

MEETING ABSTRACT

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Pollen sensitization profiles of allergic patients in a middle European region

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Background

The aim of our study was to assess the pollen sensitization patterns by means of molecular diagnosis approach in the region of Pilsen, Czech Republic.

Methods

The microarray system ImmunoCAP ISAC has been used for specific IgE detection to 113 different allergenic molecules. Sera from 989 patients sensitized to at least one pollen-derived molecule were subject of analysis. These patients suffered from at least one of the following diagnoses: chronic rhinitis (63%), bronchial asthma (33%), atopic dermatitis (29%), urticaria or angioedema (26%) and/or anaphylaxis (10%). Patient age ranged from 2 to 68 years, with a mean age of 32,6 years. The sex ratio was 39,0% men to 61,0% women.

Results

The most frequent sensitization rate was observed to grass-derived species specific molecules (81.2% overall), the most frequent being Phl p 1 (65.6%), markedly overwhelming sensitization rates to any non-pollen-derived molecule. The second one were pollen-derived PR-10 molecules (52.2% overall), of which the large majority included Bet v 1 (51.9%). Sensitization to these two types of pollen components (and their co-sensitizations with other components) forms the vast majority of pollen sensitizations. The patterns of co-sensitization is presented by means of Venn diagram approach. Sensitization to Cupressaceae-derived molecules was observed in 15.1% of subjects, to Oleaceae derived-molecules in 12.3% (Ole e 1 and Ole e 9 in 8.8% and 3.5% resp.) and to the plane tree-derived molecules Pla a 2 and Pla a 3 in 14.2% and 3.5% resp; these relatively high rates were surprising as the respective pollens have not been considered as important

in the region. The sensitization rates for further molecules were: Art v 1 – 13.2%, Pla l 1 – 10.8%, Che a 1 - 9.6%, Par j 2 – 1.1%, Sal k 1 – 0.4% and Amb a 1 – 0.9%. The sensitization rates to cross-reacting molecules were generally not as high as reported from other regions (profilins 12.4%, polcalcins 5.0%, LTPs 6.4%). Only 1.8% patients reacted to pollen-derived panallergen and not simultaneously to a pollen species-specific component.

Conclusions

Molecular diagnosis of allergy gives a more precise and comprehensive insight into pollen sensitization patterns than extract-based testing, allowing for better understanding of the sensitization process and regional differences. The data presented may help to improve diagnostic and treatment specific procedures in the respective region.

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