THE IMPACT OF INCREASED BODY WEIGHT ON IMMUNOLOGICAL RESPONSE IN CHILDREN WITH ALLERGIC DISEASES

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Introduction: In the last years the prevelance of allergy and obesity has increased in child population. However, the relationship between obesity and allergic diseases remains unclear.

Objective: The aim of the study was to assess the impact of increased body weight on selected immune system elements in children with allergies.

Materials and methods: In total, 56 children with allergies (41 with asthma and 15 with atopic dermatitis) aged 4-15 years old were qualified into the study. Based on BMI, children were divided into two groups: with normal weight (BMI < 85 pc) and with increased body weight (BMI ≥ 85 pc). The immunological parameters were evaluated by flow cytometry.

Results: The increased body weight was present in 16 out of 56 (29%) children participating in the study, out of which 8 were obese and 8 were overweight. The group with increased body weight had significantly lower CD4+ lymphocytes percentage (30.56 ± 6.05 vs. 36.69 ± 7.86, p=0.01) and significantly higher percentage of NKT lymphocytes (3.91 ± 1.92 vs. 2.77 ± 1.88, p=0.05) and CD16/56+ (15.00 ± 5.71 vs. 11.60 ± 5.69, p=0.05) than the group with normal weight. In the group with atopy, a statistically significant positive correlation between BMI and CD3 anty-HLA-DR percentage was observed.

Conclusions: Our study shows that the increased body weight plays a major role in mediating the immunological response in children with allergies in which mainly macrophages and NKT cells are involved.