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Basophil activation test and cow’s milk or egg clinical tolerance

Mira Šilar, Anja Jeverica, Tina Vesel, Tadej Avčin, Peter Korošec

1University Clinic of Respiratory and Allergic Diseases, Golnik, Slovenia; 2Department of Allergology, Rheumatology and Clinical Immunology, University Children's Hospital, University Medical Center Ljubljana, Slovenia

Background: Outgrowing of cow’s milk or egg allergy might be related to differences in IgE-dependent basophil function. We sought to investigate if the level of allergen specific basophil response is associated with the clinical tolerance among a cohort of children with cow’s milk or egg allergy.

Methods: Sixty children were classified as milk or egg-reactive and milk or egg-outgrowing (tolerant) based on the results of oral food challenges (38 milk and 22 in egg group). Serum was analysed for allergen-specific IgE and IgG levels, basophil response was assessed in whole blood stimulated with serial dilutions of milk or egg white and yolk protein (all 0.33–33.3 ng/ml) and with anti-FcεRI stimuli. Skin prick tests (SPTs) to commercial extracts were also performed.

Results: Milk-reactive subjects’ basophils showed significantly higher response (median 4-fold, at 33.3 ng/ml) to milk allergen stimulation than basophils from milk-tolerant individuals. There was also a significantly higher response to anti-FcεRI stimuli (2-fold). On the other hand, in egg group no significant differences in egg white, yolk or anti-FcεRI basophil response, in sIgE to egg white or yolk, and in SPT were demonstrated between egg-reactive versus egg-tolerant children. However in egg-tolerant children we demonstrated a significantly higher level of specific IgG to egg white.

Conclusions: We showed that children with outgrowing versus reactive cow’s milk allergy can be distinguished by basophil activation test. These observations could not be confirmed for children with egg allergy.