

Association between SERPINB2 Gene Expression by Real Time PCR in Respiratory Epithelial Cells and Atopic Bronchial Asthma Severity

Nissreen E. ELBadawy¹, Randa S. Abdel-Latif¹, Hoda A. El-Hady²

Departments of ¹Medical Microbiology & Immunology and ²Internal Medicine, Faculty of Medicine, Zagazig University, Zagazig, Egypt.

Atopic bronchial asthma is chronic respiratory diseases of high frequency and high morbidity and mortality especially in patients refractory to the ordinary medical management. This study aimed to investigate the association between Serpin family B Member 2 (SERPINB2) gene expression and bronchial asthma severity. A total of 127 adult patients with asthma were enrolled in this study. Allergic respiratory symptoms were assessed and patients were classified according to Global Initiative for Asthma (GINA) criteria. The patients were subjected to skin prick test (SPT) by commonly encountered aeroallergens and pulmonary function tests. Sputum samples were subjected to RNA extraction and real time PCR amplification (q PCR) of SERPINB2 mRNA. The relative gene expression was determined by fold change ($2^{-\Delta\Delta Ct}$) after calculation of delta-delta Ct (Cycle threshold of patients- Cycle threshold of healthy control). Assessment of the q PCR results was done by Receiver operating characteristic curve (ROC). Patients with severe bronchial asthma constituted 44% of asthma patients and mild asthma 22% of asthmatics. SPT revealed that 23 % of the patients were mono-sensitized and 77 % were poly-sensitized. The mites and pollens were the most frequently sensitizing allergens detected by SPT (53%, and 47%, respectively). SERPINB2 gene expression in asthma group that discriminated them from healthy control was >0.01 . The highest increase of expression was found (>1.92 fold) severe asthma compared to the mild group. A negative correlation was found between SERPINB2 expression and pulmonary function tests FEV1/FVC % and FEV1% ($r=-0.921$ and -0.805 , $P<0.001$), respectively. While significant positive correlation was found between SERPINB2 expression and total IgE levels ($r=0.932$ and $P\text{-value}<0.001$), and SPT results ($r=0.923$ and $P\text{-value}<0.001$). In conclusion, the expression level of SERPINB2 gene significantly correlated with the severity of bronchial asthma.