Association of polymorphism within promoter of the interferon-gamma receptor gene and HBV chronicity among Iranian patients

S. Khanizadeh 1,∗, M. Ravanshad 1, S.R. Mohebi 2, M.R. Zali 2, G. Talei 3

1 Faculty of Medical Sciences, Tarbiat Modares University, Tehran, TH, Iran, Islamic Republic of
2 Shaheed Beheshti University of Medical Sciences, Tehran, Iran, Islamic Republic of
3 Lorestan University of Medical Sciences, Khoram Abad, Iran, Islamic Republic of

Background: polymorphism within regulatory regions of immune response genes can affect the level of gene expression. Gamma interferon (IFN-g) is a cytokine that plays an important role in immune response to infection of hepatitis B virus (HBV). The aim of this study is to explore the association between the two single nucleotide polymorphisms (SNPs) within promoter (at positions -611G/A,-56T/C) of the gamma interferon receptor1 gene (INFGR1) and susceptibility to chronic HBV infection.

Methods: A total of 400 individuals were included in a case-control study of Iranian populations with chronic HBV infection and healthy control group. Genomic DNA from peripheral blood samples of 200 chronically HBV infected patients and 200 healthy controls were extracted by phenol-chloroform method and genotyping was performed by PCR-RFLP method also p<0.05 considered as significant.

Results: The frequencies of INFGR1 genotypes on -56 position were 36/6% for TT and 43/5% for TC and 20% CC in case group and 20.5% TT and 51/7% TC and 27/4% CC for control group (p value: 0.002) and frequencies of INFGR1 genotypes on -611 position were 41% for AA and 57/5% for AG and 1/5% GG in case group and 37/8% AA and 53/7% AG and 8/5% GG for control group (p value: 0.006). Significant difference was observed between case and control group.

Conclusion: A number of single-nucleotide mutations have been identified in interferon gamma receptor and its signaling pathway that predispose to chronic HBV infection. There was association between INFGR1 polymorphism (promoter at positions -611G/A,-56T/C) and chronic HBV infection. This study suggested the possibility that INFGR1 gene polymorphism beside host genetic factors can be important in determining an individual’s susceptibility in the progress to chronic HBV infection.

http://dx.doi.org/10.1016/j.ijid.2012.05.207