Association of HLA-DR alleles with lungs cystic fibrosis

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Cystic fibrosis (CF), the most common genetic disease in the white population, results mutations in the cystic fibrosis transmembrane conductance regulator (CFTR) gene. The CF respiratory and intestinal disease is characterized by a wide variability in clinical phenotypic expression. The analysis of genetic factors like Human leukocyte antigen (HLA) may help our understanding of genotype–phenotype relationships in Cystic fibrosis. On the other side, human leukocyte antigen (HLA) class II is one of the most polymorphic gene and has been associated with a number of diseases including autoimmune and inflammatory diseases, asthma, and allergy. The aim of the present study was to investigate HLA associations with pulmonary Cystic fibrosis in Iranian patients. Methods: in this study fifty Cystic Fibrosis patients treated at the Massih Daneshvari Hospital and fifty controls were recruited. High molecular weight DNA was isolated non-coagulated blood by salting out method. Determination of HLA-DR B1 subtypes was performed by using single specific primer-polymerase chain reaction (SSP-PCR) methods. The PCR products were loaded onto a 2% agarose gel and the expression of various alleles was visualized by Gel DOC. HLA-DR subtypes were calculated according to the manufacturer's instructions. Only primers that completely matched the target sequences result in amplified products under the controlled PCR conditions and the presence of an amplified DNA fragment is a positive indication of the existence of an allele-specific sequence in the genomic DNA. Results: The HLA-DRB109 and HLA-DRB110 were the least frequent alleles and The HLA-DRB111, HLA-DRB113 and HLA-DRB104 were the most frequent alleles in the healthy controls and also in the patient group. We found no differences in the distribution of the HLA –DRB1 genes in CF patients when compared with the control subjects. Discussion: In conclusion, HLA-DRB1 do not seem to influence susceptibility to Cystic fibrosis. Consequently, HLA alleles may be involved in the CF phenotype and the development of associated diseases in CF patients.

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