THE FIRST CLINICAL STUDY OF ARA H 6 RELEVANCE IN A PEDIATRIC PEANUT ALLERGY POPULATION IN THE UNITED STATES (US).

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Background: Peanut allergy (PA) diagnostic testing has poor positive predictive accuracy leading to 60% over-diagnosis. There is growing interest in the diagnostic potential of the component Ara h6 as it shares 60% sequence identity with Ara h 2, the best marker for peanut allergy, and is conformationally similar. Although no US patients have been described to date, European studies have shown data regarding Ara h6 relevance, with central Europe showing an Ara h2 -Ara h6 IgE-sensitization pattern and a more severe peanut allergy phenotype and Mediterranean countries showing an Ara h6-Ara h 9 pattern and mild to no symptoms. We present the first study evaluating the diagnostic utility of Ara h6 in a US peanut allergic population. We hypothesize that our patient population will follow the Ara h2-Ara h6 pattern with Ara h6 sensitization indicating more severe peanut allergy.

Materials/Methods: Patients evaluated for PA at the Texas Children's Hospital allergy clinic underwent peanut skin prick (SPT), specific IgE (sIgE), and component testing for Ara h 1,2,3,6,8, and 9 sIgE. Patients were categorized as allergic, non-allergic, or indeterminate based on SPT and sIgE 95% positive predictive values. Pearson correlation coefficient was used to correlate Ara h6 to other components and p-values<0.05 were considered significant.

Results: Forty-one diverse patients (6m-18yrs) were recruited and categorized as allergic (n=16), indeterminate (n=21), and non-allergic (n=4). Ara h6 was the highest component in 25% of allergic children (n=4;17.8-62.1kU/L). Ara h2 and 6 values ranged from 4.12-100kU/L and 3.61-100kU/L in the allergic group, and <0.10-24.4kU/L and <0.10-11.4kU/L in the indeterminate group, respectively. Both component values were <0.10 kU/L in the non-allergic group. In the allergic and indeterminate groups, Ara h6 showed significant correlation with Ara h2 (r=0.86,p<.0001; r=0.95,p<.00001, respectively), and moderately positive correlation with Ara h8 (r=0.56,p=0.03) in the allergic group. Ara h6 was not correlated with Ara h8 or 9 in the indeterminate or non-allergic groups.

Conclusions: Ara h6 was the dominant component binding IgE in 25% of peanut allergic patients with significant association with Ara h2, demonstrating it to be a relevant component with future diagnostic and therapeutic potential.

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