

SYNOPSIS

- Children (n=268) were selected from a birth cohort and clinically evaluated at 6, 12, 18, 24 months and 5 years of age.
- Two thirds of the children had a mother or both parents with allergy.
- Allergen-specific IgE to egg, milk, fish, peanut, soybean, cat, dog, mites, birch and timothy was measured by ImmunoCAP® (Phadia AB, Uppsala, Sweden) with cut-off 0.1 kU_A/l.
- Low levels of allergen-specific IgE was defined as <0.7 kU_A/l.
- All results above 0.7 kU_A/l were excluded in the risk analysis.
- Primary outcome variables were eczema, rhinitis and wheeze/asthma.
- Eczema was the dominating symptom and increased up to 2 years of age and then decreased.
- Low levels of sIgE at 5 years of age to soybean, timothy and cat showed significant OR to asthma and rhinitis at 5 years of age. Peanut and dog to rhinitis and birch to eczema.

Citation: Söderström L et al. An explorative study of low levels of allergen-specific IgE and clinical allergy symptoms during early childhood. *Allergy* 2011;66:1058-64.

SYNOPSIS

- Patients (n=148, age range 13-62 years) with clinical history of peach allergy were recruited.
- Mild peach allergy was defined as OAS without systemic symptoms (51.4%) and severe as OAS with systemic symptoms (48.6%).
- Serum IgE to peach allergen extract and components (Pru p 1, Pru p 3, Pru p 4) and Birch (Bet v 1, Bet v 2, Bet v 4) were measured by ImmunoCAP® using cut-off 0.1 kU_A/l.
- All patients showed serum IgE to peach extract (>0.1 kU_A/l) and 71.6% to birch extract.
- Monosensitization to Pru p 3 was six times more common than monosensitization to Pru p 1 in severe peach allergy.
- All patients with mild peach allergy were sensitized to at least one birch allergen component.

Citation: Pastorello EA et al. Pru p 3-Sensitized Italian Peach-Allergic Patients Are Less Likely to Develop Severe Symptoms When Also Presenting IgE Antibodies to Pru p 1 and Pru p 4. *Int Arch Allergy Immunol* 2011;156:362-72.

SYNOPSIS

- Participants (age 25-54 years) were recruited 1997 (n=2,250) and 2007 (n=1,950) from Russian and Finnish Karelia and stratified by 10-year age groups.
- Atopic diseases were based on self-administrated questionnaires and health checks.
- Total serum IgE and allergen (birch, timothy, cat, mite, *cladosporium*) specific IgE were measured by ImmunoCAP®, cut-off ≥ 0.35 kU_A/l
- Atopy increased only in the Finnish population from 21.5% to 27% (p=0.01).
- Total serum IgE decreased 30% (p<0.001) in the Russian population with downward trend by later birth years.
- The relative risk between the Finnish and Russian areas increased from 5.5% to 8.1% (p=0.05) for asthma, 8.1% to 13.2% (p<0.001) for hay fever and 7.4% to 10.8% for allergic rhinitis.
- Sex, years of education, smoking, rural/urban living, molds in the house did not change the results.

Citation: Laatikainen T et al. Allergy gap between Finnish and Russian Karelia on increase. *Allergy* 2011;66:886-92.

Low grade sensitization (<0.7 kU_A/l) to milk and egg at infancy was associated with further sensitization at age 5 and increased risk of eczema at age 2

The ImmunoCAP technology platform to measure allergen-specific IgE (sIgE) has recently been improved to measure IgE concentrations down to 0.1 kU_A/l. This allows addressing the controversial clinical question how to interpret the low concentration of sIgE during infancy. The aim of the present study was to investigate the relation of low concentration of sIgE (0.1-0.7 kU_A/l) in early childhood (≤ 1 year of age) to allergen sensitization and atopic symptoms later at 5 years of age.

The vast majority of sensitization at 6 and 12 months were to egg and milk and most of them (roughly 60-75%) had low sIgE levels (<0.7 kU_A/l). Infants with proven sIgE below 0.7 kU_A/l at 6 and 12 months of age had a significantly increased risk (OR=3.08 and 5.2) of IgE sensitization above 0.7 kU_A/l at age 5. The majority (81%) of infants with low sIgE at 6 months showed persistent IgE sensitization at age 5. Early (≤ 1 year) sensitization to milk showed an increased risk of eczema at age 2 (OR 3.32-4.86) but not age 5. Similar results were obtained for sensitization to egg. In the present design of the study it was not possible to show any relation between early sensitization (<0.7 kU_A/l) to milk or egg and development of respiratory symptoms at age 5.

In conclusion the authors show that early low grade sensitization to milk and egg at infancy with sIgE below 0.7 kU_A/l was associated to further sensitization at age 5 and increased risk of eczema at age 2.

Analysis of serum IgE to the peach components Pru p 1, Pru p 3 and Pru p 4 is important in areas where both pollen- and LTP-related peach allergies occur

Two different clinical expressions of peach allergy have recently been described. One mild form depends on sensitization to pollen-related allergens (PR-10 and/or profilin) and another severe form on sensitization to non-specific Lipid Transfer Proteins (nsLTP). Tests to measure IgE sensitization to these different allergen components (Pru p 1/PR-10, Pru p 3/LTP, Pru p 4/profilin) in peach by ImmunoCAP technology is commercial available for routine analyses.

The aim of the present study was to use these new tests for risk assessment of severe reactions to peach in an area where both clinical types exist. The prevalence of IgE to Pru p 1 was more common (65.8% vs. 31.9%) in patients with mild compared with severe reaction, while the opposite was found for Pru p 3 (87.5 vs. 53.9). In analogy to this, IgE antibody levels to Pru p 1 was significantly higher in mild cases and to Pru p 3 in severe. The risk of developing severe reaction was significantly related to an increase in the IgE level to Pru p 3 and decrease to Pru p 1. An unexpected observation was that patients sensitized to LTP as well as PR-10 had a reduced risk of developing a severe reaction if a concomitant sensitization to profilin existed.

The authors point out the importance to analyze all three peach related allergen components in risk assessment of severe reactions in areas where both clinical types exist.

The gap in sensitization rate and relative risk for atopic diseases has increased from 1997/98 to 2007 between Finnish and Russian Karelia

According to the authors the emerging picture is that global difference in allergic diseases are decreasing since the increase has leveled off in the industrial countries and started to increase in the developing countries. In an earlier study they could confirm an increase in atopic diseases in children compared to their mothers in Finnish Karelia compared to Russian Karelia where this was not seen. The aim of the present study was to investigate if the differences in IgE sensitization and atopic diseases are decreasing in this part of the world as well using the same methodology.

The study was based on self-administrated questionnaires, health checks and measurements of total and allergen-specific IgE.

In the Finnish population a significant increase was seen in the sensitization rate to all tested allergens except to mites, whereas no change could be seen in the Russian population. The prevalence of high total serum IgE above 110 kU/l decreased significantly in the Russian population but not in the Finnish. The sensitization rates to birch, grass and cat increased with successive years of birth in the Finnish population but not in the Russian. A similar trend in prevalence of atopic diseases was shown and the relative risk for physician-diagnosed atopic diseases had increased in the Finnish population compared to the Russian.

The authors conclude that in these geographically adjacent areas the gap in atopy and atopic diseases has increased in contrast to what has been seen in rest of the World.