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THE INFLUENCE OF SUBLINGUAL IMMUNOTHERAPY ON MAC-1 INTEGRIN EXPRESSION ON NEUTROPHILS IN ASTHMA

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Background. Asthma, as a chronic inflammatory disease, can be effectively treated with immunotherapy. Sublingual immunotherapy (SLIT) is found to be effective and well tolerated treatment. Its influence on function of granulocytes from children suffering from bronchial asthma is largely unknown. Mac-1 integrin is a transmembrane protein containing a (CD11b) and b (CD18) chains. High expression of the complex is found on the surface of neutrophils, NK cells, monocytes and macrophages. CD11b/CD18 may bind to CD23, ICAM-1, ICAM-2, ICAM-4, iC3b, fibrinogen and LPS/LBP complex. It plays a crucial role in neutrophil's diapedesis.
Aim. The aim of the study was to assess Mac-1 expression on neutrophils from asthmatic children and evaluate the impact of SLIT on CD11b/CD18 complex.
Materials and methods. 25 individuals aged of 8,13 ? 3,08 years old, 21 boys and 4 girls, suffering from atopic asthma and allergic rhinitis, shortlisted for specific immunotherapy, served as studied group. Tests were performed before and after twelve months of specific sublingual immunotherapy. 19 children (76%), 18 boys and 1 girl, came forward second analysis after one year SLIT. 15 healthy individuals, aged 9,83 ? 3,37 years old (5,5 - 14,5 y.o.), 7 boys and 8 girls, served as a control group. The flow cytometric assessment of CD11b and CD18 expression on cells from peripheral blood collected to tubes containing EDTA was performed with Cytomics FC500 flow cytemeter (Beckman Coulter).
Results. In the peripheral blood from children suffering from asthma 98,08 (90,79; 99,12)% Mac-1 positive neutrophils was detected. The group was differentiated to two subgroups with more than 98% and less than 95% of neutrophils with CD11b/CD18 expression. In the control group 99,69 (99,5; 99,8) % Mac-1 positive granulocytes was detected, p=0.002. After SLIT 99,62 (99,17; 99,92) % of Mac-1 positive granulocytes percentage was observed which was increased compared to the values obtained before treatment, p=0.01. The significant increase was observed within subgroup with lower percentage of Mac-1 positive neutrophils before treatment.
Conclusion. Sublingual immunotherapy influence Mac-1 expression on neutrophils from asthmatic children.