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Peanut allergy: Children who lose the positive skin test response

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To the Editor:

Hourihane et al¹ reported that some children lose clinical sensitivity to peanut (including some who “lose” the positive skin test response) and that these children seemed to be less atopic, but the data were controversial.² Kelso³ recently reported a case history in which a child lost the positive skin test response to peanut, which was believed to be a rare occurrence. Given the importance,⁴ we prospectively examined this question.

Ninety-six consecutive children with positive skin test responses to peanut (visit 1), regardless of whether they had had a clinical reaction, and who returned more than 1 year later in 1999 for retesting (visit 2) were characterized.

Skin tests were performed by the prick method and were measured in 2 directions, at the longest diameter and then at a right angle to that. The average of these 2 measures is reported. Reactions were tested to milk, egg, wheat, soy, peanut, cat, dog, horse, tree, grass, ragweed, *Alternaria*, *Cladosporium*, *Aspergillus*, *Dermatophagoides farinae*, *Dermatophagoides pteronyssinus*, and a series of nuts including almond, Brazil nut, cashew, coconut, hazelnut, pecan, pistachio, and walnut (Bencard Ltd, Toronto, Canada).

They were also tested with any food identified by history as a problem. Skin tests were positive if they measured at least 3 mm in 1 direction,⁵ and peanut testing was always performed in duplicate with 2 different lots. For purposes of this study, a positive reaction to either or both dust mite species, 1 or more of the nuts, 1 or more fish species, and 1 or more shellfish species counted as 1 reaction for each group. At visit 2, if reactions to the peanut test solutions were negative, patients' responses were tested to peanut butter itself, and then a RAST test was done (CAP-RAST; Pharmacia Upjohn Ltd, Montreal, Canada). If the RAST result was also negative, an open oral challenge was undertaken in the office.

Statistical analyses were used to test each variable for a significant difference between those who retained a positive skin test reaction to peanut and those who lost the positive reaction. A *t* test was used for the skin test responses and age, whereas for categorical binary (yes/no) data, the χ^2 Fisher exact test (2 sided) was used.

Of the 96 patients, 66 had a history of clinical reaction to peanut, including 1 or more of hives, erythema, angioedema, vomiting, and respiratory symptoms; the rest were found to have positive skin test reactions without ever knowingly having had peanut.⁶ At visit 2, it was found that 10 patients had lost the positive skin test response (8 of whom had a prior history of clinical reaction to peanut), had negative responses to RAST testing, and successfully underwent oral challenge without reacting. At visit 1 there was no significant difference in symptoms between the 2 groups (Table I; only respiratory symptoms shown), but the size of the positive skin test to peanut was significantly smaller in those had lost the positive response than in those who had not (Table I; *P* = .024).

Table I. Patient data at the first and last visits

	All	Group			
		Retain	Lose	<i>P</i>	
Visit 1					
No. of patients		96	86	10	
Age (mo)		28.5	28.8	25.9	.65
No. of patients with history of reaction (%)		66 (68.75)	58 (67.44)	8 (80)	.72
No. of patients with respiratory symptoms (%)		13 (19.7)	13 (22.4)	0	.34
Peanut size (mm)		9.4	9.8	5.8	.024
No. of positive skin tests at V1		2.2	2.3	1.3	.146
Visit 2					
No. of patients		96	86	10	
Time elapsed between V1 and V2 (mo)		42.1	42.8	35.8	.42
No. of positive skin tests at V2		6.1	6.7	0.8	<.0001

No. of patients positive to nuts (%)	56 (58.3)	55 (64)	1 (10)	.0014
No. of patients with asthma (%)	65 (67.7)	62 (72.1)	3 (30)	.012
No. of patients reacting to a food between V1 and V2 (%)	—	26 (30.2)	0	.057
V1, Visit 1; V2, visit 2.				

At visit 2, those who lost the positive response had significantly fewer total positive skin test results (0.8 ± 1.5 vs 6.7 ± 3.9 , $P < .0001$), less positivity to nuts ($P = .0014$), less asthma ($P = .012$), and no reactions to foods, including peanut, between visit 1 and visit 2 (Table I). Of the 86 patients who retained the positive response to peanut, 26 had a total of 41 further reactions to food (7 peanut) ($P = .057$) (Table I).

The data confirm that some children lose the positive skin test response to peanut and are less atopic than those who retain the positive response. Although they represented only 10% of the patients who had positive peanut skin test results at visit 1, it is important to identify them and perform the oral challenge because peanut can be reintroduced into their diet.

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