Dietary baked egg accelerates resolution of egg allergy in children

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(Abstract)

Background
Baked egg is tolerated by a majority of egg-allergic children.

Objective
To characterize immunologic changes associated with ingestion of baked egg and evaluate the role that baked egg diets play in the development of tolerance to regular egg.

Methods
Egg-allergic subjects who tolerated baked egg challenge incorporated baked egg into their diet. Immunologic parameters were measured at follow-up visits. A comparison group strictly avoiding egg was used to evaluate the natural history of the development of tolerance.

Results
Of the 79 subjects in the intent-to-treat group followed for a median of 37.8 months, 89% now tolerate baked egg and 53% now tolerate regular egg. Of 23 initially baked egg–reactive subjects, 14 (61%) subsequently tolerated baked egg and 6 (26%) now tolerate regular egg. Within the initially baked egg–reactive group, subjects with persistent reactivity to baked egg had higher median baseline egg white (EW)-specific IgE levels (13.5 kUA/L) than those who subsequently tolerated baked egg (4.4 kUA/L; P = .04) and regular egg (3.1 kUA/L; P = .05). In subjects ingesting baked egg, EW-induced skin prick test wheal diameter and EW-, ovalbumin-, and ovomucoid-specific IgE levels decreased significantly, while ovalbumin- and ovomucoid-specific IgG4 levels increased significantly. Subjects in the per-protocol group were 14.6 times more likely than subjects in the comparison group (P < .0001) to develop regular egg tolerance, and they developed tolerance earlier (median 50.0 vs 78.7 months; P < .0001).

Conclusion
Initiation of a baked egg diet accelerates the development of regular egg tolerance compared with strict avoidance. Higher serum EW-specific IgE level is associated with persistent baked and regular egg reactivity, while initial baked egg reactivity is not.

Key words: Egg allergy, baked egg, heated egg, food allergy, egg tolerance, oral food challenge, egg oral immunotherapy

Abbreviations used: EoE, Eosinophilic esophagitis, EW, Egg white, OFC, Oral food challenge, OIT, Oral immunotherapy, OVA, Ovalbumin, OVM, Ovomucoid, SPT, Skin prick test

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