Abstract

Liver transplantation is one of the most important therapies for end-stage liver diseases. Hepatitis B viral (HBV) infection is among the most common causes of cirrhosis and hepatocellular carcinoma and a frequent indication for liver transplantation. The hepatitis B virus is a small, non-cytopathic virus with a circular genome of partially double-stranded DNA. It is estimated that over 400 million people throughout the world are HBV carriers and the high prevalence makes HBV one of the most hazardous viral pathogens for global public health problem. Hepatitis viral infections, especially HBV are common in liver transplant recipients. Furthermore, HBV infection is the leading indication to liver transplantation and also is among the important causes of death in solid organ transplant recipients particularly liver and kidney. The outcome of transplantation can be determined by immune responses as a key role in response to the graft. It has been suggested that cytokine-mediated immunity plays a critical role in determining the outcomes of hepatitis B virus infection and the graft microenvironment. Interleukin 27 (IL-27) is a heterodimeric cytokine and this recently discovered IL-27 is a new member of IL-6/IL-12 family that consists of IL-12 p40-related protein encoded by the Epstein-Barr virus-induced gene 3 (EBI3) and IL-12 p35-related polypeptide encoded by the p28 gene as well as its receptor complex is composed of WSX-1 and gp130. The human *IL27* gene is located on chromosome 16p11 and consists of five exons. This cytokine shows a broad range of pro- and anti-inflammatory properties during immune responses, which also plays essential roles during immune responses in combating host invading pathogens. IL-27 is mainly secreted by antigen-presenting cells (APC) in response to infections caused by intracellular pathogens such as HBV and host immune stimuli. Conversely, IL-27 inhibits expression of FoxP3, the critical transcription factor for T regulatory cells that have been implicated in sustaining viral persistence. For the above reasons, in this study the possible association between expression of *IL-27* gene with HBV infection was evaluated in liver transplant patients. In a cross sectional study from liver transplant patients with the risk of HBV infection who admitted to Namazi Hospital affiliated to Shiraz University of Medical Sciences, 50 patients were selected and subgrouped to 25 HBV infected and 25 non-infected ones between years:2011-2013. 25 healthy control group was also enrolled in this study. The presence of HBV infection was assessed using PCR in liver transplant patients. In addition, the *IL-27* gene expression level was analyzed using Real Time PCR method. The rate of *IL-27* gene expression level in studied patients and control groups using Livak ($2^{-\Delta\Delta CT}$) method. The expression level of *IL-27* gene was increased 10.27 and 2.36 fold in HBV infected liver transplant patients and non-infected ones compare with healthy controls respectively. Based on these findings, it may possible to control post inflammatory outcomes of *IL-27* by use of anti-HBV strategies in liver transplant patients.

Key words: Liver transplantation, Hepatitis B virus, Interleukin 27

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Study the expression profile of Interleukin-27 gene in organ transplant patients with hepatitis B virus infection

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