

STUDY POPULATION. The study included 200 caregiver questionnaires. The questionnaires were distributed among an urban Medicaid-based population affiliated with Cincinnati Children's Hospital Medical Center and a suburban private insurance-based population from Montgomery, Ohio (14 miles outside of Cincinnati, Ohio).

METHODS. A caregiver questionnaire was dispersed at 4-month-old to 3-year-old well-child checkups between January and March 2010. A total of 200 questionnaires were given out evenly among urban and suburban populations. Families were asked the age at which formula and solid foods were introduced and what food was introduced. The questionnaire also included questions relating to demographic characteristics, child's history of atopy, family history, practitioner recommendations on food introduction, and type of insurance. Data were analyzed by using the random forest method to determine which factors affecting the age of introduction were most significant.

RESULTS. Of the 200 questionnaires distributed, 185 were returned (99 from the suburban setting and 86 from the urban setting). The urban population included African Americans with public insurance primarily, whereas the suburban population was largely made up of white non-Hispanics with private health care insurance. In comparing the 2 groups, solids were introduced at similar ages. However, allergenic foods were introduced earlier in the urban population versus the suburban population. Specifically, whole cow's milk, peanut, fish, and egg were all introduced at a statistically significant earlier age in the urban population. The suburban population delayed the introduction of egg, fish, and peanut to 12 months or older on average. The recommended age of introduction by health care professionals was the most significant variable in the introduction of all foods.

CONCLUSIONS. Urban populations introduced allergenic foods earlier than suburban populations. Recommendations made by health care professionals were the most influential factors in food introduction.

REVIEWER COMMENTS. Recent guidelines regarding food introduction have dramatically changed our recommendations to families. As health care providers, we may forget the influence our advice has on many young lives and families. These results emphasize the significance and effectiveness of having clear and concise guidelines in practice. Additionally, this study highlights the gap and need for continued research into appropriate timing for the introduction of allergenic foods, so as to minimize disparities between different populations.

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Grace T. Padron, MD
Vivian P. Hernandez-Trujillo, MD
Miami, FL

Effects of Maternal Dietary Egg Intake During Early Lactation on Human Milk Ovalbumin Concentration: A Randomized Controlled Trial

Metcalf JR, Marsh JA, D'Vaz N, et al. *Clin Exp Allergy*. 2016;46(12):1605-1613

PURPOSE OF THE STUDY. To investigate how maternal dietary egg ingestion during the early postnatal period influences egg protein levels (ovalbumin [OVA]) in breast milk.

STUDY POPULATION. Two thousand thirty-four pregnant women were initially screened for eligibility. One hundred and twenty breastfeeding mothers with a history of allergic disease (excluding egg allergy) whose infants were born at ≥ 36 weeks' gestation were randomized to modify their diet for egg consumption during their infants' first 6 weeks of life.

METHODS. This was a randomized controlled trial in which participants were allocated to 3 groups: high egg consumption (>4 eggs a week), low egg consumption (1-3 eggs a week), or an egg-free group. Baseline data of family history of allergic disease, race, educational level, smoking during pregnancy, pets in the home, and egg intake were collected. Nonblinded participants recorded egg intake prospectively. OVA levels were measured in breast milk and collected at 2, 4, and 6 weeks of lactation. Infant blood samples measuring serum egg-specific IgE and IgG4 were collected at 6 and 16 weeks. All data were obtained prior to egg introduction to the infant.

RESULTS. One hundred and twenty women were randomized: 40 to high-egg, 44 to low-egg, and 36 to egg-free diets. No significant differences were found in baseline characteristics between the groups. One hundred and nine women completed the 6-week intervention. Compliance was 100% (36 of 36 women) in the high-egg group, 95% (40 of 42 women) in the low-egg group, and 23% (7 of 31 women) in the egg-free group. Women in the high-egg group had significantly higher breast milk OVA concentrations than women on an egg-free diet ($P = .036$), but no detectable difference in OVA was seen between the low-egg and egg-free groups at 2, 4, or 6 weeks. One-third of the women did not have detectable breast milk OVA concentrations at any time during the study. Infant egg IgG4 levels were positively associated with average maternal egg ingestion. Each additional egg per week was associated with a 22% increase in infant IgG4 levels.

CONCLUSIONS. Increased maternal egg consumption is associated with more OVA in breast milk and increased serum IgG4 levels in infants, reflecting possible oral tolerance development in breastfed babies.

REVIEWER COMMENTS. Recent studies have demonstrated that sensitization and clinical reactions to eggs can occur early in susceptible individuals, often with reactions occurring at the first exposure to egg. Like the LEAP study for peanut, it would be helpful to be able to use early introduction of egg to promote the development of oral tolerance instead of food allergy. This is the first randomized controlled study to show that increasing amounts of egg in a maternal diet are associated with more egg in breast milk. Infant IgG4 levels also increase proportionally, possibly supporting the development of early oral tolerance.

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Justin Castellow, MD
Angela Hogan, MD
Norfolk, VA

Clinical Features of Food Allergy During the First Year of Life: The ADAPAR Birth Cohort Study

Doğruel D, Bingöl G, Altıntaş DU, Yılmaz M, Güneşer Kendirli S. *Int Arch Allergy Immunol*. 2016;169(3):171–180

PURPOSE OF THE STUDY. To assess the incidence of food allergies and identify risk factors for the development of food allergies in infants.

STUDY POPULATION. The study population was part of the Adana Pediatric Allergy and Risk Factor (ADAPAR) birth cohort study in Adana, Turkey. From February 2010 to February 2011, 1475 infants born at a single center were enrolled. Infants were followed from birth until 1 year of age.

METHODS. At birth, umbilical cord blood was collected, and infants were examined. The infants returned for study visits at 3, 6, and 12 months of age. The subjects' mothers completed questionnaires at birth, at each study visit, and over the phone at 9 months. Skin prick testing (SPT) and serum-specific IgE levels (SSiGE) (cow's milk, hen's egg, soy, wheat, fish, and peanuts) were measured at 6 and 12 months of age. Additional testing was done at 3 and 9 months when there was suspicion of allergic disease. Food allergy (based on clinical history, positive SPT, or positive SSiGE) was confirmed with standardized oral food challenge (OFC).

RESULTS. Of the 1475 study subjects recruited at birth, 1377 infants were enrolled, and 920 had available SSiGE and/or SPT results. While 90 infants (6.5%) were noted to have reactions suspicious for food allergy, a diagnosis of food allergy was confirmed in 33 of 1377 infants (2.4%). Thirty-two of the 33 infants had a positive OFC, and 1 infant had a clinical history consistent with anaphylaxis to milk. The most frequent symptoms reported during OFC were cutaneous (74%, $n = 28$) and gastrointestinal (18%, $n = 7$). The most common allergens confirmed by OFC were milk (51.3%, $n = 20$)

and egg (43.7%, $n = 17$). Infants with confirmed food allergy were significantly more likely to have the following characteristics compared with infants without food allergies: male sex, atopic dermatitis, history of wheezing, and family history of atopy. Multivariate regression analysis showed that having a food-allergic sibling significantly increased the risk for food allergy (OR 18.9, 95% CI 1.59–224.05).

CONCLUSIONS. Food allergy was confirmed in 33 (2.4%) of these infants. The most common food allergy was milk followed by egg, and the most frequent symptom during a positive food challenge was cutaneous. A sibling with food allergy was a significant risk factor for the development of food allergies in infancy.

REVIEWER COMMENTS. This study adds further insight into the characteristics of food allergy in infants with milk and egg allergy being diagnosed as early as 3 to 4 months of age. Worsening eczema was included as an indicator of a positive food challenge; however, it is unclear if eczema was measured objectively, and thus, true IgE-mediated allergy to food may have been overestimated. The timing of food allergy onset is of interest in the setting of an increasing focus on food allergy prevention by intervening during infancy.

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Angela Tsuang, MD, MSc
Julie Wang, MD
New York, NY

Food Allergy Sensitization and Presentation in Siblings of Food-Allergic Children

Gupta RS, Walkner MM, Greenhawt M, et al. *J Allergy Clin Immunol Pract*. 2016;4(5):956–962

PURPOSE OF THE STUDY. To determine the prevalence of food sensitization and clinical food allergy among siblings of food-allergic children.

STUDY POPULATION. Children were enrolled as part of the Chicago Family Cohort Food Allergy study. Eligible families had 1 index child with confirmed food allergy and at least 1 sibling participating in the study. There were 478 food-allergic children and 642 siblings. Of index children, 63.6% were male, and 50% were between the ages of 2 and 5 years. Of siblings, 66.5% were younger than the index child.

METHODS. A structured questionnaire-based interview was performed with each parent. Serum IgE (sIgE) values for 9 common food allergens (egg white, sesame, peanut, soy, cow milk, shrimp, walnut, codfish, and wheat) were measured for each subject. sIgE values ≥ 0.35 KU/L were considered positive. Serum prick tests (SPT) were performed for the same food allergens, with fish mix and shellfish mix used instead of codfish and shrimp. A mean wheal diameter 3 mm greater than the saline control was considered

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