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


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 LISAplus. 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 LISAplus doing so at 2 years of age via serum-specific immunoglobulin E antibody level (≥0.35 kU/L). Allergic outcomes were defined by questionnaire responses at 10 (LISAplus) 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 nonsensitized children, at 12 months in the MACS and 24 months in the LISAplus was associated with an increased risk of current asthma (aOR = 2.2 in the MACS; aOR = 4.9 in the LISAplus), with similar results for AR. Co sensitization 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 LISAplus; AR aOR = 3.9 in the MACS and aOR = 7.6 in the LISAplus).

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-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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