Association between IL28B rs12979860 single nucleotide polymorphism and the frequency of colonic Treg in chronically HCV-infected patients

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Abstract:

The IL28B gene is associated with spontaneous or treatment-induced HCV viral clearance. However, the mechanism by which the IL28B single nucleotide polymorphism (SNP) affects the extra-hepatic HCV immune responses and its relationship to HCV pathogenesis have not been thoroughly investigated. To examine the mechanism by which IL28B affects HCV clearance. Forty Egyptian patients with chronic HCV infection receiving an Interferon/ribavirin treatment regimen were enrolled into this study. There were two groups: non-responders (NR; n = 20) and sustained virologic responders (SVR; n = 20). The initial plasma HCV viral loads prior to treatment and IL28B genotypes were determined by quantitative RT-PCR and sequencing, respectively. Liver biopsies were examined to determine the inflammatory score and the stage of fibrosis. Colonic regulatory T cell (Treg) frequency was estimated by immunohistochemistry. No significant association between IL28B genotypes and response to therapy was identified, despite an odds ratio of 3.4 to have the TT genotype in NR compared to SVR (95% confidence interval 0.3–35.3, p = 0.3). Patients with the TT-IL28Brs12979860 genotype (unfavorable genotype) have significantly higher frequencies of colonic Treg compared to the CT (p = 0.04) and CC (p = 0.03) genotypes. The frequency of colonic Treg cells in HCV-infected patients had a strong association with the IL-28B genotype and may have a significant impact on HCV clearance.

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