Hepatitis B virus-specific T-cell responses during IFN administration in a small cohort of chronic hepatitis B patients under nucleos(t)ide analogue treatment.

The effect of pegylated interferon-α (IFN) add-on therapy on HBV-specific T-cell responses was evaluated in 12 patients with stable, undetectable hepatitis B virus (HBV) load under nucleos(t)ide analogue therapy. Peripheral blood mononuclear cells were isolated at week 0, 4, 8, 12, 24 and 48 of IFN add-on therapy. Quantity and quality of circulating HBV S- and core-specific CD4 and CD8 T cells were analysed ex vivo by flow cytometry. HBV S- and core-specific CD4 T-cell numbers modestly increased within 8 weeks of IFN administration (P = 0.0391 and P = 0.0195), whereas HBV-specific CD8 T cells in general showed only minor changes under IFN add-on therapy. Functionality of HBV-specific CD4 but not CD8 T cells positively correlated with serum transaminase activity. In addition, we observed an increase in CD4 T cells producing tumour necrosis factor-α (TNF-α) without antigen restimulation (P = 0.0039), which correlated with elevated transaminases. During IFN add-on therapy, two patients developed an anti-HBs seroconversion, only one of whom showed a relevant increase in HBV-specific T cells. In conclusion, IFN add-on therapy of chronic hepatitis B increased HBV-specific T-cell responses and affected a previously unrecognized TNF-α-monofunctional CD4 T-cell.
population. Although the observed T-cell responses did not correlate with HBsAg seroconversion, we expect additional insights into the immunopathogenesis of hepatitis B, following the characterization of the newly identified TNF-? monofunctional T-cell population.