



Sensitization to the mosquito allergens, Aed a 1 and Aed a 2 in patients with papular urticaria from two Colombian cities with different altitude

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Background: Papular urticaria is a common pediatric dermatologic condition in the tropics. It is caused by a chronic hypersensitivity reaction to insect components found in the saliva. There is no information about the allergic response to mosquito allergens in patients with this disease.

Objective: To evaluate IgE sensitization to recombinant Aed a1 and Aed a2 in Colombian patients with papular urticaria.

Methods: One hundred and one patients diagnosed with papular urticaria were included in the study. They belonged to two different cities: Cartagena (located in the Caribbean coast, n = 62) and Bogotá (2600 m above the sea level, n = 39). Recombinant molecules were produced in *Escherichia coli* as His-tag fusion proteins and purified by 0.2 % N-lauroyl sarcosine solubilization and Ni-NTA chromatography under native conditions. Specific serum IgE levels to the recombinant allergens Aed a1 and Aed a2 were detected using indirect ELISA. A positive response to the recombinant allergens were calculated as the mean optical density of three European, non-exposed healthy controls + 3 standard deviations.

Results: Sensitization to rAed a 1 was similar among the two cities: 74 % in Cartagena and 81 % in Bogotá. In contrast, rAed a 2 sensitization was higher in Cartagena (82.2 %) than in Bogotá (51 %, p = 0.01); rAed a 1- and rAed a 2-specific IgE levels were moderately correlated in Cartagena (Spearman-rho: 0.4, p < 0.001) and Bogotá (Spearman-rho: 0.4, p < 0.002).

Conclusions: A geographical pattern of sensitization is detected for Aed a2 in patients with papular urticaria. A lower sensitization to this allergen in Bogotá may be due to the limitation of *Aedes aegypti* to live in high altitude places.

Keywords: Papular urticaria; Mosquito allergens