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Iranian Journal of Allergy, Asthma and Immunology

Volume 6, Issue 2, June 2007, Pages 67-72

Association of the expression of IL-4 and IL-13 genes, IL-4 and IgE serum levels with allergic asthma

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Abstract

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Immune and inflammatory responses mediated by cytokines, play important roles in the pathophysiology of asthma. These responses are associated with overexpression of Th2 cytokines such as IL-4 and IL-13. These two cytokines use common receptors for signaling that lead to identical immunological effects and regulation of the Th1/Th2 balance. The aim of this study was to determine whether patients with allergic asthma display overexpression of IL-4 and IL-13 genes. Using RT-PCR, we examined the expression of IL-4 and IL-13 genes in twenty asthmatic cases and twenty normal individuals. Total levels of serum IgE and IL-4 were also determined by ELISA method. Expression of IL-13 gene in 70% of patients with allergic asthma was higher than controls (P=0.01). There was no correlation between the expression of IL-13 gene and total level of serum IgE (P=0.07). Expression of IL-4 gene was detected in 30% of the patients and none of the normal individuals as determined by RT-PCR (P=0.01). Mean of serum IgE levels in patients and controls were 84.9 IU/ml and 62.2 IU/ml, respectively. Level of serum IgE was more than 100 IU/ml in 30% of patients (P=0.03). Mean of serum IL-4 levels in patients and controls were 15.73 pg/ml and 13.07 pg/ml, respectively. There was a relation between levels of serum IgE and IL-4 in 73% of cases. The results showed that there was a correlation between the expression of IL-4 gene and the level of serum IL-4. Levels of serum IgE and IL-4 were considerably higher in asthmatics than non-asthmatic controls. Copyright© 2007, Iranian Journal of Allergy, Asthma and Immunology. All rights reserved.

Reaxys Database Information

Author keywords

Asthma; Genes; IL-13; IL-4; RT-PCR

Indexed Keywords

EMTREE drug terms: immunoglobulin E; interleukin 13; interleukin 4; messenger RNA

EMTREE medical terms: adult; allergic asthma; article; clinical article; controlled study; correlation analysis; enzyme linked immunosorbent assay; female; gene overexpression; human; immunoglobulin blood level; male; reverse transcription polymerase chain reaction

MeSH: Adult; Asthma; Bronchial Hyperreactivity; Cells, Cultured; Enzyme-Linked Immunosorbent Assay; Female; Gene Expression Regulation; Humans; Immunoglobulin E; Interleukin-13; Interleukin-4; Male; Middle Aged; Th1 Cells; Th2 Cells

Medline is the source for the MeSH terms of this document.

Chemicals and CAS Registry Numbers: immunoglobulin E, 37341-29-0; interleukin 13, 148157-34-0; Immunoglobulin E, 37341-29-0; Interleukin-13; Interleukin-4, 207137-56-2

ISSN: 17351502 Source Type: Journal Original language: English

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