

## SYNOPSIS

- Fifty patients with WDEIA who had recurrent episodes of allergic reactions were recruited.
- Healthy subjects (n=25) and wheat sensitized patients with atopic dermatitis (n=25) were used as controls.
- The diagnosis of WDEIA was based on provocation tests in 41 (82%) of the patients.
- The provocation test includes combinations of wheat ingestion, exercise and aspirin intake (Clin Exp Allergy 2005;35:461).
- Serum IgE antibodies to wheat, gluten, synthetic peptides of omega-5 gliadin and high molecular weight glutenin (HWW-glutenin) were compared with IgE antibodies to a recombinant omega-5 gliadin (ImmunoCAP®, Phadia AB, Uppsala, Sweden).
- ROC-analyses was performed using data from the WDEIA group and the wheat sensitized atopic dermatitis patients as control.

Citation: Matsuo H et al. Sensitivity and specificity of recombinant  $\omega$ -5 gliadin-specific IgE measurement for diagnosis of wheat-dependent exercise-induced anaphylaxis. Allergy 2008;63:233-6.

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- Nine years old children (n=212), where parents had reported food hypersensitivity (FHS) like symptoms also at the age of 4, were recruited to the study.
- Physician-diagnosed food allergy was present in 62% of the patients.
- FHS was considered to be present if parents reported relevant symptoms in relation to food at least once during the past year or earlier if they had avoided the food in question.
- Serum IgE antibodies to a mixture of food allergens (cow's milk, egg white, peanut, soy bean, wheat and fish) was measured by ImmunoCAP® fx5.
- A IgE level  $\geq 0.35$  kU<sub>A</sub>/l was considered positive.
- The quantitative value of the fx5 test results was also used, with a geometric mean of 5.34 kU<sub>A</sub>/l in sensitized patients.
- An instrument Child Health Questionnaire Parental form 28 (CHQ-PF28) validated for Swedish children were used to explore parental perception.
- The "role/social limitations - emotional/behavioral" subscale was lower in patients without a physician-diagnosed FHS.

Citation: Östblom E et al. The impact of food hypersensitivity reported in 9-year-old children by their parents on health-related quality of life. Allergy 2008;63:211-8.

## SYNOPSIS

- Children (n=76) with reported food reaction and first visit to an allergy clinic were recruited.
- The non-Caucasian population in the study group was 52.6% (32.9% Asian, 9.2% Black, 2.6% Chinese, 7.9% mixed).
- Only children with an acute reaction within 20 min and corresponding positive food allergy test were included.
- Food sensitization was assayed by skin prick tests (Soluprick SQ), "prick-prick test" or serum tests (ImmunoCAP®) with a cut off at 0.35 kU<sub>A</sub>/l.
- A total of 125 reactions to 23 allergens were documented.
- The top five allergens were egg>peanut>tree nut>milk>fish and accounted 90% of all reactions.
- Some novel foods (sesame, kiwi and legumes) were also ranked in the top 10.

Citation: Dias RP et al. Food hypersensitivity among Caucasian and non-Caucasian children. Pediatr Allergy Immunol 2008;19:86-9.

### A new recombinant omega-5 gliadin peptide is more useful for IgE testing than other wheat allergens in diagnosing wheat-dependent, exercise-induced anaphylaxis (WDEIA)

Food-dependent, exercise-induced anaphylaxis is often provoked by wheat. The authors have recently shown that approximately 80% of patients with wheat-induced reactions (WDEIA) have IgE antibodies to omega-5 gliadin. In this study, they evaluated the diagnostic performance of a test based on a new recombinant omega-5 gliadin peptide fragment compared to tests based on other wheat allergens.

Patients with WDEIA were compared with wheat sensitized atopic dermatitis patients and healthy subjects. The test based on recombinant omega-5 gliadin showed a sensitivity of 80% compared with 76% for test based on the synthetic fragment of omega-5 gliadin and 22-56% for the other three wheat allergens. The diagnostic ability was studied by ROC-analysis using the wheat sensitized atopic dermatitis patients as controls. The area under the curve (AUC) was highest for the recombinant peptide (0.850) compared to the synthetic (0.828) and gluten (0.816). A decision value at 0.89 kU<sub>A</sub>/l was most efficient in diagnosing WDEIA with a sensitivity of 78% and specificity of 96%. Seven of the 10 patients with WDEIA but no IgE antibodies to omega-5 gliadin showed specificity to HWM-glutenin.

The authors conclude that the recombinant omega-5 gliadin peptide used in the study is more useful than the synthetic omega-5 gliadin fragment and the other wheat allergens tested to identify patients with WDEIA.

### IgE antibodies to ImmunoCAP® fx5 are related to lower scores of Health Related Quality of Life in food-sensitized children with reported food hypersensitivity

The authors point out that to their knowledge this is the first population-based study of health-related quality of life (HRQL) of young children with food hypersensitivity (FHS). Nine years old children, where parents had reported FHS-like symptoms also at the age of 4, were recruited to the study. The instrument CHQ-PF28, validated for Swedish children, were used. IgE antibodies to a mixture of the six most common food allergens were assayed. The scores of CHQ-PF28 were significantly lower for 7 subscales in the study population compared with healthy children and in 3 of those subscales also to children without FHS but with other symptoms of atopic allergy.

In children with FHS like symptoms, those that were sensitized to the common food allergens had a significantly ( $p < 0.001$ ) lower score in the subclass Body Pain than non-sensitized. The low score was not based on gastro-intestinal symptoms. Sensitized children with higher IgE antibody levels ( $> 5.34$  kU<sub>A</sub>/l) to the food mixture had significantly ( $p < 0.05$ ) lower score in Mental Health ( $p < 0.05$ ) and General Health ( $p < 0.01$ ).

The results strengthen the author's hypothesis that parents' perceptions per se of FHS have an impact on HRQL irrespective of diagnosis of food allergy. However, the levels of IgE antibodies to common food allergens were related to lower scores in CHQ-PF28.

### Non-Caucasian children in UK seem to have a higher risk of food allergy with the first reaction at earlier age, and to be sensitized to more food allergens

The authors point out that there are no published studies with focus on childhood food hypersensitivity in relation to ethnicity. The aim of the present prospective observational study, within a geographically defined UK population, was to compare IgE food sensitization in children with reported food reactions. Children with an acute food reaction within 20 min and a corresponding positive skin prick test or allergen-specific IgE antibodies in serum were included in the study.

The non-Caucasian children had their first food reaction at a significantly ( $p < 0.05$ ) lower age (mean age = 1.7 years) than Caucasian (mean age = 2.6 years). There was a significantly ( $p < 0.01$ ) higher proportion (52.6%) of non-Caucasian children in the food allergic population than in the local pediatric population. The non-Caucasian children were also sensitized to a significantly higher number of food allergens (mean = 2.05 allergens,  $p > 0.01$ ) than Caucasians (mean = 1.22 allergens), but the top four allergens (egg, peanut, tree nut and cow's milk) were the same in the populations. Some new food allergens (kiwi, sesame, legumes) seem to be more common in the non-Caucasian population. Asthma was found to be highly significantly ( $p < 0.001$ ) more common (47% vs. 27%) in the Caucasian population. There was no difference in the prevalence of other allergic conditions.

In conclusion, non-Caucasian children seem to have a higher risk of food allergy with the first reaction at earlier age and to be sensitized to a higher number of food allergens.