



Association between the interleukin 4 gene -590C>T promoter polymorphism and asthma in Xinjiang Uighur children

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ABSTRACT. We investigated the association between the interleukin 4 gene (*IL-4*) -590C>T polymorphism and forced expiratory volume in one second (FEV₁) values, immunoglobulin E (IgE) levels, and susceptibility to asthma in Uighur children. *IL-4* -590C>T frequencies were analyzed in 38 bronchial asthmatic patients and 35 non-asthmatic controls. Polymerase chain reaction and direct sequencing were applied to determine the residue at position -590 of *IL-4*. Total serum IgE levels were detected by enzyme-linked immunosorbent assay, while lung function was examined by professionals. There were significant differences in the distribution of *IL-4* -590C>T genotypes and alleles between patient and control groups (genotypes: chi-square = 11.476, P < 0.05; alleles: chi-square = 14.572, P < 0.05). Frequencies of CC, CT, and TT genotypes were 21, 29, and 50% among patients, and 49, 37, and 14% among controls, respectively, indicating that the T allele

was significantly more frequent in the asthma group than in the control group. Total serum IgE levels were significantly higher ($P < 0.05$) and FEV₁ values were significantly lower ($F = 13.294$, $P < 0.05$) in patients than in control subjects of the same genotype. In conclusion, the *IL-4* -590C>T polymorphism is related to bronchial asthma in Uighur children, and the T allele may constitute a susceptibility factor in this group. Furthermore, this genetic variant can result in raised IgE levels and decreased FEV₁ values, suggesting that both factors are associated with bronchial asthma in Uighur children.

Key words: Interleukin 4; Polymorphisms; Children; Asthma; Uighur