

SYNOPSIS

- Newborn children (n=198) with an atopic family history were recruited from an ongoing birth cohort.
- Children were assessed by a doctor for atopic diseases and allergen-specific serum IgE (ImmunoCAP®, Phadia AB, Uppsala, Sweden) was measured at 1 and 5 years of age.
- Twenty-six percent of children were sensitized to food allergens at 5 years of age.
- Children sensitized to mites at the age of 5 years showed invariably an increase in mite-specific IgE antibodies after 1 years of age.
- Children with mite-specific IgE concentration below 0.35 kU_A/l remained below this threshold but fluctuated over time.
- The negative predicted value for sensitization to mite at the age of 5 years was 75.2% with a cut-off value at 0.35 kU_A/l at 2 years of age.

Citation: Holt PG et al. Toward improved prediction of risk for atopy and asthma among preschoolers: A prospective cohort study. J Allergy Clin Immunol 2010;125:653-9.

Integration of IgE levels to aeroallergens and the number of lower tract infections before 2 years of age is effective in predicting asthma at 5 years of age

There is an established hypothesis that sensitization to aeroallergens and exposure to respiratory pathogens in early childhood predispose to subsequent development of persistent wheeze. The aim of this study was to further elucidate the relevance of IgE-sensitization to aeroallergens and early wheezing episodes for persistent wheeze at 5 years of age, in children with a family history of atopy and asthma.

About half (46%) of the children in the birth cohort were sensitized to aeroallergens by age 5 years and 28% had persistent wheeze at that age. Sensitization to house dust mite was most common (37%) and 93.3% had reach a concentration of 0.35 kU_A/l or greater by 2 years of age. The risk for persistent wheeze at 5 years of age increased linearly with the concentration of mite-specific IgE antibodies and the number of lower respiratory tract illnesses before 2 years of age. A similar result was obtained by using the quantitative value of Phadiatop® Infant test or by summation of individual concentrations of allergen-specific IgE antibody levels.

The authors conclude that integration of quantitative measures relating to early aeroallergen sensitization (IgE) and numbers of lower respiratory tract infections provide effective tools for asthma risk assessment.

SYNOPSIS

- Newborn children (n=1,928) were recruited from a population-based cohort in Sweden (BAMSE).
- The children were followed-up at 4 and 8 years of age by questionnaire to parents and measurements of allergen-specific serum IgE to birch and peanut with ImmunoCAP®.
- At 4 years 5.5% of the children were sensitized to peanut and it increased to 7.4% at 8 years of age.
- At 4 years 9.4% of children were sensitized to birch and it increased to 15.2% at 8 years of age.
- The frequency of double sensitized (peanut + birch) children showed a significant (p=0.002) increase from 3.3% to 5.4% between 4 and 8 years of age.

Citation: Asarnoj A et al. Reported symptoms to peanut between 4 and 8 years among children sensitized to peanut and birch pollen – results from the BAMSE birth cohort. Allergy 2010;66:213-9.

Peanut sensitization in children without concomitant birch sensitization is of higher clinical relevance

According to the authors, it has not been studied if IgE antibodies to birch pollen in peanut sensitized childhood affect the prediction of clinical symptoms to peanut. In this study, concentration of IgE antibodies to peanut and birch pollen were measured at 4 and 8 years of age and then related to reported clinical symptoms to peanuts.

At the follow-up at 8 years of age a significantly (p=0.002) higher proportion (76%) of peanut-sensitized children, not sensitized to birch, reported symptom to peanut compared to children (46%) sensitized to birch as well. Such difference could not been seen at the 4 years follow-up. Children *de novo*-sensitized to peanut between 4 and 8 years were mostly asymptomatic (85%) and sensitized to birch (87%). At the 8 year follow-up, peanut-sensitized children not sensitized to birch had a significantly higher (p=0.003) mean concentration of peanut-specific IgE (12.0 kU_A/l) compared to children sensitized to birch as well (4.3 kU_A/l). Furthermore, children sensitized to both peanut and birch, but without reported clinical symptoms to peanut had significantly higher mean concentration to birch than peanut at both the 4-year (p=0.002) and 8-year (p<0.001) follow-up.

The authors conclude that serological cross-reactivity between birch pollen and peanut might be a problem in diagnosing peanut allergy. However, a higher IgE antibody level to birch than peanut may indicate less clinical relevant peanut sensitization.

SYNOPSIS

- Newborn children (n=1,290), with a positive family history of atopic disease were recruited from a multicenter intervention study (GINI study).
- Clinical examination and measurement of allergen-specific IgE were performed at 12 months of age and questionnaires were filled in by parents at 6 years of age.
- Atopic disease was defined as parent-reported allergy diagnosis by a physician.
- A positive family history was defined as atopy in at least one parent or biological sibling.
- Serum IgE antibodies to milk, egg, soy, cat, house dust mite, timothy grass and birch pollen were measured by ImmunoCAP®.

Citation: Brockow I et al. Early allergic sensitizations and their relevance to atopic disease in children aged 6 years: results of the GINI study. J Investig Allergol Clin Immunol 2009;19:180-7.

Sensitization to food and aeroallergens during first year of life is a strong predictor for allergy at the age of 6 years in children with family atopy

The aim of this study was to investigate if presence of early allergen sensitization in 12-months old children, with a family history of atopic disease, could be used as a prediction marker for atopic disease at the age of 6 years. At 12 months of age 10.9% of the children showed an allergen sensitization > 0.34 kU_A/l. The prevalence of sensitization was higher to food allergens (9.8%) than aeroallergens (2.3%). Early sensitization to cat (43%, p=0.001), egg (22%, p=0.001) and milk (23%, p=0.004) were strongly associated to eczema at the age of 6 years. This association could not been shown if children with eczema before 1 year of age were excluded. Sensitization to egg, mite and grass were strongly associated (p=0.001-0.002) to asthma and cat to a lower degree (p=0.026). A similar association was shown to allergic rhinitis. Early sensitization to soy did not show any significant association to any atopic disease. In multivariate analyses early sensitization to aeroallergens showed a higher adjusted odds ratio than sensitization to food allergens with respect to eczema (3.27 vs. 2.15), allergic rhinitis (2.76 vs. 2.13) and asthma (4.36 vs. 3.93).

The authors conclude that sensitization to food and to aeroallergens in particular, during the first year of life is a strong predictor for the development of atopic disease by the age of 6 years in children with a family history of atopy.