

IDENTIFICATION AND ASSOCIATION OF TRANSFORMING GROWTH FACTOR BETA ISOFORM-1 EXPRESSION IN PATIENT WITH ASTHMA IN POLISH POPULATION - A PILOT STUDY

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Background: Interaction of genotype and environment results in a specific phenotype of the clinical course of asthma. Transforming growth factor beta 1 (TGF beta 1) gene belongs to the important group of genes involved in the regulation of proliferation, differentiation, adhesion, and migration of a variety of cell types. TGF beta 1 is inhibitory for B and T cells, as well as IgE production. In particular, it is engaged in inflammation of the bronchi and airway remodeling in asthma, which processes are critical in the pathogenesis of the disease. **Objectives:** To evaluate the correlation between the level of expression of TGF beta isoform 1 and the severity of asthma. **Material and Methods:** The study included 39 participants (20 healthy subjects and 19 patients with asthma). In the control group was 12 women and 8 men. Mean age 45,31 years. Min. 23 years. Max. 71 years. SE±17,11. Average value of FEV1 (%) was 93,73. SE ±8,7. In the case group was 16 women and 3 men. Mean age 50,04 years. Min. 24 years. Max. 72 years. SE±16,2. Average value of FEV1 (%) was 74,19. SE ±20,06. DNA was isolated from whole blood using phenol method. Reverse transcription was performed using a set of AccuScript PfuUltrall RT-PCR. The cDNA was subjected to real-time quantitative PCR using gene-specific primers for TGF beta1 and GAPDH using set of Brilliant II SYBR Green QRT-PCR. It was observed during the RT-PCR earlier amplification of the TGF beta 1 gene compared to the reference gene GAPDH. To evaluate the correlation between the variables the t-test for independent samples and multiple regression test were used. The level of significance was at 0,05. The genotyping was performed by two investigators who were unaware of the phenotypes. **Results:** There was statistical associations between the control group and the group of patients ($p = 0,000007$. Standard error of the estimate 3527,0). It was demonstrated strong correlation between healthy and patients with severe asthma ($p = 0,017$. Controls SD±9119,98. Cases SD±26154,20). No similar associations were observed between healthy and non severe asthma patients. It was found strong statistical correlation between healthy and patients with severe corticosteroid dependent asthma ($p = 0,013$. Controls SD±9119,98. Cases SD±28794,42). There were no associations in the level of TGF beta 1 expression between the groups of patients with non severe asthma and severe asthma. **Conclusions:** Observed correlation indicates the relationship between the level of expression of TGF beta 1, and the prevalence of asthma and the severity of its course. It was found the important role of TGF beta 1 in the pathogenesis of asthma, particularly severe asthma. The study should be continued and the results will be verified on a larger number of subjects. In the near future, the authors extend the analysis of the level of asthma control (test ACTTM) and spirometric parameters.