

Abstract

Mgr. Petra Eiglerová

The importance of recombinant allergens for diagnosis and monitoring therapy of type I. allergy

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Charles University in Prague, Faculty of Pharmacy in Hradec Králové

Background: The aim of this work was to prove recombinant allergens as useful for *in vitro* diagnosis. We wanted to show its benefits for a specification of atopic profile of a patient. In the clinical part we tried to evaluate the use of recombinant allergens for monitoring antibodies changes during allergen specific immunotherapy (SIT).

Methods: We investigated serum of 57 patients, which had positive IgE antibodies to the mixtures of grass (gx1, gx3) and/or trees (tx9) pollen. In these serum samples we determined levels of specific IgE against allergen extracts (FEIA, Pharmacia CAP SYSTEM™ Specific IgE) and recombinant major or minor allergens (FEIA, ImmunoCAP® 100 Phadia) of birch and phleum pollen. A couple of samples (15) was analyzed by immunoblotting. In clinical part we investigated allergen-specific IgE, IgG and IgG4 subclass responses to birch/phleum pollen extract or defined recombinant allergen molecules in patients (8) during SIT (years 2001-2009).

Results: In this study we proved that allergens of birch or phleum pollen are in most cases responsible for positivity to mentioned allergen mixtures and that major not minor allergen play the main role in development of allergy, generally. However, there occurred some patients that reacted also/only against minor allergens. Specific IgE profiles observed by recombinant allergens and FEIA were concordant to those we obtained by immunoblotting. In clinical part we did not prove the correlation between laboratory and clinical response to SIT.

Conclusions: By FEIA we verified usability of recombinant allergens for determination of specific IgE levels and the assumed benefit in improvement of allergy diagnosis compared to allergen extracts that are routinely used in today's praxis. The determination of main allergen component is the fundamental prerequisite for the accurate indication of SIT. We did not prove the clinical meaning of determination of specific IgE, IgG, IgG4 antibodies for monitoring the procedure of SIT. Precise diagnosis still stays the basement of success.