

years, the number of episodes before diagnosis remained the same, indicating continued misdiagnosis. This, along with the inappropriate and sometimes risky treatments used in error, points out the need for greater awareness of the symptom pattern and triggers, especially rice, milk, and soy.

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### Prospective Follow-up Oral Food Challenge in Food Protein-Induced Enterocolitis Syndrome

Hwang JB, Sohn SM, Kim AS. *Arch Dis Child*. 2009; 94(6):425–428

**PURPOSE OF THE STUDY.** To determine tolerance rates to cow's milk and soy for infants affected by food protein-induced enterocolitis syndrome (FPIES).

**STUDY POPULATION.** Twenty-three patients (7 female and 16 male) with infantile FPIES were prospectively followed.

**METHODS.** Infants with a diagnosis of FPIES were diagnosed by positive oral food challenges for milk or soy formula at 36 days of age (SD: 14 days; range: 13–58 days). These infants were prospectively followed until >2 years of age. They underwent  $\geq 2$  follow-up oral challenges. The first follow-up oral challenges were performed at 6 months of age, and patients were randomly allocated to either milk ( $N = 11$ ) or soy ( $N = 12$ ). Second and third follow-up oral challenges were performed at 2-month intervals, in a crossed and switched-over manner. The challenge consisted of a single open oral feeding of 0.03 to 0.05 mg of cow's milk protein or soy protein per kg of body weight.

**RESULTS.** Seventy-two oral food challenges with cow's milk or soy were performed in 23 patients with FPIES. There were 27 positive challenges (37.5%). For all positive challenges, projectile vomiting and lethargy were noted at ~1 to 4.5 hours. Symptoms less commonly seen were cyanosis in 6 challenges (22.2%) and hypotension in 3 challenges (11.1%). No false-negative challenges were seen among the 45 negative challenges. Tolerance rates for milk at 6, 8, and 10 months of age were 27.3%, 41.7%, and 63.6%, respectively. Tolerance rates for soy at 6, 8, and 10 months of age were 75.0%, 90.9%, and 91.7%, respectively. Mean ages for outgrowing reactivity to cow's milk and soy among the 23 patients were 12.0 months (SD: 4.4 months; range: 6–20 months) and 7.8 months (SD: 2.1 months; range: 6–14 months), respectively. Solid-food FPIES was observed in 2 of the patients (rice, beef, and egg in 1 child >11 months of age and fish and shellfish in 1 child >12 months of age). These 2 children became tolerant to these foods after 2 years of age.

**CONCLUSIONS.** The study reveals that infants with FPIES lose intolerance to soy protein at an earlier age, compared with cow's milk. The authors suggest that soy oral challenge should be performed at 6 to 8 months of age and that milk oral challenge should be conducted when the child is >1 year of age. Challenge should be conducted under close medical supervision. The authors also found that a smaller than previously published challenge dose (0.03 to 0.05 mg of cow's milk or soy protein per kg of body weight) was adequate in inducing symptoms.

**REVIEWER COMMENTS.** Performing oral challenges in infants affected by FPIES is not a light undertaking, as evidenced by the number of children who had a positive oral challenge, cyanosis, and hypotension. This article gives insight to clinicians regarding when and how to perform oral challenges for infants affected by milk and/or soy protein-induced enterocolitis syndrome.

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### Rice: A Common and Severe Cause of Food Protein-Induced Enterocolitis Syndrome

Mehr SS, Kakakios AM, Kemp AS. *Arch Dis Child*. 2009;94(3):220–223

**PURPOSE OF THE STUDY.** To examine the characteristics of children presenting with food protein-induced enterocolitis syndrome (FPIES) attributable to rice and to determine whether there were any differences from those presenting with cow's milk and/or soy FPIES.

**STUDY POPULATION.** Retrospective study of 31 children presenting with FPIES (14 with rice and 17 with milk/soy) to the Children's Hospital at Westmead, Australia, during a 16-year period (1992–2007).

**METHODS.** Possible cases of FPIES were identified from the hospital medical record database and from electronically stored departmental letters written by allergists/immunologists. Previously published criteria were used for the diagnosis of FPIES, and cases were differentiated into typical and atypical presentations. The Mann-Whitney  $U$  test or Student's  $t$  test was used for comparisons between nonparametric and parametric continuous variables.  $P < .05$  was considered significant.

**RESULTS.** There were 14 children with 26 episodes of rice FPIES, compared with 17 children with 30 episodes of cow's milk ( $n = 10$ ) and soy ( $n = 7$ ) FPIES. Children with rice FPIES were more likely to have FPIES caused by another food (36%) than were children with FPIES caused by cow's milk/soy (0%). Rice triggered more severe reactions, resulting in higher rates of intravenous

fluid resuscitation (42% vs 17%), compared with reactions caused by cow's milk/soy.

**CONCLUSIONS.** This study emphasizes the emerging importance of rice, a food commonly thought to be "hypoallergenic," as a significant trigger of FPIES. Episodes triggered by rice caused more severe reactions requiring intravenous fluid resuscitation than did episodes caused by cow's milk or soy.

**REVIEWERS COMMENTS.** Clinicians who take care of infants should be aware that rice can cause FPIES and such reactions may be more severe than those caused by cow's milk and/or soy. The clinical presentation can mimic sepsis or an intraabdominal surgical emergency. It is important to consider the diagnosis of rice FPIES, particularly when evaluating children 3 to 6 months of age presenting with vomiting and/or diarrhea ~2 hours after ingesting the suspect food. Infants with rice FPIES tend to have multiple episodes, to have more severe reactions, and to require admissions to the hospital before the final diagnosis is correctly made.

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### **Impact of Peanut Allergy on Quality of Life, Stress and Anxiety in the Family**

King RM, Knibb RC, Hourihane JOB. *Allergy*. 2009; 64(3):461–468

**PURPOSE OF THE STUDY.** To determine the impact of peanut allergy (PA) on quality of life (QoL) and reported anxiety of children with PA, their parents, and their older siblings.

**STUDY POPULATION.** Participants included 46 families of children with clinical PA (history of acute allergic symptoms with positive skin-prick test results or specific immunoglobulin E). Inclusion required a non-food-allergic/intolerant older sibling  $\leq 15$  years of age and parents.

**METHODS.** Families completed QoL, anxiety, and perceived stress scales. In addition, parents and siblings completed QoL proxy questionnaires.

**RESULTS.** Mothers rated significantly poorer QoL (psychological and physical) and scored significantly higher on anxiety and stress than did fathers. Children with PA scored significantly lower for QoL (physical health-related, school, and general) and experienced significantly greater separation anxiety than did their siblings. Mothers reported statistically significantly greater impact on QoL of the children with PA, compared with the children themselves, their fathers, or their siblings.

**CONCLUSIONS.** Mothers reported significantly poorer QoL and suffer more anxiety and stress than fathers. Mothers may overestimate the impact of PA on QoL of children with PA. Children with PA have lower QoL and higher separation anxiety than their older siblings.

**REVIEWER COMMENTS.** This work indicates not only that there is an impact of PA on QoL of the family as a unit but also that there are differences in impact on QoL and anxiety between family members. The differences in psychological impact could be related to the different roles played by each member of a family. Mothers may be more involved in meal preparation, care coordination, and health care for the child with PA. It may be helpful for health care providers to encourage shared responsibility when possible and to attempt to include many family members in food allergy-management education. Providing written educational material, encouraging participation in support groups, working on positive coping strategies, and potentially recommending appropriate psychological support may all be helpful interventions to help families cope as a unit.

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### **Evaluation of a Group Intervention for Children With Food Allergy and Their Parents**

LeBovidge JS, Timmon K, Rich C, et al. *Ann Allergy Asthma Immunol*. 2008;101(2):160–165

**PURPOSE OF THE STUDY.** To assess whether a group intervention designed for children with food allergy and their parents could improve parent-perceived competence and decrease parent-perceived burden in coping with food allergy.

**STUDY POPULATION.** Food-allergic, English-speaking children 5 to 7 years of age, without developmental disabilities, and their parents were recruited if they visited an allergist through the Children's Hospital Boston in the year before the study.

**METHODS.** After consent was obtained, questionnaires were completed by the parents before the workshop, immediately after the workshop, and 4 to 8 weeks after the workshop. Parents completed the Family Coping with Food Allergy Questionnaire, which assesses perceived competence, and the Food Allergy Quality of Life-Parental Burden Questionnaire, which assesses the perceived burden in having a child with food allergy. Parents and children completed evaluations of the workshop as well. The workshop was 3.5 hours in length, with parent groups run by a pediatric psychologist and a pediatric allergist or pediatric nurse practitioner. There were presentations regarding various topics related to

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