



Development of antigen-specific IgE antibodies in atopic and non-atopic infants: Diagnostic value of low levels of IgE against egg white in infants with atopic dermatitis

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To analyze the development of antigen-specific IgE in infants and its clinical usefulness, the levels of IgE antibodies against egg white (f1) and cows' milk (f2) in 33 sera from cord blood, 118 sera from atopic dermatitis (AD) infants and 197 sera from non-atopic control infants were measured by using the CAP radioallergosorbent test (RAST) fluoro enzyme immunoassay (FEIA) system, which has a detection limit of 0.15 Ua/mL for f1 and 0.20 Ua/mL for f2. No antigen-specific IgE was detected in cord blood, whereas in infants younger than 6 months of age, 38.5% of AD infants and 6.6% of the non-atopic controls showed IgE against f1 (≥ 0.70 Ua/mL) and 14.3 and 4.0%, respectively, showed low levels (0.15-0.70 Ua/mL) of the IgE. When the cut-off point for positive versus negative f1 RAST was set at 0.15 or 0.35 Ua/mL instead of 0.70 Ua/mL, the significance of the difference in f1 RAST-positive and -negative proportions between atopic and non-atopic infants did not change. Repeated examination of f1 RAST revealed later positive conversion in the majority of AD patients, with no detectable or very low levels (0.15-0.35 Ua/mL) of f1-specific IgE. In infants at 6 months of age or older, 44.4 and 12.0% of AD patients and non-atopic controls, respectively, showed IgE against f1 (≥ 0.70 Ua/mL) and 37.1 and 22.6%, respectively, showed low levels (0.15-0.70 Ua/mL) of the IgE. These results suggest that f1 RAST at a concentration of 0.15 Ua/mL or higher has diagnostic value for egg allergy in AD infants, especially in infants younger than 6 months of age. The f1 RAST should be examined repeatedly in AD infants with low levels of IgE against f1. Similar results were obtained for f2-specific IgE, but there was a significant decrease in the specificity when the cut-off point was set at 0.20 Ua/mL.

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