Specific antibodies in oral immunotherapy for cow's milk allergy: kinetics and prediction of clinical outcome.

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Author information

Abstract

BACKGROUND:

METHODS for predicting the clinical outcome of specific oral immunotherapy (OIT) would improve the safety of the therapy.

METHODS:

We investigated 40 children aged 6-17 years with IgE-mediated cow's milk allergy (CMA) who either successfully completed OIT (n = 32) or discontinued the therapy due to adverse reactions (n = 8). From sera drawn before and after OIT, we analyzed specific IgA, IgG, IgG1 and IgG4 to cow's milk (CM), casein, β-lactoglobulin and ovalbumin (with enzyme-linked immunosorbent assay) and IgE to CM and hen's egg white [with enzymatic fluoroimmunoassay (Phadia ThermoFisher Scientific CAP system)]. As a reference, we also analyzed serum samples from 8- to 9-year-old children who either had no history of CMA (n = 76) or who had spontaneously recovered from IgE-mediated CMA (n = 56).

RESULTS:

Levels of specific IgA, IgG, IgG1 and IgG4 to CM and casein, and CM-specific IgE prior to OIT were higher in children who discontinued the therapy than in those who achieved desensitization (p < 0.05). Adverse reactions in the entire population were associated with low IgG and IgG4, but high IgG1 levels to ovalbumin (p < 0.05). Specific IgA, IgG, IgG1 and IgG4 to CM proteins significantly increased and IgE to CM decreased during OIT in children who achieved desensitization (p < 0.01). In those who discontinued OIT, only IgG, IgG1 and IgG4 to CM increased significantly (p < 0.03) and CM IgE remained unchanged.

CONCLUSIONS:

High specific IgE, IgA and IgG-class antibodies to CM proteins appear to predict failure to achieve desensitization in CM OIT. Specific IgA and IgG-class antibodies to CM increase and CM IgE decreases during desensitization.