

Comparison of specific immunoglobulin E with the skin prick test in the diagnosis of house dust mites and cockroach sensitization in patients with asthma and/or allergic rhinitis

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Abstrak

Background: nowadays, specific IgE measurement has been conducted in Indonesia, however there is still lack of data regarding diagnostic test to detect inhalant allergen in patients with respiratory allergies. This study aimed to determine the accuracy of specific IgE test in diagnosing specific sensitization of inhalant allergen in patients with respiratory allergies.

Methods: this was a cross sectional study in patients with respiratory allergies and part of epidemiology study regarding to specific IgE sensitization in Allergy-Immunology Division, Cipto Mangunkusumo Hospital, Jakarta within November-December 2016. Measurement of specific IgE sensitization using Immunoblot method (Euroline, Euroimmun AG, Germany). The tested allergen is house dust mites *Dermatophagoides pteronyssinus* (Der p), *Dermatophagoides farinae* (Der f), *Blomia tropicalis* (Blo t) and cockroach *Blattella germanica* (Bla g). The result is compared with gold standard, skin prick test. The diagnostic result includes sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV), positive likelihood ratio (LR+), and negative likelihood ratio (LR-).

Results: a total of 101 patients were enrolled; 77 (76.2%) were women. Patients mean age was 38.8 years old. Based on SPT, sensitization was highest for Blo t (76.2%), followed by Der p (70.3%), Der f (69.3%), and Bla g (41.6%). Specific IgE-sensitization was highest for Der f (52.9%), followed by Der p (38.2%), Blo t (33.3%) and Bla g (10.8%). Der p allergen had 50.7% sensitivity, 90% specificity, 92.3% PPV, 43.5% NPV, 5.1 LR+ and 0.1LR-. Der f showed 71.4% sensitivity, 87.1% specificity, 82.6% PPV, 57.4% NPV, 5.5 LR+ and 0.3 LR-. Blo t allergen had 41.6% sensitivity, 91.7% specificity, 94.1% PPV, 32.8% NPV, 5.0 LR+, and 0.6 LR-. Bla g allergen had 23.8% sensitivity, 98.3% specificity, 90.9% PPV, 64.4% NPV, 14.5 LR+ and 0.8 LR-.

Conclusion: serum specific IgE testing to common inhalant allergen in patients with respiratory allergy showed only low-to-moderate sensitivity, but high specificity and PPV. This new assay can be used to diagnose allergen sensitization in the population with high prevalence of TDR and cockroach.