STRESZCZENIE W JĘZYKU ANGIELSKIM

The coexistence of sensitization to food and airborne allergens, especially plant pollen, is an important but not well known problem in the pediatric population. Clinical studies conducted among adults with pollen-food syndrome indicate that sensitization to some pollen components (e.g. profilins) may have influence on the development of food allergy and is responsible for the occurrence of clinical symptoms; including systemic reactions. Studies have also shown the immunomodulatory effect of some cytokines, e.g. interleukin-10 (IL-10) and transforming growth factor-beta 1 (TGF-β1) on the symptoms of allergy. So far, there are only a few published data on this topic in the pediatric population and their results are ambiguous.

The aim of the study was to evaluate the concentration of IL-10 and clinical relevance of sensitization to plant-pollen components with the clinical manifestation and risk assessment of systemic reactions in children with food allergy.

The prospective study included a group of 43 children aged 2-14 years with clinically and laboratory confirmed food sensitization; including 11 patients with a history of food anaphylaxis (A+). An additional inclusion criteria was the presence of allergen specific IgE (asIgE) (>0.7 kU/L) to pollen allergens. Patients with parasitic, autoimmune, non-allergic respiratory diseases and under the treatment with systemic steroids were excluded from the study. The control group consisted of 35 children comparable in age with functional disorders of the gastrointestinal tract without food and airborne allergy (asIgE<0.35 kU/L).

Clinical data were analyzed and all patients were tested for asIgE to food and inhalant allergens using the PolyCheck fluoroimmunoenzymatic method and pollen components: birch (Bet v 2), ragweed (Amb v 8) and mugwort (Art v 4) by ELISA method. IL-10 and, additionally, TGF-β1 concentration were determined by ELISA (Immuniq, Abbiotec). The results were subjected to statistical analysis (Statistica 13.1); p-value <0.05 was considered statistically significant.

Sensitization to profilins was found in 8/43 (18.6%) children (P+). No significant difference was stated in the mean value of asIgE concentration to each allergen: Bet v 2, Amb 8, Art v 4. No relationship was found in the incidence of pollen-food syndrome and other clinical symptoms of allergy with sensitization to pollen profilins. The incidence of anaphylaxis was higher in the P(+) group than in P(-) ($p<0.05$); this difference concerned only reactions to animal-origin foods. History of anaphylaxis to cross-reacting plant-derived foods was negative in P(+) patients.

A significantly lower concentration of IL-10 was stated in A(+) patients compared to the control group (1,79 pg/ml *vs* 4,09 pg/ml; $p<0,05$) and higher concentration of TGF-β1 in A(+) compared to A(-) and control group (42,53 ng/ml *vs* 37,86 ng/ml *vs* 30,52 ng/ml; $p<0,05$).

Based on the performed study and analysis of the obtained results, the following conclusions were formulated:

1. Sensitization to pollen profilins does not significantly affect the spectrum of sensitizing allergens and the clinical manifestation of food allergy; except of anaphylaxis to plant-derived food allergens, which was not reported in this group of patients.
2. Patients with food-induced anaphylaxis are characterized by a lower concentration of IL-10 and higher concentration of TGF-β1 in the blood.
3. The obtained results indicate a promising significance of the simultaneous determination of the both mentioned above cytokines in predicting the risk of systemic reactions in children with food allergy.