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CAPture

A Selection of Recent Allergy Papers

SYNOPSIS

- Participants (age 25-74 years) were recruited from a population based health research platform in southern Germany (The Kobra project).
- Sera from 4178 adults were analyzed for allergen-specific IgE to grass, birch, mite, cat and *Cladosporium* at baseline with ImmunoCAP® (Phadia AB, Uppsala, Sweden).
- Atopic sensitization was defined as at least one positive test (≥ 0.35 kU_A/l) of the five tested allergens.
- At the 10-year follow up point the participants (n=2656) were assessed by a self-administered questionnaire about the doctor's diagnose of allergic rhinitis, asthma and atopic dermatitis.
- In sensitized individuals there was an increased odds ration to develop rhinitis (OR = 8.05, CI 95% 4.69-13.82) and asthma (OR = 1.82, CI 95% 1.29-2.57), but not atopic dermatitis.

Citation: Schoefer Y et al. Predictivity of allergic sensitization (RAST) for the onset of allergic diseases in adults. Allergy 2008;63:81-6.

IgE sensitization to common inhalant allergens in adults, without clinical atopic symptoms, can be used as a prognostic factor for later rhinitis and asthma development

It is a well-known phenomenon that IgE antibodies can be detected without any apparent clinical symptoms. The aim of this report was to study if IgE sensitization, without present clinical symptoms, could be used to predict development of atopic symptoms within ten years.

Study participants were recruited from a population based health research platform in southern Germany. At baseline, serum samples were analyzed for IgE antibodies to common inhalant allergens. At the 10-year follow up point the participants were assessed by a self-administered questionnaire about the doctor's diagnose of atopic disease.

At baseline, 31.6% of the population was sensitized to any allergen and with highest values to pollens and mite. The 10 year incidence of rhinitis was 3.9% and highest in young adults with an incidence of almost 7%. In contrast, the incidence of asthma increased with age and with an average incidence of 6.5%. In adjusted logistic regression the odds ratio (OR) to develop rhinitis in sensitized individuals was 8.05 and to develop asthma was 1.82. The incident of rhinitis was strongly associated with outdoor allergens (grass and birch) and the incidence of asthma with indoor allergens (cat and mite).

The authors conclude that IgE sensitization to common inhalant allergens in adults without clinical atopic symptom can be used as a prognostic factor for later development of rhinitis and asthma, but not of atopic dermatitis.

SYNOPSIS

- Children (n=815) were recruited from an unselected, population-based birth cohort study.
- They were followed up at the age 5 years by a validated questionnaire and IgE antibodies to common allergens (grass, cat, dog, mite, moulds, milk, egg and peanut) were analyzed by ImmunoCAP® and skin prick test.
- The prevalence of allergic rhinitis was 26.% and rhinoconjunctivitis 12.1%.
- The odds ratio to develop rhinitis in grass sensitized children was 3.58 at 10 kU_A/l and 5.1 at 30 kU_A/l.
- The risk of moderate to severe rhinitis increased (OR 1.23, 95% CI 0.04-0.46) p=0.02) with increasing level of IgE antibodies to grass when mild rhinitis was used as a reference.
- Increasing level of IgE antibodies to grass was strongly associated with seasonal rhinitis (OR = 1.49, CI 95% 1.29-1.72, p<0.001) and to mite with perennial rhinitis (OR = 1.31, CI 95% 1.08-1.59, p=0.006).

Citation: Marinho S et al. Quantification of atopy and the probability of rhinitis in preschool children: a population-based birth cohort study. Allergy 2007;62:1379-86.

The level of IgE antibodies to grass pollen is associated with seasonal rhinitis whereas the IgE antibody level to mite is associated with perennial rhinitis

The authors have recently shown that the probability of childhood wheezing and reduced lung function increases with increasing IgE antibody levels to common inhalant allergens. In the present paper they studied the association between the IgE antibody levels to common allergens in five years old children and the presence/severity of rhinitis or rhinoconjunctivitis.

The risk of rhinitis and rhinoconjunctivitis increased significantly with increasing level of IgE antibodies to most tested inhalant allergens. Increasing level to grass pollen (p<0.001) was the only independent predictor for rhinitis and rhinoconjunctivitis as measured in a multivariate model. The probability of rhinoconjunctivitis increased 1.49-fold (p<0.001), and 1.38-fold (p<0.001) for rhinitis per logarithmic unit increase in the level of IgE antibodies to grass pollen. The risk of moderate to severe rhinitis was significantly increased with increasing level of IgE to grass when mild rhinitis was used as a reference.

The authors conclude that there is a quantitative association between the IgE antibody level to grass and seasonal rhinitis, whereas the IgE antibody level to mite was associated to perennial rhinitis.

SYNOPSIS

- Adult patients (n=17) with previous (mean time 5.8 years) anaphylactic reaction to NMBAs were recruited.
- Total IgE and IgE antibodies to suxamethonium, morphine, pholcodine and inhalant (Phadiatop®) and food allergens (fx5) were analyzed by ImmunoCAP®.
- There was no difference in IgE antibodies at baseline between patients exposed to pholcodine and guaifenesin.
- After 4 weeks only pholcodine exposure gave a highly significant (p<0.01) increase in the proportional median levels of IgE antibodies to pholcodine (x 39.0), morphine (x 38.6) and suxamethonium (x 93.0).
- A significant rise in total IgE was also seen after 4 weeks in the pholcodine exposed group (median proportional level from 153 kU/l to 5218 kU/l).
- There was also an increase to other common allergens, but much less than the pholcodine-specific IgE antibody response.
- However, having IgE antibodies to NMBAs *per se* does not appear to be a reliable predictor of NMBA anaphylaxis. An estimate from Norway is that only about 5% of patients sensitized (≥ 0.35 kU_A/l) to suxamethonium will develop anaphylaxis upon *i.v.* NMBA exposure.

Citation: Harboe T et al. Pholcodine exposure raises serum IgE in patients with previous anaphylaxis to neuromuscular blocking agents. Allergy 2007;62:1445-50.

Low dose of pholcodine-containing cough syrup increases serum IgE levels to Suxamethonium (muscle relaxant) in patients with previous anaphylactic reactions

IgE sensitization to quaternary ammonium ion epitopes in neuromuscular blocking agents (NMBAs) has been shown in patients with anaphylaxis during general anesthesia. The authors point out that the frequency of severe reactions to NMBAs is six times higher in Norway compared to Sweden. Based on earlier studies they suggest that pholcodine-containing cough syrup might be the primary sensitizer. This drug has been available without prescription in Norway but only with prescription in Sweden. The aim of the present study was to investigate if a low dose of cough syrup containing pholcodine would change the serum IgE antibody levels to NMBAs in patients with known sensitization and previous anaphylactic reaction. Patients were exposed to one third of the therapeutic dose of cough syrup, either containing pholcodine (n=11) or guaifenesin (n=6) for seven days. Serum IgE antibodies to suxamethonium, morphine and pholcodine were measured at baseline and after 4 and 8 weeks. There was a highly significant (p<0.01) increase in the IgE antibody levels to all three drug compounds after 4 weeks in patients exposed to pholcodine but not in patients exposed to guaifenesin. At baseline all but one of the patients had higher concentration to pholcodine and morphine than to suxamethonium.

Based on this result the authors suggest that availability of pholcodine should be restricted by medical authorities because of the potential risk of future allergic reactions to muscle relaxants.

Phadia