Hepatitis C virus eradication associated with hepatitis B virus superinfection and development of a hepatitis B virus specific T cell response

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BACKGROUND/AIMS: Specific T cell responses during acute hepatitis B and during chronic hepatitis C have been described in detail. However, the T cell responses during the rare setting of acute hepatitis B virus (HBV) infection in the course of chronic hepatitis C that eventually lead to clearance of both viruses are completely unknown. METHODS: We analyzed the virus specific CD4+ and CD8+ T cell response during an acute HBV superinfection in a patient with chronic hepatitis C. RESULTS: The patient eliminated hepatitis C virus (HCV)-RNA and HBV-DNA from serum soon after the clinical onset of acute hepatitis B. The HBV specific T cell response found in this patient corresponds to the typical response that has been described in acute hepatitis B without chronic HCV infection. In contrast the hepatitis C specific immune response was similar to that generally found in chronic hepatitis C despite the fact that the patient also eliminated HCV-RNA. CONCLUSIONS: We hypothesize that the acute HBV infection induced a HBV specific T cell response which was associated with elimination HBV DNA and HCV-RNA, the latter possibly by bystander mechanisms, e.g. via secretion of cytokines. If such a non-specific bystander mechanism which has proven to be effective in the experimental setting and which is formally described here for a single patient can be shown to be a more general phenomenon, it may support the approach with new antiviral strategies, e.g. the induction of non-specific defense mechanisms against HCV.

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