Allergen-specific IgE-values to inhalant and food allergens – Comparison between two commercial immunoassays:

Dr. Fooke ALLERG-O-LIQ versus Pharmacia CAP-System


1Allergy & Asthma-Center Westend, Berlin; 2University Hospital of Dermatology & Allergy, Hannover; 3Forschungsinstut Borstel; 4Paul-Ehrlich-Institut, Langen; 5Dpt. Dermatology & Allergy/Charité; 6Asthma & Allergy OPD/Charité; 7University Childrens’s Hospital/Charité, Berlin

Purpose of the Study

Materials and Methods
Allergens: Inhalants: birch, cat, dog, mugwort, wheat, cow’s milk, hazelnut, apple, hazelnut, cow’s milk, wheat flour, cow's milk, hazelnut. Patients sera: Sera from allergic patients (children, adolescents, adults) were collected from different hospitals and re-estimated for sIgE. Clinical data were not evaluated.

Performance: sIgE was measured in single runs according to the recommendations of the manufacturers. Assay features and methodological differences are listed in table 1. Calculation: Associations between quantitative sIgE-levels of different assays were calculated using non-parametric Spearman-Ranktest (table 2) and depicted with log scales (fig. 1 and 2). Concordance per allergen was calculated (see table 2), using following formula:

1) Concordance (%) = (% of identical results)/(% of all results per allergen)

2) Concordance = (% of identical and by ±1 class differing results)/(% of all results per allergen)

Results
1. Quantitative values of both systems are associated to different degrees, depending on the specific inhalant allergen (table 2, figure 1): birch > grass > cat > D. pter. > mugwort > dog.

2. Quantitative data of sIgE to FA showed less marked associations (table 2, figure 2); hen’s egg > apple > hazelnut > cow’s milk = wheat > soy.

3. Concordance of semi-quantitative sIgE-levels to inhalants, expressed in classes, was moderate (table 2), but better than between sIgE to food allergens. Considering results with variations of ±1 class, concordance was better for inhalants (> 90%) than for FA (70 to 80%, table 2).

Comments
Values of sIgE to inhalants detected by different in vitro methods show better correlation than sIgE to FA.

Allergens with one dominant major allergen (i.e. t3, e1) seem to be less difficult than complex allergen mixtures (i.e. d1).

Identical units (kU/l) are no guarantee for equivalent sIgE results. The data presented do not allow estimates of the true sIgE concentrations or judgment on superiority of one of the tests over the other.

Conclusions:
Comparative studies are necessary and helpful to define the concordance of sIgE-values detected by different immunoassays.

Lack of concordance (complex allergen mixtures > simple allergens; FA > inhalants) should prompt subsequent improvement of allergens used in test systems detecting specific IgE.

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