

of onset of allergic disease remains a complicated amalgam of genetic and environmental contributions that have yet to be fully understood.

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Deepa D. Patadia, MD
David R. Stukus, MD
Columbus, OH

Is There a March From Early Food Sensitization to Later Childhood Allergic Airway Disease? Results From Two Prospective Birth Cohort Studies

Alduraywish SA, Standl M, Lodge CJ, et al. *Pediatr Allergy Immunol.* 2017;28(1):30-37

PURPOSE OF THE STUDY. To investigate the association between food sensitization in the first 2 years of life and subsequent asthma and allergic rhinitis (AR) by age 10 to 12 years.

STUDY POPULATION. The study consisted of 2 independent cohorts, with 620 subjects from the high-risk (first-degree relative with atopy) Melbourne Atopic Cohort Study (MACS) and 3094 subjects from the German population-based birth cohort study called LISApplus. Both studies were conducted in countries with relatively high income and high rates of food sensitization and allergic diseases.

METHODS. For both cohorts, researchers assessed sensitization to common aeroallergens and food allergens, with researchers in the MACS doing so at 6, 12, and 24 months via skin prick tests (wheal size ≥ 2 mm) and researchers in the LISApplus doing so at 2 years of age via serum-specific immunoglobulin E antibody level (≥ 0.35 kU_A/l). Allergic outcomes were defined by questionnaire responses at 10 (LISApplus) and 12 (MACS) years. Logistic regression analysis was performed to calculate odds ratios that were adjusted (aORs) for confounding factors (eczema and/or wheeze by the age at which sensitization was assessed).

RESULTS. Sensitization to food only, compared with non-sensitized children, at 12 months in the MACS and 24 months in the LISApplus was associated with an increased risk of current asthma (aOR = 2.2 in the MACS; aOR = 4.9 in the LISApplus), with similar results for AR. Cosensitization to food and aeroallergens was a stronger predictor of asthma and AR at any tested point in both cohorts (at 24 months: asthma aOR = 8.3 in the MACS and aOR = 14.4 in the LISApplus; AR aOR = 3.9 in the MACS and aOR = 7.6 in the LISApplus).

CONCLUSIONS. The findings of these prospective birth cohort studies suggest that food sensitization in the first 2 years of life leads to an increased risk of the subsequent development of asthma and AR.

REVIEWER COMMENTS. The role of food sensitization in the atopic march from eczema to allergic airway disease is not fully clear. The authors of this study establish a link between early food sensitization and asthma and AR at age 10 to 12 years, even while controlling for confounding factors such as aeroallergen sensitization and early-life eczema and/or wheeze. This association is increasingly relevant in light of recent evidence that early peanut introduction can successfully prevent peanut allergy. With this study, the authors raise the as-of-yet unanswered question of whether such interventions could potentially impact not only the incidence of food allergy but also the subsequent development of allergic rhinitis and asthma.

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Rory Nicolaidis, MD
Christopher P. Parrish, MD
Dallas, TX

Fish Intake During Pregnancy or Infancy and Allergic Outcomes in Children: A Systematic Review and Meta-analysis

Zhang GQ, Liu B, Li J, et al. *Pediatr Allergy Immunol.* 2017;28(2):152-161

PURPOSE OF THE STUDY. To review the effect of fish intake during pregnancy or infancy on allergic outcomes.

STUDY POPULATION. This was a meta-analysis of 1 randomized controlled trial (RCT) and 13 prospective cohort studies. The researchers conducting the RCT enrolled infants at risk for atopy (at least 1 first-degree relative affected by atopy, asthma, or allergy by self-report). The researchers conducting the cohort studies enrolled healthy pregnant women or infants without selection for atopic disease. Studies were conducted in North America, Europe, and Asia.

METHODS. PubMed, Embase, and the Cochrane Central Register of Controlled Trials were searched for records reporting the effect of dietary fish intake during pregnancy or infancy on clinical outcomes of allergic disease or sensitization in children. In all studies, the primary intervention was high versus low or no fish intake during pregnancy or infancy. Outcomes of interest were atopic dermatitis (AD), allergic rhinitis (AR), wheezing, asthma, and food allergy defined by parental report of symptoms or physician diagnosis (direct or by parental report), and sensitization (positive skin prick test result or elevated specific immunoglobulin E) to any food or inhalant allergen. Statistical analysis was performed with attempts to control for confounding factors, family history of allergic disease, and early signs of atopy.

RESULTS. In 1 RCT, researchers enrolled 123 mother-child pairs to receive 300 g of farmed salmon per week or a habitual diet low in oily fish starting at 20 weeks' gestation. Eighty-six infants were evaluated at 6 months,

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