Table of contents

Inhalant allergy

House dust mite-induced histamine release from washed blood cells. Evaluation of effect parameters

Allergy 1987

H Mosbech, **P S Skov**

Link: https://pubmed.ncbi.nlm.nih.gov/2446521/

Abstract

In a selected group of 60 house dust mite allergic asthmatics, the correlation between the bronchial sensitivity to house dust mite and effect parameters of mite-induced histamine release from washed blood cells was evaluated. Using a sensitive glass microfibre-based method, a significant positive correlation (r = 0.60; P less than 0.001) was found between bronchial allergen sensitivity and basophil cell sensitivity expressed as the house dust mite concentration necessary to give half the maximum histamine release. No correlation was found between bronchial sensitivity and other parameters of the histamine release response. This way of determining the histamine release from washed blood cells is a simple and valuable alternative to bronchial allergen challenge.

Basophil histamine release in the diagnosis of house dust mite and dander allergy of asthmatic children. Comparison between prick test, RAST, basophil histamine release and bronchial provocation

Allergy 1990

P A Ostergaard, F Ebbesen, H Nolte, P S Skov

Link: https://pubmed.ncbi.nlm.nih.gov/2183646/

Abstract

The aim of the study is to compare the glass fibre-based basophil histamine release test with skin test (Phazet), RAST (Phadebas) and bronchial provocation test in children with allergic asthma. The study comprised 68 selected children with a case history of extrinsic allergic asthma to danders (cat and dog) and house-dust mite. Skin prick test, RAST, and histamine release were performed in all children and the bronchial provocation test was used as a reference of "true allergic asthma". A total of 81 allergen bronchial challenges were performed and 44 children experienced 49 positive provocations. In 2.9% (2/68) of the children histamine release could not be performed due to technical difficulties (low histamine release with anti-IgE). Concordances in the range 76-87% were observed with no significant difference between the tests. The highest concordance (87%) was found between histamine release and bronchial provocation test followed by skin prick test vs bronchial provocation (84%) and RAST vs bronchial provocation (80%). The sensitivity and specificity were calculated for each test. All tests showed sensitivities in the range 90-94% and no significant difference between them was observed. The specificity of histamine release, skin prick test, and RAST was 0.78, 0.69, and 0.63, respectively. The specificity of histamine release was better than RAST demonstrated by 95% confidence intervals. In conclusion, it was found that the histamine release test is a convenient diagnostic method and the study indicates a diagnostic value comparable to the common diagnostic methods in clinical allergy.

Hyposensitization in asthmatics with mPEG-modified and unmodified house dust mite extract. III. Effect on mite-specific immunological parameters and correlation to changes in mite-sensitivity and symptoms

Allergy 1990

H Mosbech, R Djurup, S Dreborg, L Kaergaard Poulsen, P Stahl Skov, I Steringer

Link: https://pubmed.ncbi.nlm.nih.gov/1690523/

Abstract

Forty-six adult asthmatics allergic to D. pteronyssinus (Dp) participated in a 2-year study. Thirty-one underwent hyposensitization (HS-group). Fifteen were treated with Dp-extract (Dp-group), and 16 with a similar extract modified by monomethoxypolyethylene glycol with reduced allergenicity (mPEG-Dp-group). Fifteen patients served as controls. Dp-specific antibodies and histamine release from blood basophils were determined and compared with Dp-sensitivity in lungs and skin. In addition, IgG and IgE against the major allergen Der p I were followed in a subgroup. Dp-specific IgG, IgG1, and IgG4 increased significantly in

both HS-treated groups after 1 and 2 years (median: 2.5- to 11.6-fold). IgG4 was not induced if maintenance dose during the first year was less than 20,000 BU. Median skin sensitivity decreased 4.4- to 8.2-fold after 1 year and 7.4- to 21.4-fold after 2 years. Der p I specific IgG response was unrelated to the occurrence or change in IgE with the same specificity. The mPEG-Dp-extract tended to have less effect on skin sensitivity and immunological parameters, differences reaching statistical significance for skin sensitivity only. In the HS-group, the decrease in bronchial sensitivity was significantly correlated to a decrease in IgE (r = 0.36), IgG1/IgG4 (r = 0.49), Dp-specific histamine release (r = 0.58), and to an increase in Dp-specific IgG4 (r = -0.36) and IgG4/IgE (r = -0.48). In patients improving clinically, Dp-specific IgG4/IgE increased, and median Dp-specific IgE was reduced to 80% compared with an increase to 150-160% seen in the unchanged or deteriorated group (P less than 0.05). Findings indicate an improvement of effect, if the allergen dose is sufficient to reduce specific IgE and/or induce an IgG and especially IgG4 response.

Basophil histamine release, IgE, eosinophil counts, ECP, and EPX are related to the severity of symptoms in seasonal allergic rhinitis

Allergy 1999

L Winther, **L Moseholm**, **C M Reimert**, **P Stahl Skov**, **L Kaergaard Poulsen**

Link: https://pubmed.ncbi.nlm.nih.gov/10380774/

Abstract

Background: Serum specific IgE, basophil histamine release, and blood eosinophil parameters are associated with allergic rhinitis, but investigations of the relationship to the severity of allergic symptoms are few and conflicting. Our study aimed to investigate the seasonal changes in the following laboratory tests: specific IgE, basophil histamine release, eosinophil counts, and serum and plasma eosinophil cationic protein (ECP) and eosinophil protein X (EPX), and to analyze, in detail, the relationship of each individual test to the severity of symptoms in rhinitis patients allergic to both birch and grass pollen.

Methods: The above tests were performed on blood samples obtained from 49 allergic rhinitis patients during the birch-pollen season, during the grass-pollen season, and after the seasons. Symptom-medication diaries were filled in during both pollen seasons. We used partial least square (PLS) analysis to establish an optimal statistical link between the symptom score and medication and the laboratory tests, in an investigator-independent way.

Results: Increases in specific IgE, basophil histamine release, eosinophil counts, serum ECP and EPX, and plasma EPX were observed from the birch-pollen season to the grass-pollen season, followed by a decrease from the grass-pollen season to after the pollen seasons, except for the specific IgE. No seasonal changes in plasma ECP and total IgE were seen. The PLS analysis found a relationship between symptom score and medication and the aggregate laboratory tests (F-test value 40.2, correlation 0.34 for the cumulative relation). However, the variation in laboratory tests could explain only half of the total variation in symptoms and less than a quarter of the total variation in medication. The symptom score and, to a minor degree, medication were especially correlated with the basophil histamine-release results, with a decreasing relevance of specific IgE, eosinophil counts, total IgE, serum and plasma EPX, and serum ECP. Plasma ECP was not related to the symptom score and medication.

Conclusions: A significant relationship between the severity of allergic rhinitis and various allergic inflammatory markers was found but could account for only a minor part of the variation in the patients' evaluation of their disease.