Food Allergy

IGE-MEDIATED FOOD ALLERGY

Clinical Factors Associated With Peanut Allergy in a High-Risk Infant Cohort

PURPOSE OF THE STUDY: This study examined factors associated with the development of peanut allergy in high risk infants.

STUDY POPULATION: The study included 511 infants aged 3–15 months from the prospective, observational Consortium for Food Allergy Research (CoFAR2) study, who were at high risk of peanut allergy because of moderate-to-severe atopic dermatitis (39.5%), egg or milk allergy (17.8%) or both (42.7%). Infants with known peanut allergy or peanut-specific IgE >5 kU/L at the time of enrollment were excluded.

METHODS: Participants were assessed for peanut allergy at enrollment, 6 months, 12 months, and annually thereafter based on history of reactions, skin prick testing (SPT), peanut IgE results, and oral challenges if clinically indicated. A prediction model was developed by stepwise multiple logistic regression and validated with a subset of the data.

RESULTS: Among the 511 infants (67.5% male, 82% with moderate-to-severe atopic dermatitis, median age 9.9 months and median length of follow-up 7.3 years), 40.1% developed peanut allergy and 10.6% outgrew their peanut allergy. Factors associated with developing peanut allergy (P < .05) included: moderate-severe atopic dermatitis; larger egg and peanut SPT; greater egg, milk and peanut IgE levels; greater peanut component (Ara h1, h2 and h3) levels; greater peanut IgG and IgG4; peanut consumption >2 times per week in pregnancy; younger age; non-white race; lack of breastfeeding; and increased peanut consumption during lactation. The final model included age at enrollment, peanut-specific IgE level, peanut Ara h2, and breastfeeding status and predicted 79.4% of peanut allergy in the development data set and 74.8% of peanut allergy in the validation data set (sensitivity 66.1% and specificity 80.6%).

CONCLUSIONS: Among infants at high risk of peanut allergy because of moderate-severe atopic dermatitis and/or egg or milk allergy, peanut allergy development may be predicted by younger age, greater peanut IgE and Ara h2 levels, and lack of breastfeeding.

REVIEWER COMMENTS: In addition to infants with moderate-severe atopic dermatitis and egg allergy previously reported to have a high risk of peanut allergy, this cohort also included infants with milk allergy. These high-risk children, without peanut allergy at study entry, had a higher proportion of peanut allergy development and lower proportion of peanut allergy outgrowing than typically reported. The model requires further validation in high-risk infants and may not be generalizable to low-risk infants. Infants referred at a younger age, lacking breastfeeding, and with higher levels of sensitization to peanut were identified by the model as having the highest likelihood of peanut allergy development and may benefit from even closer monitoring than typical for this high-risk group. However, strategies for prevention of peanut allergy, such as early dietary peanut introduction, should be applied to all high-risk infants.

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Earlier Ingestion of Peanut After Changes to Infant Feeding Guidelines: The EarlyNuts Study

PURPOSE OF THE STUDY: In 2016, Australian feeding guidelines were updated to recommend early introduction of peanut (PN) and egg without screening high-risk infants beforehand. The aim of this study was to assess the consequences of that change on the rate of early introduction and the prevalence of PN and egg allergy as compared with the HealthNuts study (J Allergy Clin Immunol 2014;133(2):476-484).

STUDY POPULATION: This was a population-based, cross-sectional, observational study. The first 860 infants (11–15 months) who agreed to participate were recruited from immunization sessions in Melbourne.

METHODS: Feeding practices were compared with those identified after 2008 when Australian guidelines removed recommendations to avoid early introduction of allergenic foods.

RESULTS: PN introduction was earlier than in the previous study (P < .0001) with a median age of 6 months (interquartile range [IQR] 6–8 months) and with 88.6% introduction (95% confidence interval [CI]: 86.1% to 90.7%) by 12 months as compared with 28.4% (95% CI 27.2% to 29.7%) previously. Early PN introduction was similar in the high-risk subgroup (atopic dermatitis diagnosed before 6 months old and requiring topical steroids) as compared with the low-risk population (83.5% vs 89.6%). Parents reported reaction to PN within one hour of ingestion more often than in the HealthNuts study (4.0% vs 2.4%, P = .054). Of those 25 infants, 12 tried repeat feedings and 5 tolerated PN. The median age of egg introduction was also 6 months (IQR 6–8 months) with 95.5% (95% CI 93.7% to 96.8%) by 12
months. Egg introduction was also earlier ($P < .0001$) than in the HealthNuts study but the change was less than seen so for PN. By 12 months, 97.6% (95% CI 96.2% to 98.6%) had eaten eggs as compared with 95.7% (95% CI 95.1% to 96.3%) in HealthNuts. However, the shift was toward introduction at 6 months (57.9% vs. 25.0%).

CONCLUSIONS: Australian feeding guideline changes in 2016 were associated with a shift toward earlier introduction of PN and egg. Without pre-screening, high-risk infants were also given the foods earlier than previously.

REVIEWER COMMENTS: In 2008, the AAP Section on Allergy and Immunology also removed its recommendation to delay introduction of allergenic foods. It was not until the LEAP study [New Eng J Med 2015;372(9):803–813] was published that guidelines worldwide were updated to actively recommend early introduction. My observations were similar to the results of this study. That is, before the LEAP study, many infants had not been offered PN before 1 year. Now, the majority have been, and for most of those who have not, the reason is usually because of a family history of PN allergy and/or parental anxiety over trying.

As references cited in this article note, the potential health care costs of screening high-risk infants for PN allergy before introduction are staggering, raising the question as to what we should do. My opinion is nothing more than that, but I believe it needs to be an individualized decision. Better to screen those who are hesitant to introduce PN than to delay introduction and increase the risk of subsequent allergy.

Finally, what about foods for which we have no data? I can only say we have no reason to not offer them in age-appropriate forms if tolerated. Increased dietary diversity may also increase diversity of the gut microbiome and potentially have other health benefits.
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Mitchell R. Lester
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