

Is there a correlation between Ara h2 immunoglobulin E level and reactivity threshold in peanut allergic adults?

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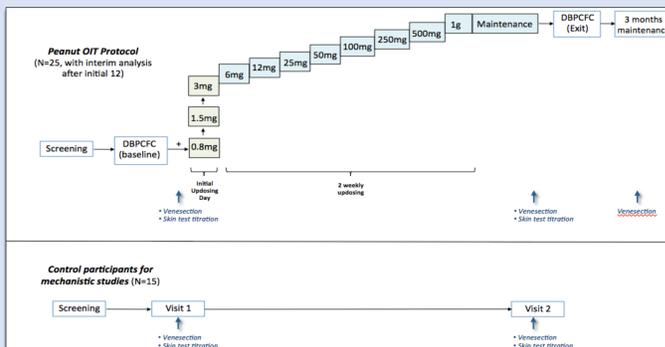
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Introduction & Method

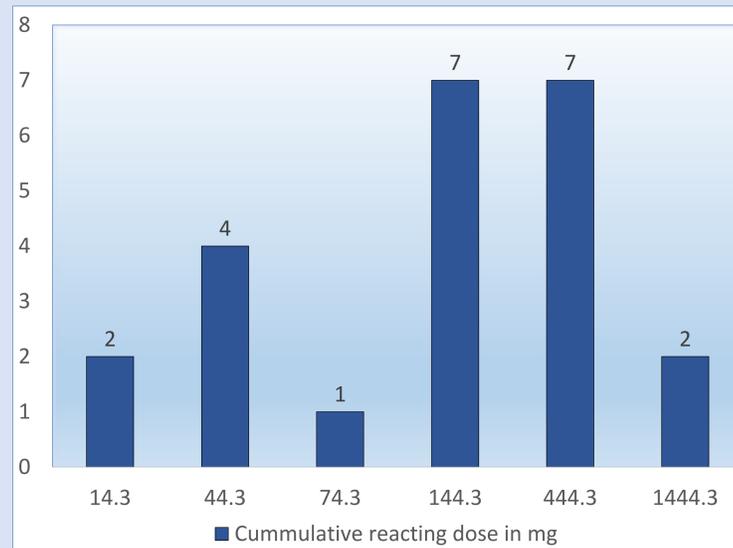
Component-resolved diagnostics have improved the diagnosis of peanut allergy with Ara h2 immunoglobulin E (IgE) remaining the best predictor of patients at risk of severe systemic reactions.¹ However, studies correlating Ara h2 IgE levels with reactivity thresholds in allergic individuals are lacking, particularly in adults.

A review of patients participating in The Grown Up Peanut Immunotherapy Study (GUPI) was undertaken. All underwent double-blind placebo-control food challenges (DBPCFC) to establish baseline reactivity prior to initiating peanut oral immunotherapy. Active peanut protein doses were 0.3mg, 1mg, 3mg, 10mg, 30mg, 100mg and 300mg. Challenges were scored using PRACTALL guidelines² with doses repeated according to clinical judgement.

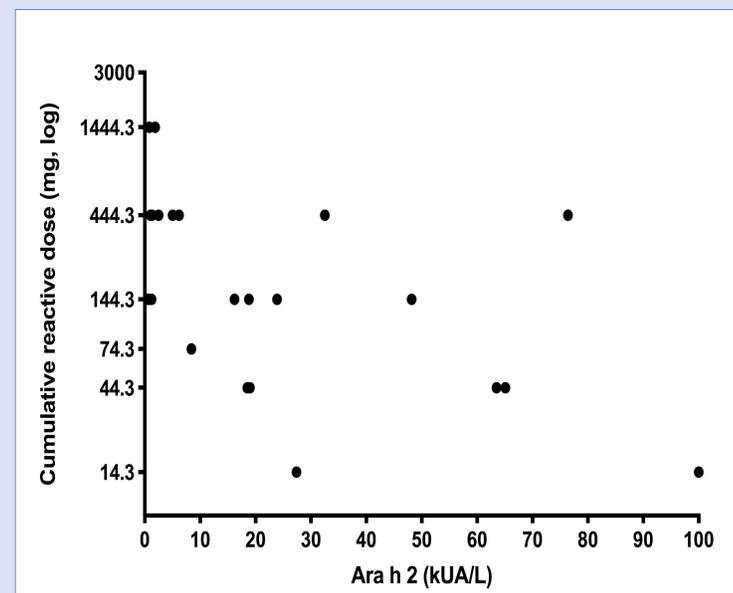


Results

Number of patients reacted at various cumulative dose of peanut protein



Spearman's correlation of Ara h 2 IgE level with cumulative reactive dose



23 adult patients (15 male; mean age 24) underwent DBPCFC.

The median Ara h 2 level was 23.00 kUA/L.

2 patients reacted at cumulative dose of 14.3 mg peanut protein with Ara h 2 level of (27.40 – 100.00 kUA/L)

4 at 44.3 mg (18.50 – 63.50 kUA/L)

1 at 74.3 mg (8.42 kUA/L)

7 at 144.3 mg (0.61 – 48.20 kUA/L)

7 at 444.3 mg (1.04 – 76.40 kUA/L)

2 at 1444.3 mg (0.82 – 1.90 kUA/L).

The latter two had recurrent subjective symptoms up to cumulative dose of 444.3 mg (negative challenge at 300mg).

An arbitrary reactive dose of 1000 mg (1444.3mg cumulative) was assigned for analysis.

Ara h 2 was found to be significantly correlated with cumulative reacting dose with Spearman's correlation of $r = -0.523$; 95% CI: -0.775 to -0.129 ; $p = 0.01$.

Discussion

Ara h2 IgE levels correlated inversely to the cumulative reactive dose of peanut protein, suggesting biomarker potential for predicting reactivity threshold in peanut allergic adults. More data from further DBPCFCs are required to confirm this finding.

Reference

1. Lieberman JA et al. The utility of peanut components in the diagnosis of IgE-mediated peanut allergy among distinct populations. *The Journal of Allergy and Clinical Immunology in Practice* 2013; 1(1): 75-82.

2. Sampson HA et al. Standardizing double-blind, placebo-controlled oral food challenges: American Academy of Allergy, Asthma & Immunology-European Academy of Allergy and Clinical Immunology PRACTALL consensus report. *The Journal of Allergy and Clinical Immunology* 2012; 130(8): 1260-1274.

Conflicts of interest

The authors do not have any relevant conflicts of interest to declare.

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