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CAPture

A Selection of Recent Allergy Papers

SYNOPSIS

- Sera from patients (age 20-60 years, n=15) with suspected anaphylaxis to suxamethonium were collected before (1-2 days), during and after (1 day or more) the reaction.
- Total serum IgE and IgE antibodies to suxamethonium and a mixture of aeroallergens (Phadiatop®) were measured by ImmunoCAP® (Phadia AB, Uppsala, Sweden).
- All patients that had a "pre"-sample (11) had allergen-specific IgE to suxamethonium (0.5 - 15 kU_A/l).
- Ten were atopic, defined as a positive Phadiatop test.
- All patients had detectable allergen-specific IgE during reaction and no distinct consumption could be verified compared to pre-anaphylactic sera.
- The minor fluctuations seen were not due to intervention with intravenous fluid, shown by comparing allergen-specific IgE to total serum IgE or the quantitative value of Phadiatop.

Citation: Guttormsen AB et al. No consumption of IgE antibody in serum during allergic drug anaphylaxis. Allergy 2007;62:1326-30.

Serum samples for IgE antibody measurement to drugs can be drawn directly in relation to the anaphylactic reaction

There is a common recommendation in the *in vitro* diagnostic routine of IgE-mediated anaphylaxis not to test for the offending allergen until 2-3 weeks after the reaction. The authors point out that this recommendation is most likely based on experiences from IgG-mediated and not IgE-mediated reactions. In the present study they used the anaphylaxis to suxamethonium as a model to investigate if IgE-antibodies are consumed or not during the acute reaction.

Blood samples from patients with anaphylaxis during general anesthesia were analyzed for IgE antibodies to suxamethonium and a mixture of common aeroallergens. IgE antibodies to suxamethonium were measured before, during and in most patients up to more than four weeks after the reaction. IgE antibodies to suxamethonium were detected in all sera drawn during the reaction. No significant decrease of IgE antibody level to suxamethonium could be seen in serum during or 1 day after the reaction compared to serum sample before the reaction. In two patients, rather an increase in allergen-specific IgE was noticed and stayed high for more than 2 weeks. The minor fluctuations seen were not due to intervention with intravenous fluids.

The authors conclude that allergen-specific IgE antibodies are not consumed during an anaphylactic reaction to suxamethonium. Furthermore, they found no reasons to doubt that these findings do not apply to other drugs or allergens such as hymenoptera venoms.

SYNOPSIS

- The study was based on three cross-sectional East Germany studies (n=1011, age = 11.3±1.46 years) and a questionnaire-based follow-up study after a mean time of 9 years (range 4-12 years).
- A positive parental history of atopy existed in 16.2% of the patients.
- Allergen-specific IgE antibodies was determined by ImmunoCAP®.
- The incidence of asthma was 0.86%/year and for allergic rhinitis 1.93%/year.
- The risk ratio (RR) for asthma was 3.49 in cat sensitized patients and 1.79 in grass pollen sensitized.
- The RR for allergic rhinitis was 6.0 for grass pollen sensitized and 5.36 for cat sensitized.

Citation: Schäfer T et al. Allergic sensitization to cat in childhood as major predictor of incident respiratory allergy in young adults. Allergy 2007;62:1282-7.

Every 2nd to 3rd child sensitized to aeroallergens will develop allergic rhinitis in young adulthood and every 5th cat-sensitized child will develop asthma

The aim of this study was to investigate the predictive value of sensitization to specific aeroallergens in children with respect to the incidence of asthma and allergic rhinitis in young adulthood. The study was based on three cross-sectional East Germany studies and a questionnaire-based follow-up study after a mean time of nine years. Sensitization to common aeroallergens (mite, grass, birch, cat and *Cladosporium*) was measured. Clinical diagnosis as outcome was based on doctor's diagnosis in the follow-up questionnaire.

The positive predictive value (PPV) to develop allergic rhinitis within 9 years was 34.6% when sensitized to any of the allergens and highest for cat-sensitized children with a PPV of 46.9%. Cat sensitized children had also the highest risk to develop asthma (PPV = 20.4%) compared to children sensitized to other aeroallergens with a range of PPV from 7.8% to10.7%. Furthermore, cat sensitization was the only significant predictor for asthma incidence in a regression model mutually adjusting for all allergens. Grass pollen sensitization was the strongest predictor for allergic rhinitis with cat sensitization being the only other allergen, which shows a significant association.

The authors conclude that the predictive capacity of different aeroallergens such as pollen and cat allergens differs with respect to the clinical expression of atopy used as outcome.

SYNOPSIS

- Children hospitalized for bronchiolitis in infancy 1981-1982 in Kuopio, Finland were recruited to this prospective study.
- 83 children <2 years of age were followed until 18-20 years of age.
- Thirty-three (40%) children were hospitalized for RSV bronchiolitis.
- Thirty (38%) children were exposed to furred pets.
- Allergen-specific IgE (≥0.35 kU_A/l) to birch, timothy grass, mugwort, cat, dog, mite and *Cladosporium herbarum* was measured by ImmunoCAP® in 81 of 83 children before the age of 3 years.
- 17/81 (21%) children were sensitized to inhalant allergens at 1-3 years of age; 9 to furred pets and 10 to seasonal pollens.
- Neither early exposure to furred pets nor early sensitization to pets or pollens had any association with later allergic rhinitis or conjunctivitis.

Citation: Piippo-Savolainen E et al. Does early exposure or sensitization to inhalant allergens predict asthma in wheezing infants? A 20-year follow-up. Allergy Asthma Proc 2007;28:454-61.

In wheezing infants early sensitization to pollen but not animal dander predicts further wheezing and asthma until adolescence

In this study, children hospitalized for bronchiolitis in infancy were followed-up by clinical control visits up to 20 years of age. The aim was to investigate, in wheezing infants, the association of early IgE sensitization to animal dander and pollens with later wheezing and development of asthma in adulthood. Sensitization was shown in 12% of the children at baseline but significantly ($p<0.012$) less common in RSV-infected patients (6%) compared to non-RSV patients (30%). Children born in winter/spring were significantly ($p<0.018$) more often sensitized to animal dander than children born at other seasons. This relation to season of birth could not be seen for pollen sensitization.

Early sensitization to pollen but not to animal dander showed an increased risk for later wheezing and asthma but only in the age groups 3-4 years (OR = 7.97) and 8.5-10 years (OR = 7.52) in univariate analyses. The association between early pollen sensitization and asthma symptoms at the age group 13.5-16 years became significant after adjustment for sex, age, and wheezing history at admission. Logistic regression adjusted for RSV-infections did not changed the results.

The authors conclude that wheezing infants with early IgE sensitization to pollen are at particular risk for subsequent wheezing and development asthma.

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