Abstract

BACKGROUND:
Allergen-specific IgG4 (sIgG4) antibodies are often associated with tolerance, but sIgG4 antibodies to causally relevant foods have been reported recently in adults with eosinophilic esophagitis (EoE). Prevalence and levels of food sIgG4 are not well established in the general pediatric population.

OBJECTIVE:
We sought to investigate serum food sIgG4 with component diagnostics in children with EoE and children from an unselected birth cohort and to explore the effects of sex, age, and milk consumption on sIgG4 levels.

METHODS:
Sera from 71 pediatric patients with EoE and 210 early adolescent children from an unselected birth cohort (Project Viva) were assayed for sIgG4 and specific IgE (sIgE) to major cow's milk (CM) proteins (α-lactalbumin, β-lactoglobulin, and caseins) and to wheat, soy, egg, and peanut proteins.

RESULTS:
In the EoE cohort high-titer sIgG4 (≥10 μg/mL) to CM proteins was more common than in control sera and achieved odds ratios for EoE ranging from 5.5 to 8.4. sIgE levels to CM proteins were mostly 4 IU/mL or less in patients with EoE, such that sIgG4/sIgE ratios were often 10,000 or greater. When adjusted for age and milk consumption, high-titer sIgG4 to CM proteins was strongly associated with EoE, with an odds ratio of greater than 20 to all 3 CM proteins in boys.

CONCLUSIONS:
sIgG4 to CM proteins are common and high titer in children with EoE. Although it is not clear that this response is pathogenic, sIgG4 levels imply that these antibodies are an important feature of the local immune response that gives rise to EoE.
KEYWORDS:
Eosinophilic esophagitis; IgG(4) assays; children; cow's milk proteins; molecular allergens