Study of Interleukin 13 (IL-13) and Beta-2 adrenergic receptor (ADRB-2) Gene Polymorphism among Egyptian patients with bronchial asthma

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ABSTRACT

Asthma is a chronic inflammatory disorder of the airways in which many cells and cellular elements play a role. Beta-2 adrenergic receptor (ADRB-2), a G-protein coupled receptor, is present on the bronchial smooth muscle cells and results in bronchodilation upon activation. The gene that encodes the ADRB-2 is one of the most studied candidate genes in asthma and it is highly polymorphic. Interleukin 13 (IL-13) is a Th2 cytokine that has been shown to be pivotal in the induction of allergic inflammation of the airways. Moreover, Several IL-13 genetic polymorphisms have been linked with susceptibility to bronchial asthma. The aim of this study was to evaluate the association of Gln27Glu of ADRB-2 and IL-13 +2044G/A polymorphisms with bronchial asthma development, severity and total serum IgE levels in Egyptian patients with bronchial asthma. This study included 50 asthmatic patients and 30 controls. Restriction Fragment Length Polymorphism (RFLP) PCR was used for the analysis of the studied polymorphisms. The results showed no significant association between Gln27Glu ADRB-2 polymorphism and asthma development, severity and serum total IgE levels. On the contrary, the IL-13 +2044 A allele was a risk factor for bronchial asthma. There was a significant association between the A allele and more severe asthma, however the G allele was significantly associated with less severe asthma. In addition, the A allele was significantly associated with higher total serum IgE levels.