

Correspondence

Egg: A frequent trigger of food protein–induced enterocolitis syndrome

To the Editor:

We read with interest the article entitled “Food protein–induced enterocolitis to hen’s egg.”¹ We write to highlight that egg is a frequent trigger of food protein–induced enterocolitis syndrome (FPIES) in our recent cohort of patients.

Clinical data from children referred with suspected FPIES to the allergy outpatient unit at the Children’s Hospital at Westmead (Sydney, Australia) from January 2008 to January 2012 were analyzed. Previously published definitions of FPIES were used.² Over the 4-year period, 38 children (53% male) had 95 episodes of FPIES, with a mean age at initial reaction of 6 months. Of the 38 cases, the 5 most common triggers were rice (n = 20), cow’s milk (n = 12), oats (n = 7), soy (n = 5), and egg (n = 4), and 13 children had FPIES to more than 1 food.

The characteristics of those with egg FPIES is presented (Table I). All patients reacted 2 to 3 hours after ingestion of egg. None had FPIES to other foods. There was an average delay of 7 months until diagnosis. Two children had large positive skin test results to egg white.

Patient 1 had a skin prick test (SPT) response to egg white of 7 mm at 15 months (having last had FPIES to egg at 7 months). Patient 2 had a 6-mm SPT response to egg at 2 years and 2 months. Two months later, he ate a muffin containing baked egg in the hospital (2 eggs and 125 mL of cow’s milk in a batch of 12 muffins; he previously tolerated baked milk). Two and a half hours after eating the muffin, he vomited 3 times and became pale. Patient 3 had been avoiding all egg until 4 years of age because a

family member had a history of egg-induced anaphylaxis. After the introduction of egg, he had 12 separate episodes over a 6-month period of vomiting, pallor, lethargy, and bloody diarrhea. The parents reported that he had eaten whole or baked egg 2 to 4 hours before each episode. No further episodes occurred after an egg-free diet was introduced.

Egg is the most common cause of IgE-mediated food allergy in Australian infants,³ yet FPIES to egg has rarely been reported. To date, there have been 6 cases of egg FPIES.^{1,4–6} The patients in these cases all had negative SPT responses, specific IgE (sIgE) levels, or both to egg, and only 1 case mentioned FPIES to baked egg.¹ Atypical cases of FPIES with positive skin test results, sIgE levels to the triggering food, or both have been described, although unlike in 2 of our cases, the skin test results or sIgE levels were small or of low titer.² Only 1 other child in our cohort had a positive SPT response to the triggering food (ie, a small response [3.5 mm] to cow’s milk).

Our current data suggest that (1) rice remains the most common trigger in our cohort, (2) egg is a common FPIES trigger (accounting for 10% of cases), (3) children with egg FPIES should be instructed to avoid both whole and baked egg (and any proposed baked egg challenges should be done in the hospital), and (4) egg FPIES might be accompanied by large positive skin test responses to egg white.

Peter Hsu, MBBs
Sam Mehr, FRACP

From the Department of Allergy and Immunology, Children’s Hospital at Westmead, Sydney, Australia. E-mail: samm@chw.edu.au.

Disclosure of potential conflict of interest: The authors declare that they have no relevant conflicts of interest.

TABLE I. Characteristics of the 4 children with egg FPIES

	Patient 1	Patient 2	Patient 3	Patient 4
Sex	Female	Male	Male	Male
Age at initial FPIES to egg (mo)	6	9	48	6
Age at which FPIES was diagnosed (mo)	14	15	54	15
Atopic disease at initial presentation	Eczema	IgE cow’s milk allergy	Nil	Nil
Description of episodes (age reaction, symptoms, formulation of egg)	Episode 1 (6 mo) • Whole egg • V, L	Episode 1 (8 mo) • Baked egg • V, L, D	Multiple episodes (12×) • V, L, and bloody diarrhea to baked and cooked egg	Episode 1 (6 mo) • Whole egg • V, L
	Episode 2 (7 mo) • Whole egg • V, L	Episode 2 (9 mo) • Whole egg • V, L, P		Episode 2 (7 mo) • Whole egg • V, L
		Episode 3 (2 y) • Baked egg • V		
No. of ED visits caused by egg FPIES (before diagnosis)	1	0	5	1
Tolerating baked egg	Never had	FPIES	FPIES	Never had
Egg white SPT response at time FPIES was diagnosed (mm)	7	7 (6 mm by 2 y and 2 mo of age)	0	0
Current outcome	Avoiding all egg (current age 2 y)	Failed baked egg challenge at 2 y	Avoiding all egg (current age 6 y)	Passed egg challenge at 2 y

D, Diarrhea; ED, emergency department; L, lethargy; P, pallor; V, vomiting.

REFERENCES

1. Caubet J-C, Nowak-Węgrzyn A. Food protein-induced enterocolitis to hen's egg. *J Allergy Clin Immunol* 2011;128:1386-8.
2. Sicherer SH. Food protein-induced enterocolitis syndrome: case presentations and management lessons. *J Allergy Clin Immunol* 2005;115:149-56.
3. Koplin JJ, Osborne NJ, Wake M, Martin PE, Gurrin LC, Robinson MN, et al. Can early introduction of egg prevent egg allergy in infants? A population-based study. *J Allergy Clin Immunol* 2010;126:807-13.
4. Fogg MI, Brown-Whitehorn TA, Pawlowski NA, Spergel JM. Atopy patch test for the diagnosis of food protein-induced enterocolitis syndrome. *Pediatr Allergy Immunol* 2006;17:351-5.
5. McDonald PJ, Goldblum RM, Van Sickle GJ, Powell GK. Food protein-induced enterocolitis: altered antibody response to ingested antigen. *Pediatr Res* 1984;18:751-5.
6. Hwang JB, Sohn SM, Kim AS. Prospective follow-up oral food challenge in food protein-induced enterocolitis syndrome. *Arch Dis Child* 2009;94:425-8.

<http://dx.doi.org/10.1016/j.jaci.2012.08.045>