


Spontaneous Elimination of HCV during the Reactivation of HBV Infection in a HIV-Seropositive Patient: A Case Report

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Abstract

The course of hepatitis C virus (HCV) infection varies widely after initial exposure. Two-third of individuals have persistent viremia and develop chronic hepatitis C. In HCV chronically-infected patients, spontaneous HCV clearance occurs in approximately 0.5%/individual/year. All the case reports describing this fact are associated with changes in host immunity.

We report a case of HCV RNA spontaneous clearance concurrently with hepatitis B virus (HBV) reactivation in a patient infected with the human immunodeficiency virus type 1 (HIV-1) and chronically-infected with HCV. Serum HCV RNA became undetectable at diagnosis of HBV reactivation. Nine months after acute hepatitis, serum HBV DNA was no more detectable but HCV RNA load was found to rise again to its pre-hepatitis level.

Introduction

Seventy to eighty percent of patients infected with hepatitis C virus (HCV), defined by the persisting presence of serum HCV RNA more than 6 months, develop a chronic infection, whereas 20-30% of patients clear HCV RNA shortly after onset of acute infection [1]. In contrast, spontaneous healing has been scarcely reported once chronic infection is established, occurring in approximately 0.5%/individual/year [2].

The several case reports describing this fact are associated with changes in host immunity like development of hepatocellular carcinoma, pregnancy, immunosuppressive therapy after liver transplantation, gastrectomy for gastric cancer and immune reconstitution following treatment by protease inhibitor for HIV infection [2-6].

We report a case of HCV RNA spontaneous clearance concurrently with hepatitis B virus (HBV) reactivation in a patient infected with the human immunodeficiency virus type 1 (HIV-1) and chronically-infected with HCV.

Case Report

Our patient is a 49-year-old male co-infected with HIV-1 and HCV/genotype 3a since at least 6 years. His HBV serological status indicated an isolated antibody against HBV core antigen (anti-

HBc) which is indicative of resolved HBV infection (AxSYM Abbott assays, Abbott Diagnostics).

Despite several antiretroviral combination regimen, HIV-1 replication remained detectable (using Cobas HIV-1 Taqman Roche assay, Roche Diagnostics; lower limit of detection, 40 copies/ml) since 18 months, whereas the CD4 cells count slowly decreased until 216/mm³. Concomitantly, HCV RNA level was 6.20 log₁₀ IU/mL (Cobas HCV Taqman Roche assay, Roche Diagnostics).

Six months later, the patient presented acute hepatitis with jaundice. Alanine aminotransferases (ALT) and bilirubinemia increased within 40 (1,931 IU/L) and 8 times (150 μmol/L) the upper limit of normal, respectively; prothrombin time fall to 66%. HBV reactivation was diagnosed based on high HBV DNA levels (7.81 log₁₀ IU/mL), and HBsAg and anti-HBc Immunoglobulin (Ig) type M positivity. Phylogenetic analysis of HBV DNA pol sequences retrieved a genotype D. Surprisingly, concomitantly with the rise of HBV DNA, serum HCV RNA decreased from an initial 5.15 log₁₀ IU/mL to undetectable levels (as assessed five weeks following clinical onset of hepatitis), without any anti-HCV treatment, but anti-HCV stayed positive. HIV-1 load was 3.46 log₁₀ copies/mL and CD4 cells counts was 424/mm³.

Retrospective analyses were performed to obtain the kinetic of both HBV DNA and HCV RNA measurements in serum from 18

months to prior to the clinical onset of hepatitis. They showed that HBV DNA remained undetectable in serum until the diagnosis of reactivation (lower limit detection, 6 IU/mL).

HCV RNA remained undetectable on three consecutive samples during a one-month period. Then the patient only came back to hospital nine months later, and unfortunately, his HCV RNA load was found to have risen again to its pre-hepatitis level ($6.20 \log_{10}$ IU/mL). In contrast, HBV DNA was no more detectable with ultra-sensitive assays, and HBsAg had been cleared. ALT remained above the normal values, at 144 IU/L.

Discussion

This report documents the clearance of both: hepatitis B and C viruses in a HIV-1 seropositive patient suffering from chronic HCV infection and relapsing from HBV infection.

Co-infection of other viruses, especially HIV-1 and HBV, has been shown to modify the natural course of HCV infection [7,8]: co-infection of HIV-1 is associated with significantly lower spontaneous HCV clearance, while chronic infection with HBV is associated with significantly higher spontaneous clearance [9-11].

Up to now the natural course of HBV reactivation in patients with chronic HCV hepatitis has remained unclear and no data is available. The few cases of patients describing a spontaneous elimination of both HCV during chronic infection and HBV provide an acute HBV infection in HIV-seronegative patients [12-15]. In these cases, the patients were negative for HCV RNA for 6 months at least, such as our patient.

Unlike our case, a study of hemophiliac subjects had shown that resolved HBV infection was not associated with spontaneous clearance of HCV contrary to chronic HBV disease [16].

The mechanisms of the reciprocal inhibition in viral replication between HBV and HCV in patients co-infected with these two viruses are not clear but scientists hypothesize a specific humoral T cell response by HBV superinfection against HCV [12,13].

Conclusion

We recommend the monitoring of HCV RNA in sera of HCV chronically-infected patients during hepatitis B reactivation or superinfection, to detect potential HCV clearance.

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