the 9% chance of outgrowing TN allergy may seem low, it may be an underestimate of the actual resolution rate, because a large number of eligible patients declined diagnostic food challenges. The results of this study should encourage regular follow-up of children with TN allergy and consideration, when clinically indicated, for physician-supervised oral food challenges to determine the possibility of resolution. Because these oral food challenges can trigger anaphylaxis, they are generally undertaken under the supervision of an allergist and with immediate access to medications and equipment to treat a significant allergic reaction.

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Prevalence and Outcome of Allergic Colitis in Healthy Infants With Rectal Bleeding: A Prospective Cohort Study

Xanthakos SA, Schwimmer JB, Melin-Aldana H, Rothenberg ME, Witte DP, Cohen MB. *J Pediatr Gastroenterol Nutr*. 2005;41:16–22

PURPOSE OF THE STUDY. To determine the prevalence of allergic colitis (AC) in a cohort of healthy infants with rectal bleeding. A secondary purpose was to determine if bleeding would resolve in untreated infants with rectal bleeding without biopsy-proven AC.

STUDY POPULATION. There were 22 infants ≤6 months of age with rectal bleeding recruited from the referral area of Cincinnati Children's Hospital Medical Center (Cincinnati, OH). All subjects had a negative history of bleeding disorders, negative stool cultures, positive hemoccult, and a negative history and physical examination for signs of infection, Hirschsprung disease, and inflammatory bowel disease.

METHODS. AC was defined histologically as colonic mucosa with ≥6 eosinophils per high-power field and/or eosinophils in the colonic crypts or muscularis mucosae. Formula or maternal diet was changed only for infants with histologic findings of AC. Formula-fed infants were switched to an extensively hydrolyzed formula and were rebiopsied at 3 weeks. If the biopsy was normal, they were continued on the formula and managed clinically. Those with continued histologic evidence of colitis were changed to an amino acid–based formula and rebiopsied at 6 weeks. Breastfed infants continued breastfeeding while mothers followed a milk-protein–free diet. Those with resolution of bleeding and normal biopsies at 3 weeks continued with breastfeeding and a restricted maternal diet. Those with persistent histologic evidence of colitis were rebiopsied at 6 weeks with no further dietary change. Those with persistent bleeding were changed to hydrolysate and rebiopsied at 6 weeks. Those with persistent bleeding and histologic evidence of AC at 6 weeks were changed to an amino acid–based formula.

RESULTS. Of 22 subjects, 14 (63.6%) had histologic evidence of AC. Five had normal biopsies and 3 had nonspecific colitis. Seven of the 14 with AC were formula fed. Six of the 7 had resolution of bleeding, on average, in 1.8 weeks (range: 1–5 weeks). One of the 7 was changed to an amino acid formula at 3 weeks and had resolution of bleeding at 5 weeks. The remainder of the 14 were breastfed. Six were followed to completion of the study. One had a delayed diagnoses because of development of worsening rectal bleeding and an abnormal biopsy at week 3 despite a normal biopsy at the onset of the study. The infant failed to improve with hydrolyzed formula but had resolution of bleeding by week 8 after initiation of an amino acid formula. Of the remaining 5, 2 had normal histology at week 3 with maternal elimination of cow's milk. Two had improvement by week 3, and 1 had no change. The average time for resolution in the breastfed group was 5.6 weeks (range: 2–8 weeks). For the 5 infants without histologic evidence of colitis, the average time for resolution of bleeding was 3.25 weeks. In those with nonspecific colitis, 2 had resolution by week 6, and the third was ultimately diagnosed with inflammatory bowel disease.

CONCLUSIONS. A significant proportion of infants with rectal bleeding may not have AC and may undergo unnecessary, expensive formula or maternal diet changes that may discourage breastfeeding.

REVIEWER COMMENTS. This small study provides important insights about the prevalence and natural course of proctocolitis. A much larger prospective placebo-controlled study that compares treatment versus no treatment would be very helpful.

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Food Allergen Sensitization in Inner-City Children With Asthma

Wang J, Visness CM, Sampson HA. *J Allergy Clin Immunol*. 2005;115:1076–1080

PURPOSE OF THE STUDY. To determine the prevalence of food allergen sensitization and its association with asthma symptoms and health care utilization in an inner-city asthma population.

STUDY POPULATION. Random serum samples were obtained from children (n = 544) aged 4 to 9 years (median: 6 years) with asthma living in inner-city areas enrolled in the National Cooperative Inner City-Asthma Study.

METHODS. Information regarding demographics, health history, medication use, health care utilization, and

asthma symptoms was recorded on the basis of 3-month recall at baseline and at 3-month intervals for a period of 12 months. No information regarding food allergy diagnoses or reactions was obtained. Skin-prick testing to 13 environmental allergens was performed at enrollment in the National Cooperative Inner City-Asthma Study. The random serum samples were evaluated for specific immunoglobulin E (IgE) (UniCap System) to egg, milk, soy, peanut, wheat, and fish. On the basis of IgE levels, subjects were stratified into 4 groups: group 1, food-specific IgE levels that had >95% positive predictive value for food allergy; group 2, probable food allergy (IgE ≥ 0.7 kU/L); group 3, any sensitization (IgE ≥ 0.35 kU/L); and group 4, no evidence of food allergy (IgE < 0.35 kU/L).

RESULTS. There was a significant correlation between sensitization to foods and sensitization to aeroallergens, with sensitization to the highest number of aeroallergens correlating with sensitization to soy, wheat, and peanut. Forty-five percent of study patients were sensitized to at least one food (groups 1–3): 4% of the participants were categorized to group 1, 26% to group 2, and 14% to group 3. Fifty-five percent were not sensitized to any of the 6 foods (group 4). Food allergy to egg and peanut were associated with the highest specific IgE levels. Patients who were sensitized to at least one food had higher rates of hospitalization and steroid medication use. The food-sensitized groups required more medications in general, but this difference was not significant. Most group 1 children (96%) demonstrated sensitization to >1 food, with 25% of the patients sensitized to all 6 foods tested. Most group 2 patients (75%) and 19% of group 3 patients were sensitized to multiple foods. There was a significant increase in hospitalizations for asthma in children sensitized to >1 food. When specific foods were examined, a correlation between higher asthma morbidity and sensitization to fish or soy was noted.

CONCLUSIONS. Food sensitization correlated with increased asthma severity in the study population. The prevalence of food allergy was not determined because of the nature of the study (anonymous serum samples and lack of blinded food challenges); however, on the basis of the study results, the authors predicted that inner-city children with asthma were more likely than the general population to have food allergy. The association of increased asthma morbidity with at least 1 food sensitization, and findings that patients with sensitization to multiple foods had significantly more asthma morbidity than those with single-food sensitization, suggest that food sensitization is a marker for increased asthma severity.

REVIEWER COMMENTS. This study suggests that the prevalence of food sensitization, and possibly food allergy, is increased in patients with asthma and may be a useful marker for increased asthma severity. Health care providers should consider screening for food sensitization in patients with severe or poorly controlled asthma.

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Risk of Celiac Disease Autoimmunity and Timing of Gluten Introduction in the Diet of Infants at Increased Risk of Disease

Norris JM, Barriga K, Hoffenberg EJ, et al. *JAMA*. 2005;293:2343–2351

PURPOSE OF THE STUDY. Patients with HLA-DR3 or DR4 alleles are at increased risk for the development of celiac disease. However, not all genetically susceptible individuals develop celiac disease. The objective of this study was to investigate whether there was an association between the timing of exposure to gluten and subsequent development of celiac disease autoimmunity (CDA) in children with a genetic predisposition for celiac disease.

STUDY POPULATION. Children (n = 1560) were identified in the Denver, Colorado, metropolitan area with an increased risk for celiac disease (or type 1 diabetes), defined as having either a first-degree relative with type 1 diabetes or positive cord blood screening for HLA-DR3 or DR4 alleles. This study was conducted over 10 years with a mean follow-up of 4.8 years.

METHODS. This was a prospective, observational study. Infant diet data were collected during telephone or face-to-face interviews at 3, 6, 9, 12, and 15 months of age. No dietary advice was given to the families. Children had blood drawn at 9, 15, and 24 months and annually thereafter for the measurement of the celiac disease autoantigen, and tissue transglutaminase (tTG). After 1 or 2 positive tTG autoantibody results, small-bowel biopsy was offered to the families, although not all had this procedure performed. The primary outcome of the study was the time to development of CDA defined as the presence of tTG autoantibodies on 2 consecutive results or a positive small-bowel biopsy after a single tTG-positive test.

RESULTS. Fifty-one children developed CDA. Children exposed to foods containing wheat, barley, or rye in the first 3 months of life had a 5 times increased odds ratio (P = .02) of CDA as compared with children first exposed to gluten at 4 to 6 months of age. Twenty-five of the CDA-positive children had biopsy-proven celiac disease. In these children, exposure to gluten in the first 3 months of life had a 23 times increased risk (P = .001) of CDA. In the biopsy-proven cohort, children not exposed to gluten until >7 months of age also had a significantly increased risk of CDA (odds ratio: 4; P = .04). There was

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