

IL-13 gene expression in patients with atopic dermatitis: relation to IgE level and to disease severity

Shereen S Metwally¹, Youssef M Mosaad, Elham R Abdel-Samee, Maha A El-Gayyar, Abeer M Abdel-Aziz, Farha A El-Chennawi

Clinical Immunology Unit, Clinical Pathology Venerology Department, Mansoura Faculty of Mansoura, Egypt.

PMID: 16734130

Atopic dermatitis (AD) is a chronic inflammatory skin disease frequently associated with an increased serum IgE level. T helper cells are thought to play an important role in the pathogenesis of AD. It is commonly believed that allergens activate Th2 cells, and it is likely that the cytokines produced by Th2 cells are crucial factors in the induction and maintenance of the disease. IL-13 is one of the cytokines that are produced by Th2 lymphocytes and, like IL-4, it can induce the production of IgE. In order to evaluate its role in the pathogenesis of AD, IL-13 mRNA expression was studied in peripheral blood of patients with different degrees of AD and compared with healthy subjects. Also, we correlated its level of expression with the level of serum IgE and with the severity of the disease. EDTA blood was obtained from 25 patients (divided into three groups ranged from mild to severe AD) and 12 normal subjects as a control group. We examined the blood sample for IL-13 mRNA expression using RNA extraction technique, RT-PCR, PCR amplification using primers specific for IL-13 and beta-actin (as internal control) this is followed by visualization of the expressed bands using gel electrophoresis and DNA marker. Serum IgE level was detected using an ELISA kit. Our results revealed that, IL-13 mRNA is significantly expressed in patients with AD as compared to normal control ($P < 0.001$). IL-13 mRNA shows higher level of expression in severe AD group in comparison with both moderate and mild groups ($P = 0.05$). Serum levels of IgE showed highly significant increase in patients with AD as compared with the control group ($p = 0.019$), its level is significantly higher in severe AD group versus moderate and mild AD groups ($P = 0.009$ and 0.022 , respectively). There is a highly significant positive correlation between serum levels of IgE and the levels of IL-13 mRNA expression in all AD groups ($P = 0.001$). In conclusion, the high level of IL-13 mRNA expression in AD, and its correlation with serum level of IgE and with severity of disease indicates that IL-13 is involved in the pathogenesis of the disease and is an important in vivo IgE inducer.