- Format: Abstract

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Specific IgG_4 antibodies to cow's milk proteins in pediatric patients with eosinophilic esophagitis.

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Abstract

BACKGROUND:

Allergen-specific IgG_4 ($sIgG_4$) antibodies are often associated with tolerance, but $sIgG_4$ antibodies to causally relevant foods have been reported recently in adults with eosinophilic esophagitis (EoE). Prevalence and levels of food $sIgG_4$ are not well established in the general pediatric population.

OBJECTIVE:

We sought to investigate serum food $sIgG_4$ 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 $sIgG_4$ levels.

METHODS:

Sera from 71 pediatric patients with EoE and 210 early adolescent children from an unselected birth cohort (Project Viva) were assayed for $sIgG_4$ 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 $sIgG_4$ (≥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 $sIgG_4$/sIgE ratios were often 10,000 or greater. When adjusted for age and milk consumption, high-titer $sIgG_4$ to CM proteins was strongly associated with EoE, with an odds ratio of greater than 20 to all 3 CM proteins in boys.

CONCLUSIONS:

$sIgG_4$ to CM proteins are common and high titer in children with EoE. Although it is not clear that this response is pathogenic, $sIgG_4$ 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