

Early high levels of regulatory T cells and T helper 1 may predict the progression of recurrent hepatitis C after liver transplantation

K Ghazal ¹, O Morales ², C Barjon ³, G Dahlqvist ⁴, L Aoudjehane ⁵, L Ouaguia ², N Delhem ², F Conti ⁶

Affiliations + expand

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Abstract

Background: Immune response failure against hepatitis C virus (HCV) has been associated with an increased regulatory T cell (Treg) activity. After liver transplantation (LT), 80% of patients experience an accelerated progression of hepatitis C recurrence. The aim of this work was to assess the involvement of Tregs, T helper (Th) 1, 2 and 17 cells in recurrent hepatitis C.

Methods: Peripheral blood cells obtained before and one month after LT from 22 recipients were analysed. Forty-four key molecules related to Treg, Th1, 2 and 17 responses, were evaluated using qRT-PCR. Liver recipients were classified in two groups according to graft fibrosis evaluated by the METAVIR score on the biopsy performed one year after LT (mild: $F \leq 1$, $n = 13$; severe: $F > 1$, $n = 9$). Patients developing a severe recurrence were compared with patients with a mild recurrence.

Results: mRNA levels of Treg markers obtained one month after LT were significantly increased in patients with a severe disease course when compared to patients with a mild recurrence. Markers of the Th1 response were elevated in the same group. No differences in the markers determined before LT were observed.

Conclusion: These findings suggest that Treg, induced by a multifactorial process, which could include a strong Th1 response itself, may play a role in suppressing the early antiviral response, leading to a severe recurrence of hepatitis C.

Keywords: HCV recurrence; Hepatitis C; Liver transplantation; Regulatory T cells; Th1; Tr1.