

SYNOPSIS

- Three groups of patients were compared; exercise-induced wheat allergy (EIWA) (n=24), wheat related immediate symptoms (n=17), and wheat related atopic dermatitis (n=19).
- In the atopic dermatitis group all but one (34 years of age) were ≤ 10 years of age.
- IgE antibodies to wheat, gluten and recombinant ω -5 gliadin were measured by ImmunoCAP® (Phadia AB, Uppsala, Sweden).
- Clinical allergy was based on DBPCFC coupled to exercise or convincing clinical history.
- EIWA patients with negative ω -5 gliadin test were significantly younger than those with positive test (18.3 vs. 45.7 years, $p = 0.00004$).

Citation: Jacquenet S et al. Interest of ImmunoCAP System to Recombinant omega-5 Gliadin for the Diagnosis of Exercise-Induced Wheat Allergy. *Int Arch Allergy Immunol.* 2008;149:74-80.

IgE antibodies to ω -5 gliadin have a high positive and negative predictive value for Exercise-Induced Wheat Allergy (EIWA)

Exercise-induced wheat allergy is mainly induced in adults. The water-insoluble fraction ω -5 gliadin has recently been shown to be a major allergen for this clinical entity. One main objective in this study was to investigate if the presence of IgE antibodies to ω -5 gliadin discriminate EIWA from other clinical manifestation of wheat allergy.

IgE antibodies to ω -5 gliadin in sera from patients with EIWA were compared to sera from patients with immediate reaction to wheat or with atopic dermatitis (delayed reaction). IgE to ω -5 gliadin was detected in 75% of the sera from EIWA patients compared to 41% of patients with immediate reaction and 20% of patients with atopic dermatitis. There was no correlation between the level of IgE antibodies to gluten and to ω -5 gliadin. All 5 EIWA patients below 20 years of age had no detectable IgE to ω -5 gliadin compared to only 1 negative test of 19 EIWA patients above 20 years of age. In the studied population, 78% (PPV) of wheat allergic patients above 20 years of age with positive test had EIWA and 91 % (NPV) of patients with negative test had not EIWA.

The authors conclude that the new ImmunoCAP ω -5 gliadin test is important because of its high negative predictive value in patients above 20 years of age.

SYNOPSIS

- Wheat sensitized (median: 12.5 kU_A/l, range 0.70-100 kU_A/l) children (n=35) with respiratory, skin, or gastrointestinal symptoms were recruited.
- Classification of an IgE-mediated immediate hypersensitivity was based on challenge testing or a convincing clinical history.
- The samples were analyzed for wheat and recombinant omega-5 gliadin-specific IgE antibodies using ImmunoCAP®.
- Children with immediate symptoms had significantly higher serum IgE antibody levels to both wheat (33.8 vs. 7.2 kU_A/l, $p < 0.01$) and ω -5 gliadin (7.25 vs. 1.08 kU_A/l, $p < 0.01$).
- 82% (37/44) of wheat allergic children were sensitized to ω -5 gliadin vs. 27% (12/44) in non-allergic children.
- The serum IgE levels to ω -5 gliadin were higher ($p < 0.001$) in children with severe reaction at challenge.

Citation: Ito K et al. IgE antibodies to omega-5 gliadin associate with immediate symptoms on oral wheat challenge in Japanese children. *Allergy.* 2008;63:1536-42.

The IgE antibody level to ω -5 gliadin is related to the reaction severity at wheat challenge and may guide if challenge have to be performed or not

According to the authors, there is a clinical need to develop an *in vitro* test that could replace wheat provocation. The aim of the study was to examine if the new ImmunoCAP® test for measuring serum IgE antibodies to ω -5 gliadin could be used to predict the outcome of immediate symptoms at wheat challenge in wheat-sensitized children.

Children sensitized to wheat and with clinical symptoms were evaluated by open oral challenge and by serum IgE antibody measurements to wheat and ω -5 gliadin. Those with immediate symptoms had significantly higher IgE antibody levels to both wheat and ω -5 gliadin. According to ROC-analyses, ω -5 gliadin-specific IgE was the most efficient marker with a sensitivity and specificity of 82% at a cut-off of 0.43 kU_A/l and with an AUC of 85.7%. Children with a positive challenge test or a convincing clinical history had significantly higher concentration of IgE antibodies to ω -5 gliadin than non-allergic wheat-sensitized children. Furthermore, children with a more severe reaction at challenge had significantly higher serum IgE levels to ω -5 gliadin compared to children with mild or moderate symptoms.

The authors conclude that the level of IgE to ω -5 gliadin was related to the reaction severity at wheat challenge in wheat-sensitized children and may serve as a good aid for deciding if challenge should be performed or not.

SYNOPSIS

- Infants (n=2,173, age range 11.5-25.5 months) with active atopic dermatitis and a family history of atopic diseases were recruited.
- The infants were coming from 10 European countries, South Africa and Australia.
- Immunization to diphtheria, tetanus, pertussis, *Haemophilus influenzae*, hepatitis B, polio, measles, mumps, rubella, varicella, tuberculosis, meningitis, pneumonia was recorded.
- IgE sensitization to mite, grass pollen, *Alternaria*, cow's milk, egg white, and peanut was measured by ImmuniCAP®.
- Varicella immunization was inversely associated with elevated total IgE kU/l (OR 0.27) and eczema severity (OR 0.34).
- Several vaccines and cumulative vaccine doses were inversely associated to severity of atopic dermatitis.

Citation: Grüber C et al. Early atopic disease and early childhood immunization – is there a link? *Allergy.* 2008;63:1464-72.

Using vaccines during the first year of life is not associated with an increased risk of allergen sensitization or increased severity in atopic dermatitis

Parents have a fear that early childhood immunization promotes allergen sensitization and atopic diseases. The objective of this study was to use a recent large multicenter trial to evaluate if common vaccines in the first year of life influence the severity of atopic dermatitis, and IgE sensitization to allergens in the second year of life.

Infants with active atopic dermatitis and a family history of allergy were recruited. IgE sensitization to common inhalant and food allergens were analyzed and the infants' vaccination history was recorded by immunization cards.

About 63% of the infants were immunized at birth and most often (>90%) against diphtheria, tetanus, pertussis and poli.

Immunization against hepatitis B (OR 0.54) or polio (OR 2.6) at birth effected allergen sensitization but not if immunization was given later in the first year. However, any other vaccine did not significantly influence IgE sensitization to inhalant and food allergens. Immunization to several targets were inversely associated (OR 0.34 to 0.73) to the severity of atopic dermatitis.

The authors conclude that using vaccines during the first year of life in children with high risk of atopy is not associated with an increased risk of allergen sensitization or increased severity in atopic dermatitis.