The differences in serum quantitative specific ige levels induced by dermatophagoides pteronyssinus, dermatophagides farinae, and blomia tropicalis sensitization in intermittent and persistent allergic asthma

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Abstrak

Background: house dust mites (HDM) are an important inhalant allergen in allergic asthma. However, molecular diagnostic study of specific IgE to HDM allergens has not been done in Indonesia. In addition, the association of quantitative specific IgE measurement with asthma severity has not been investigatedd. This study aimed to investigate the difference of serum quantitative specific IgE levels induced by Dermatophagoides (D.) pteronyssinus, D. farinae and Blomia tropicalis sensitization in intermittent and persistent allergic asthma. Methods:this was a cross-sectional study on adult allergic asthma patients who were invited for serum specific IgE testing. This study was a part of a larger study within the Division of Allergy and Immunology, Cipto Mangunkusumo Hospital. Asthma severity was defined based on Global Initiative on Asthma (GINA) 2015 criteria and were grouped as intermittent or persistent. Quantitative specific IgE testing was done on blood serum using a multiple allergosorbent test (Polycheck Allergy, Biocheck GmbH, Munster, Germany). The HDM allergens tested were D. pteronyssinus, D. farinae, and Blomia tropicalis. Difference between two groups were analyze using Mann-Whitney test. Results: a total of 87 subjects were enrolled in this study; 69 (79.3%) were women. Mean patients' age was 40, 2 years. Sixty-three (72.4%) subjects had asthma and allergic rhinitis. Fifty-eight (66.7%) subjects were classified as persistent asthma. The prevalence of sensitization was 62.1% for D. farinae, 51.7% for D. pteronyssinus, and 48.3% for Blomia tropicalis. The median of specific IgE levels were significantly higher in persistent asthma compares to intermittent asthma induced by D. farinae (median 1.30 vs. 0.0 kU/L; p=0.024) and B. tropicalis (median 0.57 vs. 0.0 kU/L; p=0.015) sensitization. Level of Specific IgE D. pteronyssinus was also to be higher in persistent asthma than the level measured in intermittent asthma (0.67 vs. 0.00 kU/L; p=0.066). Conclusion: Sensitization of HDM allergens was shown to be highest for D. farinae 62.1%, followed by D. pteronyssinus 51.7% and Blomia tropicalis 48.3%. Specific IgE level induced by D. farinae and Blomia tropicalis sensitization were significantly higher in patients with persistent asthma compared to intermittent asthma, whereas specific IgE level induced by D. pteronyssinus sensitization was higher in persistent asthma although not statistically significant.

.....Latar belakang: tungau debu rumah (TDR) merupakan alergen hirup yang penting pada asma alergik. Namun, penelitian diagnostik molekuler menggunakan Imunoglobulin E (IgE) spesifik akibat sensitisasi alergen TDR dihubungkan dengan derajat keparahan asma alergik belum pernah dilakukan di Indonesia. Penelitian ini bertujuan mengetahui perbedaan kadar IgE spesifik serum kuantitatif akibat sensitisasi alergen Dermatophagoides (D.) pteronyssinus, D. farinae dan Blomia (B.) tropicalis pada asma alergik intermiten dan persisten. Metode: desain penelitian potong lintang pada pasien asma alergik dewasa yang diundang untuk pemeriksaan IgE spesifik serum dan merupakan bagian dari penelitian payung di Divisi Alergi dan Imunologi Klinik, RS Cipto Mangunkusumo. Derajat keparahan asma ditentukan berdasarkan kriteria Global Initiative on Asthma (GINA) 2015 dan dikelompokkan menjadi intermiten dan persisten. Pemeriksaan IgE spesifik serum kuantitatif menggunakan metode multiple allergosorbent test (Polycheck

Allergy, Biocheck GmbH, Munster, Germany). Alergen TDR yang diperiksa adalah D. pteronyssinus, D. farinae, dan B. tropicalis. Perbedaan antara dua kelompok dianalisis dengan uji Mann-Whitney. Hasil: sebanyak 87 subyek dilibatkan dalam penelitian ini; 69 (79,3%) subyek adalah perempuan. Rerata usia pasien adalah 40,2 tahun. Enam puluh tiga (72,4%) pasien menderita asma dan rinitis alergik. Sebanyak 58 (66,7%) pasien asma persisten. Gambaran sensitisasi alergen TDR adalah 62,1% D. farinae; 51,7% D. pteronyssinus dan 48,3% B.tropicalis. Median kadar IgE spesifik secara bermakna lebih tinggi pada asma persisten dibandingkan asma intermiten untuk alergen D. farinae (1,30 vs. 0,0 kU/L; p=0,024) dan B. tropicalis (0,57 vs. 0,0 kU/L; p=0,015). Kadar IgE spesifik D. pteronyssinus lebih tinggi pada asma persisten dibandingkan intermiten (0,67 vs. 0,00 kU/L; p=0,066). Kesimpulan: gambaran sensitisasi alergen secara berurutan didapatkan D. farinae 62,1%, D. pteronyssinus 51,7% dan B. tropicalis 48,3%. Kadar IgE spesifik akibat sensitisasi D. farinae dan B. tropicalis lebih tinggi secara bermakna pada pasien asma persisten dibandingkan asma intermiten. Kadar IgE spesifik akibat sensitisasi D. pteronyssinus lebih tinggi pada pasien asma persisten dibandingkan asma intermiten, tetapi secara statistik tidak bermakna.