Abstract:

Objective:

Allergy is a hypersensitivity immune response induced by contact with allergens which are environmental and non-microbial antigens. The IL-13 gene is one of the most important cytokines produced by major allergic agents (TH2 cells). Given that studies on polymorphism of IL-13 in allergic patients have so far been limited to patients with asthma in Iran and there are very few relevant studies conducted around the world, this study attempts to investigate the relationship between single-nucleotide polymorphisms (rs1881457 and rs20541) in IL-13 in allergic patients so as to compare the findings against the control group covering Turkish race.

Methodology:

The DNA extracted from blood samples of 200 patients and 200 healthy individuals were assessed and genotyped through PCR/ RFLP test. The results were validated through sequencing a number of samples from each genotype. Afterwards, the results were analyzed through the SPSS and STATA.

Results:

This study revealed a significant difference in the frequency of genotypes A-1512C ($p>0.05$) and allele ($p<0.001$), polymorphism of rs1881457 genotypes G+2044A ($p<0.001$) and allele ($p<0.001$) and polymorphism of rs20541 in the patients group. Furthermore, the results demonstrated that involvement of heterozygous AC in rs1881457 and heterozygous AG in rs20541 will increase the chances of exposure to the patient group by 2.9 and 1.32 times.

Conclusions:

The findings suggested that single nucleotide polymorphism of rs1881457 and rs20541 in IL-13 gene may be an important factor contributing to the allergic pathogenesis, thus intensifying the risk of allergy by leaving more impact on SNP rs1881457 in C allele than that in A allele. Therefore, heterozygous AC was found to be more prone to allergy than other genotypes. In the case of rs20541, the risk of developing an allergic disease increased with the presence of G allele. Moreover, the results indicated that heterozygous AG could heighten the risk of developing allergies more than other genotypes.