Genotype-related variations in proinflammatory and regulatory cytokine levels in treated and treatment-naive HCV-infected patients.

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Abstract

Hepatitis C virus (HCV) modulates immune-related inflammatory responses to induce milder reactions leading to virus persistence. In this regard, the present study aimed to investigate the link between the HCV genotypes and the proinflammatory and regulatory cytokine levels. Ninety patients with hepatitis C infection (68 treatment-naive and 22 treated patients) and 76 healthy blood donors were studied. The serum levels of IFN-γ, IL-10, IL-17A, and IL-21 were measured by ELISA in the patients and healthy controls. IL-10, IL-17A, and IL-21 levels were significantly higher in HCV patients than in the healthy controls. The same cytokines were also higher in genotype 3a-infected patients compared with genotype 1a-infected patients. Interestingly, in treated patients, lower serum levels of IL-17A and IL-21 were detected in G3a-infected individuals, but not in those infected with G1a. G3a viral load displayed a significant correlation with IL-21 and IL-17A levels. In addition, G1a viral load correlated with IL-10 levels. In G3a-infected patients, a significant association was found between IL-17A serum levels and ALT. We found differences in IL-21 and IL-17A serum levels among HCV-infected patients which were genotype dependent. Since Th17-associated cytokines are associated with the progression of liver disease in HCV patients, IL-17A and IL-21 can be used as important biological markers for evaluating the immunopathogenesis of chronic hepatitis. Our results suggest that HCV G3a along with immune responses such as cytokines in HCV patients should be taken into account when interpreting clinical data and IFN-based therapeutic response.

KEYWORDS:

Antiviral treatment; Cytokines; Hepatitis C genotype; Inflammatory