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- T Helper Type 1/T Helper Type 17 Related Cytokines in Chronic Hepatitis C Patients before and after Interferon and Ribavirin Therapy
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## Abstract

Objective: This study examined the [T helper](#) (Th) 1/Th17-related cytokines, interferon (IFN)- $\gamma$  and interleukin (IL)-17 in the serum of biopsy-proven [chronic hepatitis C](#) patients before and after IFN and ribavirin therapy to address whether or not viral clearance is related to Th1/Th17 cytokines. Subjects and Methods: The serum levels of IFN- $\gamma$  and IL-17 were assayed by ELISA on 26 patients with chronic hepatitis C virus (HCV) infection before the start and 3 months after treatment with pegylated IFN- $\alpha$  plus ribavirin and compared with sera from 15 [normal control](#) subjects. Results: IFN- $\gamma$  and IL-17 levels are higher in the serum of patients with [chronic hepatitis](#) than in normal controls and these elevated levels were not directly correlated ( $r = -0.01$ ,  $p = 0.96$  for IFN- $\gamma$  and  $r = -0.08$ ,  $p = 0.66$  for IL-17) to the viremic state of the HCV infection. In contrast to IL-17, IFN- $\gamma$  showed significant reduction after 12 weeks of treatment with pegylated IFN plus ribavirin. However, IFN- $\gamma$  and IL-17 serum levels were not significantly ( $p = 0.19$  and  $= 0.70$ , respectively) different among responders and nonresponders for pegylated IFN plus ribavirin therapy. Conclusion: Our findings suggest that the combined treatment with pegylated IFN- $\alpha$  and ribavirin downmodulates the secretion of key cytokine IFN- $\gamma$  as early as 12 [weeks after treatment](#) in infected patients. These findings could encourage new exciting possibilities for immune-based interventions with the aim of restoring functional antiviral T cell responses combined with improved viral clearance.