

SYNOPSIS

- Adult patients with seasonal allergic rhinitis (AR) mono-sensitized to grass (n=14), perennial AR mono-sensitized to mite (n=9) and perennial AR poly-sensitized with increasing symptom at pollen season (n=29) were recruited.
- A single nasal provocation (NP) was performed with grass or mite extract out of pollen season.
- Clinical symptoms were recorded on a visual analogue scale (VAS) or peak nasal inspiratory flow (PNIF).
- IgE antibodies to grass and cat allergens and total IgE were measured by ImmunoCAP® (Phadia AB, Uppsala, Sweden).
- Basophil activation was assayed by stripped basophil histamine release assay.
- There was a significant increase (p<0.005) in nasal symptoms in all patients after NP.
- Grass mono-sensitized patients had a significantly (p=0.031) higher symptom score and lower (p=0.001) PNIF value than the other groups after grass NP.
- Total IgE was significantly higher in poly-sensitized AR than in grass mono-sensitized patients.
- The ratio grass-specific IgE to total IgE was significantly (p=0.001) higher in grass mono-sensitized patients.

Citation: Reinartz SM et al. Diminished response to grass pollen allergen challenge in subjects with concurrent house dust mite allergy. *Rhinology* 2009;47:192-8.

Natural exposure to perennial allergens, like mite, can lead to a reduced clinical response to grass pollen at nasal provocation

The clinical response to single nasal allergen provocation (NP) in patients with allergic rhinitis (AR) could be influenced by many factors. The aim of this study was to evaluate the effect of NP on clinical symptoms in mono- and poly-sensitized adult patients.

Mono-sensitized (grass or mite) and poly-sensitized (grass and mite) adult patients with AR were challenged with grass or house dust mite extract out of the pollen season. IgE antibodies to grass pollen and mite were measured in serum and related to total IgE. Both subjective (p=0.031) and objective (p=0.001) nasal symptoms were significantly stronger in grass mono-sensitized patients compared to poly-sensitized patients after a single NP with grass pollen extract. There was no significant difference in the concentration of grass pollen-specific IgE between mono- and poly-sensitized patients. However, the ratio between pollen-specific IgE and total IgE was significantly higher in the grass mono-sensitized patients but the basophil histamine release was equal.

The authors conclude that natural exposure to perennial allergens, like mite, can lead to a reduced clinical response to grass pollen allergens. However they point out that the immune-regulatory mechanism behind this effect on the local inflammatory state is unclear.

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- Newborn children (n=1,290) with family history of atopic diseases were recruited and followed up to 6 years.
- IgE antibodies to food allergens (milk, egg, soy) and aeroallergens (cat, mite, grass, birch) were tested with ImmunoCAP® before 12 months of age.
- Atopic disease at the age of 6 years was defined as parent reported physician's diagnosis of eczema (10.6%), allergic rhinitis (8.1%) or asthma (3.4%).
- Sensitization to cat (43%) showed strongest association to eczema.
- Sensitization to grass showed strongest association to allergic rhinitis (37.5%) and asthma (25%).

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

IgE sensitizations before 1 years of age to food and/or aeroallergens are strong predictors for the development of atopic diseases at the age of 6 years

There is a rather broad acceptance that early sensitization is a risk factor for later development of atopic disease even if publications are few. The aim of this investigation was to study if allergen sensitization during the first year of life in children with family history of atopic disease was associated to development of atopic disease at 6 years of age.

At 12 months of age 10.9% of the studied children were sensitized to at least one allergen and more often to food allergens (9.8%) than aeroallergens (2.3%). These results were compared to the prevalence of atopic diseases at the age of 6 years.

There was a significant increased prevalence of eczema at 6 years of age in children sensitized to milk (23.4%), egg (22.3%) and cat allergens (42.9%) before 12 months of age compared to non-sensitized children (9.6%). However, this was only shown if the children had eczema at early age. The OR compared to no sensitization was 2.31 when tested for any allergen sensitization. The risk increased to an OR of 3.45 in children with 2 or more sensitizations. A similar result was shown for rhinitis and asthma with an OR 2.22 for rhinitis and OR 3.93 for asthma.

The authors conclude that sensitization before 1 years of age to food and/or aeroallergens are strong predictors for the development of atopic diseases at the age of 6 years in children with family history of atopic disease.

SYNOPSIS

- Newborns with (n=499) and without (n=815) risk factor for atopy were recruited and followed-up frequently during the two first years and yearly up to 13 years of age.
- Total IgE and IgE antibodies to food allergens (milk, egg, wheat, soy) and aeroallergens (mite, grass, birch, cat, dog) were tested by ImmunoCAP®.
- The difference between total IgE and the level of allergen-specific IgE was rather unstable between 2 to 5 years, but stable thereafter.
- The highest frequencies of wheezing at 13 years of age were observed in children with a continuous increase in total serum IgE.
- Maximum increase of total IgE coincided with the onset of the respiratory atopic disease.

Citation: Matricardi PM et al. Longitudinal trends of total and allergen-specific IgE throughout childhood. *Allergy* 2009;64:1093-8.

Time related variation in total IgE, rather than actual levels, may be useful parameter for prediction and prevention of paediatric allergy

Total serum IgE (T-IgE) measurement is disregarded today as a diagnostic test for allergic diseases. However, the authors state that atopic sensitization is a very dynamic process especially in childhood, characterized by a sequence of new sensitization and remission. Based on that thinking the aim of the study was to investigate if changes in T-IgE reflect variation in allergen-specific IgE (S-IgE).

T-IgE and S-IgE to nine common allergens were examined at several time points in children from birth to puberty. The relation of T-IgE and S-IgE levels over time was examined in individual participants as well as in age groups. A parallel trend of geometric mean values of T-IgE and S-IgE started clearly from the age of 5 years. This was also shown on the individual level by correlating the difference between T-IgE and S-IgE at different ages. It was also shown that increases in T-IgE levels were temporally related to the onset of sensitization and clinical symptoms.

The authors suggest that variation rather than actual level of T-IgE might be useful parameter for the prediction and prevention of pediatric allergy, but further studies are needed.