

Low prevalence of hepatitis B and C infections among HIV-infected individuals in Slovenia: a nation-wide study, 1986–2008

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ABSTRACT

Background: With the increased lifespan of HIV-1-infected patients, mostly due to highly active antiretroviral therapy, hepatitis C virus (HCV) and hepatitis B virus (HBV) have recently emerged as important pathogens in these patients. HIV-1 infection has an important negative impact on the natural history of HCV and HBV infections, which has consequently caused increased liver-associated and overall morbidity and mortality in HIV-1-infected patients. Thus, liver disease is currently the second leading cause of death in HIV-infected persons in Europe.

Objective: To determine the prevalence of HBV and HCV infection in HIV-infected individuals in Slovenia.

Methods and results: 356 out of 409 Slovenian individuals, confirmed as HIV positive by the end of 2008, were tested for the presence of HBV and HCV infection. Evidence of prior and current HBV infection was found in 77 (21.6%) and 14 (3.9%) of HIV-positive patients, respectively. 38 of 356 (10.7%) HIV-infected individuals were confirmed as anti-HCV positive, and 26 of them (68.4%) were also HCV RNA positive. Concomitant active HBV and HCV infection was found in only two HIV-positive individuals.

Conclusion: In a study carried out on the highest proportion per entire population of HIV-infected individuals from a certain country or geographical region, Slovenia was identified as the country with the lowest prevalence of HCV infection among HIV-infected individuals.

KEY WORDS

HBV, HCV,
HIV, Slovenia

Introduction

Slovenia is a central European country with a total population of 2 million and a relatively low prevalence of HIV infection. The HIV epidemic started in 1986, and since then HIV-infection surveillance has been based on mandatory reporting of newly diagnosed cases of HIV infection and

AIDS (1). By the end of 2008, a total of 409 HIV-1-infected individuals were reported cumulatively in Slovenia. The vast majority of infected individuals were men (352/409; 86%), and among them approximately 68% are men that have sex with men (MSM). Subtype B is a predominant HIV-1 subtype in Slovenia and is present in 85% of HIV patients (2, 3). The prevalence of transmitted antiretroviral drug

resistance mutations in drug-naïve HIV-1 infected patients is 3.9% (4). In the last 4 years, a significant increase in the total number of newly diagnosed HIV-1 infected individuals as well as the number of newly diagnosed patients with primary/early HIV-1 infection has been recognized in Slovenia (5). In contrast to several countries in western and central Europe and North America, where a shift towards heterosexual transmission has recently been noted, the predominant mode of HIV-1 transmission in Slovenia is still through unprotected homosexual intercourse leading to the situation in which 80% of newly diagnosed HIV individuals in the last four years belong to MSM. The intravenous drug user (IDU) population in Slovenia has so far largely been spared from HIV-1 infection (5).

With the increased lifespan of HIV-1-infected patients, mostly due to highly active antiretroviral therapy, hepatitis C virus (HCV) and hepatitis B virus (HBV) have recently emerged as important pathogens in these patients (6–9). HIV-1 infection has an important negative impact on the natural history of HCV and HBV infections, which has consequently caused increased liver-associated and overall morbidity and mortality in HIV-1 infected patients (6–9). Thus, liver disease is currently the second leading cause of death in HIV-infected persons in Europe (7).

The majority of recent expert guidelines recommend screening all HIV-infected persons for infection with HCV and HBV and appropriate management of those found to be chronically infected (9). This has also been the standard of care in Slovenia since 2001. In 2002 we conducted a study that found a relatively low prevalence of HCV infection in the population of HIV-infected individuals from Slovenia and Croatia (10). Thus, 24 (14.5%) out of 166 Slovenian HIV-infected individuals were found to be anti-HCV positive (10).

Patients and methods

This study tested the presence of HBV and HCV infection in 356 out of 409 Slovenian individuals that were confirmed as HIV positive by the end of 2008, and who had sera in sufficient amount available for analysis. The prevalence of HBV and HCV infection was determined for 87% of the entire population of Slovenian HIV-infected individuals, who, according to the published data, represent the highest proportion of the entire population of HIV-infected individuals from a certain country or geographic region studied for this purpose to date.

All individuals included in the study were tested

for the presence of HBsAg and anti-HBc using the Architect HBsAg Assay (Abbott, Chicago) and Ortho Anti-HBc Assay (Ortho Diagnostic Systems, Neckargemünd, Germany), respectively, as well as for the presence of anti-HCV and HCV RNA using the Ortho HCV Assay (Ortho Diagnostic Systems) and the COBAS Amplicor-Hepatitis C Virus Test 2.0 (Roche Molecular Systems, Branchburg, NJ), respectively. The results of initially reactive HBsAg specimens were confirmed using a neutralization assay, and of initially anti-HCV reactive specimens by the Inno-Lia HCV Ab III Update Assay (Innogenetics, Zwijndrecht, Belgium).

Results

Among individuals included in the study, 307 were men and 49 women, and mean age at the time of HIV diagnosis was 36.9 years (range 0–81 years).

265 out of 356 patients (74.4%) were negative for both HBV markers tested. Evidence of prior or current HBV infection was found in 91 (25.6%) HIV-positive patients: 14 of them were HBsAg and anti-HBc positive (current HBV infection) and 77 patients had anti-HBc antibodies only (prior HBV infection). The anti-HBc positivity was not significantly different in those that acquired HIV by the parenteral route (30%) compared to those that acquired HIV by the sexual route (26%).

38 out of 356 (10.7%) HIV-infected individuals were confirmed as anti-HCV positive, and 26 of them (68.4%) were also HCV RNA positive. HCV RNA alone was not detected in any of the 318 anti-HCV-negative individuals. HCV genotype 1 was most prevalent among HIV-infected individuals (65.3%), followed by genotype 3 (23.3%) and genotype 4 (11.4%). Anti-HCV positivity was significantly higher in those that acquired HIV by parenteral route (73.3%) than in those who acquired HIV by sexual route (5.2%).

Concomitant active HBV and HCV infection (HBsAg and HCV RNA positive) was found in only two HIV-positive individuals.

Discussion

Among HIV positive individuals in Europe, HBV is most frequently transmitted by sexual intercourse and HCV by IDU (9). Globally, the evidence of prior and chronic HBV infection can be found in 50 to 90% and 5 to 15% of HIV-infected individuals, respectively (11). The prevalence of HCV and HIV coinfection varies mainly depending on the route of HIV transmission, ranging from 10

to 14% among persons reporting high-risk sexual exposure to approximately 85 to 90% among those reporting IDU (9). In Europe and the United States, approximately 33% of all HIV-infected persons are HCV infected (12).

Our study showed that among HIV-infected individuals from Slovenia 3.9% and 21.6% had evidence of active and prior HBV infection, respectively, and 10.7% had evidence of HCV infection. According to the literature data, the prevalence of HCV infection in HIV-infected individuals from Slovenia is the lowest prevalence published to date. The low prevalence of HCV and HIV coinfection in Slovenia can be explained by the fact that more than 80% of HIV-infected individuals from Slovenia have most probably acquired HIV by the sexual route (both heterosexual and between men) and that the IDU

population in Slovenia has so far largely been spared from HIV-1 infection (1, 5). However, the present favorable epidemiological situation in the Slovenian HIV-positive community could quickly change, like it has in several developed countries that have recently faced a dramatic increase in the incidence of acute hepatitis C among HIV-infected MSM (13–16).

Conclusion

In this study, carried out on the highest proportion of the entire population of HIV-infected individuals from a given country or geographic region, Slovenia was identified as the country with the lowest prevalence of HCV infection among HIV-infected individuals.

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