## Abstract

Polyomavirus BK latent infection predominantly present among general population. This viral infection is asymptomatic in immunocompetent individuals. But, in immunocompromised patients increase of polyomavirus BK reactivation, can led to multiple clinical outecomes. The lack surveillance of the kidney transplant recipients threatened by reactivation of this viral infection can led to BK associated nephropathy (BKVAN). Introduce higher dose of immnosuppressive conditioning regimens partial responsible for increasing the incidence in kidney transplant patient with BKVAN. On the other hand, antiviral immunoregulatory markers like Gamma interferon (IFNγ) can affect the polyomavirus BK pathogenesis. IFNγ has a major role in antiviral host defense, graft rejection, and regulative of the adaptive immune responsive. Therefore, in this study, the possible association between polyomavirus BK infection with IFNγ gene expression was evaluated. In this cross section study, 270 kidney transplant patients admitted to Namazi Hospital affiliated to Shiraz University of medical sciences, Shiraz, Iran were enrolled between years 2013- 2014. After screening for present of polyomavirus BK infection using Real time PCR (Taq Man) protocol, the studied patients were classified into two groups, including 23 polyomavirus BK infected and 23 polyomavirus BK non-infected kidney transplant patients. A control group that organized of 23 normal persons was included in this study. The mRNA expression level of IFNγ gene was also evaluated using an in house Real time PCR (SYBER Green) in all studied patient groups and controls. The rate of IFNγ gene expression was calculated in patient groups and control using the Livak ($2^{-\Delta\Delta CT}$) method.

The polyomavirus BK infection was found in 23 of 270 (8.5%) kidney transplant patients. The mRNA expression level of IFNγ was significantly higher in polyomavirus BK infected patients compared with non-infected ones and healthy controls. The IFNγ mRNA level was increased 58.47 and 4.62 fold in polyomavirus BK infected and non-infected patients compared with healthy controls, respectively.

Based on these finding, polyomavirus BK infection can induced over expression of IFNγ gene in virus infected clinically complicated kidney transplant patients. These results emphasized on the determinative role of IFNγ in pathogenesis of active polyomavirus BK infection and promoting virus related post kidney transplant clinical complications, need to confirm in further complicated studies.

Key Words: polyomavirus BK, IFN-γ, kidney transplantation

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# Evaluation of *IFN-γ* gene expression in renal transplant recipients with BKV infection

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