiratory allergy were recruited.
- IgE to CCDs were measured by ImmunoCAP® tests to MUXF and Bromelain with a cut-off at 0.1 kU_A/l.
- Only 0.8% of patients had CCD-specific IgE higher than 3.5 kU_A/l.
- A marked increase (31-63%) in detectable CCD-specific IgE in grass and mite positive sera was obtained if both CCDs IgE tests were used and not just one.
- There was a high significant (p<0.001) correlation (Rho=0.822) between IgE to MUXF and Bromelain.
- Inhibition studies was performed by incubation of mite or grass positive sera (>1kU_A/l) overnight with the MUXF.

Citation: Vidal C et al. Minor Interference of Cross-Reactive Carbohydrates with the Diagnosis of Respiratory Allergy in Standard Clinical Conditions. *Int Arch Allergy Immunol* 2011;157:176-85.

IgE antibodies to ω -5 gliadin as a surrogate marker of oral wheat challenge outcome, but also in assessing whether allergy is outgrown or persistent

Wheat is one of the most common causes of food allergy in children. In contrast to several other food allergens such as milk, egg and peanut it has been difficult to find an obvious relationship between the serum IgE levels to wheat extract and the clinical relevance. One reason might be that different wheat allergen components are involved in the sensitization and allergic reaction to wheat. The aim of the present study was to investigate if the serum IgE level to one of these allergen components, ω -5 gliadin, would show a better relation to the clinical symptoms as suggested in some earlier studies. Wheat sensitized children with atopic dermatitis referred to the clinic for wheat challenge tests were analyzed for IgE antibodies to ω -5 gliadin, but also to wheat extract and gluten. ROC analysis based on serum IgE to ω -5 gliadin showed a better diagnostic performance (AUC 0.83) compared to tests based on serum IgE to wheat or gluten (AUC 0.63 and 0.72). A clinical specificity of 95% could be identified for all three tests, and with a sensitivity of 65% for ω -5 gliadin (1.06 kU_A/l) but only 20-29% for wheat and gluten. At a follow-up after 2 years the sensitization frequency had decreased and only 26.7% of wheat allergic children who have outgrown their allergy were still positive to ω -5 gliadin compared to 85.7% of children with persistent allergy.

The authors conclude that IgE to ω -5 gliadin could be used as a surrogate marker of oral wheat challenge outcome, but also in assessing whether allergy is outgrown or persistent.

Regular follow-up of milk-specific IgE levels in milk allergic children for predicting the appropriate timing of re-introduction of milk to the diet

Cow's milk allergy is the most common food allergy in infancy and prediction of the clinical course is a common problem for pediatricians. Recent studies indicate that milk allergy seems to have a more protracted clinical course than previously publications in the 90's have suggested.

The aim of the present publication was to study the natural course of cow's milk allergy in children with atopic dermatitis diagnosed within the first 2 years of age, and analyze how the milk-specific IgE antibody level affected the allergy resolution. Tolerance to milk was obtained in 40.9% of the children during a mean follow-up period of 47 months (range 24-114 months). The median age of allergy resolution was calculated to 67 months. The peak level (49 vs. 19.9 kU_A/l; persistence vs. tolerance) of serum IgE to milk before two years of age, but not the initial value, predicted tolerance.

Most children (73.9%) with peak level of milk-specific IgE below 15 kU_A/l resolved their allergy within 5 years compared to only 19.1% when the milk-specific IgE was above 15 kU_A/l. Furthermore milk-specific IgE decreased with age down to 2 kU_A/l in children who resolved their allergy, compared to children with persistent allergy where the level remained high.

The authors conclude that regular follow-up of the milk-specific IgE levels in milk allergic children would be helpful for predicting the appropriate timing of re-introduction of milk to the diet.

IgE sensitization to CCDs is rare and serum concentrations often low in an area where grass pollen and mite sensitization dominates

The N-linked glycans are widespread in plants and invertebrates, but do not exist in mammals and are therefore immunogenic and might thus give rise to IgE antibodies with a high degree of cross-reactivity (Cross-reactive Carbohydrate Determinants - CCDs). The clinical relevance of CCD-specific IgE antibodies besides its broad cross-reactivity has long been a controversial issue. The presence of CCD-specific IgE has earlier primarily been investigated in selected populations. The aim of the present study was to study the prevalence in patients who were admitted to a routine allergy clinic due to suspected respiratory allergy in an area where sensitization to mites and grass pollen dominated.

The prevalence of CCD-specific IgE was 18% (\geq 0.1 kU_A/l) but only 5.6% of the patients had values above 0.35 kU_A/l. Prevalence of CCD IgE was more common in patients monosensitized to pollen than to mites (26.1% vs. 14.2%). Almost complete inhibition by pre-incubation of serum with CCDs was obtained in only 3 of 10 treated sera, whereas the rest were unaffected. Presence of CCD-specific IgE antibodies were significantly associated to *Hymenoptera* stings (OR 1.51) but not to life style factors such as smoking or alcohol consumption.

The authors conclude that IgE sensitization to CCDs is relatively rare and the serum levels were low in this selected population referred to an allergy clinic.