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The Role of T Regulatory Cells and Pro-and Anti-Inflammatory Cytokines in Viral Persistence and Clinical Outcome in HCV-Infected Patients

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The immuno pathogenesis of chronic HCV infection is a matter of great controversy. We aimed to investigate the distributional profiles of T-regulatory cells (Tregs) and the balance between pro-inflammatory (interferon [IFN] and interleukin-[IL] 2) and anti-inflammatory (transforming growth factor [TGF] 1 and IL-10) cytokines among chronic HCV- infected patients in comparison to asymptomatic HCV patients and normal healthy controls. Ninety individuals (50 viremic HCV with elevated liver enzymes, 20 asymptomatic HCV patients with normal liver enzymes and 20 healthy blood donors as control) were investigated. Levels of Tregs subpopulation (CD4 + CD25 +, CD4 + FoxP3 + and CD4 + CD25 + FoxP3 +) were analyzed using 4- colour flow cytometry. In addition, IL-10, TGF- 1, IFN-, and IL-2 were measured in serum using ELISA. A significantly higher proportion of CD4 + CD25 + cells were found in those with chronic HCV infection compared to asymptomatic and normal controls. Similar results were obtained when comparing CD4 + FoxP3 + Treg subset among the chronic HCV group and the other two groups with p values equaling 0.009 and 0.04 respectively, similarly, with CD4 +CD25 +FoxP3 + significant differences were obtained between chronic and asymptomatic ($p < 0.004$) and between chronic and control group ($p < 0.008$). A positive correlation was found between CD4 +CD25 +FoxP3 +and HCV RNA titer ($R=0.601$, $P>0.005$), meanwhile, no relation between them and degree of fibrosis. Comparison of the cytokines profile of chronic HCV group with the asymptomatic one revealed significantly higher serum levels of IL-2, IL-10, TGF- and IFN- . Patients with chronic viral hepatitis display increased numbers of Tregs compared to other groups which highlight the importance of Tregs in immunopathogenesis of chronic HCV infection.