Comparision of BioIC® with ImmunoCAP® for Determination of Allergen-Specific IgE in a Population Sample of Asian Children: PATCH Study

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 METHODS

There has been growing interest in the application of microarrays for the measurement of allergen-specific immunoglobulin E (IgE) in the past few years. Specifically, BioIC®, a recently developed microfluidic microarray immunoassay, permits simultaneous determination of specific IgE to multiple allergens in a single step using small amount of serum, at a relatively low cost.

This study aimed to assess the performance of BioIC® in comparison with that of a well-established assay, ImmunoCAP®, in a population sample of Asian children.

 An inter-assay comparison of BioIC® AD40 panel and ImmunoCAP® was performed using serum samples from a population-based sample of 190 atopic children aged 5-18 years participating in the Prediction of Allergies in Taiwanese Children (PATCH) study.

We compared the performance of the two assays for detecting specific IgE to twelve major inhalant and food allergens (Dermatophagoides pteronyssinus, German cockroach, dog dander, cat dander, egg white, milk, codfish, shrimp, crab, wheat, peanut and soybean).

 RESULTS

There has been growing interest in the application of microarrays for the measurement of allergen-specific immunoglobulin E (IgE) in the past few years. Specifically, BioIC®, a recently developed microfluidic microarray immunoassay, permits simultaneous determination of specific IgE to multiple allergens in a single step using small amount of serum, at a relatively low cost.

This study aimed to assess the performance of BioIC® in comparison with that of a well-established assay, ImmunoCAP®, in a population sample of Asian children.

The results of BioIC® and ImmunoCAP® in a population-based sample of 190 atopic children aged 5-18 years in the Prediction of Allergies in Taiwanese Children (PATCH) study.

High agreement was observed between the results of both assays for detecting allergen-specific IgE, with an average total agreement rate of 81.5% (95% CI: 76.0-87.0%), ranging from 66.3% (95% CI: 59.6-73.0%) for egg white to 96.3% (95% CI: 93.6-99.0%) for soybean.

 The one-class agreement rate ranged from 60.5% (95% CI: 53.6-67.5%) for D. pteronyssinus to 99.5% (95% CI: 94.8-100.0%) for soybean, with an average of 92.9%.

 CONCLUSIONS

These data demonstrate high agreement between the results of BioIC® and ImmunoCAP® in a population-based setting, indicating that BioIC® may serve as an accurate and cost-effective alternative for multiplexed determination of allergen-specific IgE.

REFERENCES