Original Article

Frequency of HBV, HCV and HIV infections among hospitalized injecting drug users in Kashan

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Abstract

Context: Infectious diseases including HIV and viral hepatitis constitute a major health issue, with high prevalence among injecting drug users (IDUs). **Aims:** The present study assessed the frequency of HIV, and hepatitis B and C viruses (HBV and HCV) among 200 IDUs, hospitalized between 2001 and 2006, in Shahid Beheshti Hospital of Kashan, Iran. **Setting and Design:** A population-based cross-sectional study in Iran. **Materials and Methods:** A total of 200 subjects participated in this study. Serological markers including HBsAg, anti-HCV antibodies and HIV were assessed by ELISA method using Monobid kits made in US. Demographic data was collected by using a questionnaire, which was designed by a researcher. **Statistical Analysis Used:** Frequencies were determined by employing SPSS:PC version 15.0, and Chi-square and Fisher's exact tests were used to compare proportions. **Results:** The mean age of subjects was 36.5 ± 10.2 years. Approximately 88.5% (177 cases) were male and 11.5%. (23 cases) were female. The frequency of positive infection test results for males with respect to HBV, HCV, and HIV was 4% (8 cases), 10.5% (21 cases), and 1.5% (3 cases); and for females it was 0.5% (1 case), 1.5% (3 cases), and 0% (0 case), respectively. **Conclusion:** This study demonstrates that the frequency of HBV, HCV, and HIV infection in the IVD user in Kashan, Iran, is relatively high and this condition is more serious in male than female drug addicts. It is very important, especially for health providers and policy makers, to recognize the risk factors of HBV, HCV and particularly HIV infection in this area and design effective preventive programs.

Key words: HBV, HCV, HIV, injecting drug user

INTRODUCTION

Infectious diseases including HIV and viral hepatitis constitute major health issues, with particularly high prevalence among injecting drug users (IDUs). Viral hepatitis is a potential major health issue that can be caused by different etiologic agents.[1] These types of infections are spread worldwide, although their prevalence varies in different regions. It is estimated that there are approximately 350 million carriers of hepatitis B virus (HBV) in the world, with one million deaths per year as a consequence of hepatitis B.[1–3] Also, more than 150,000 people are infected with hepatitis C virus (HCV) each year in the US, and approximately 20 to 30% of these patients are at risk for developing cirrhosis.[4] Blood-borne hepatitis can become a chronic infection at proportions which vary depending on the causative agent. Among adults with HBV infection, 5–10% can become chronic and a higher frequency (90%) is observed in HCV, a super infection.[4-6] Liver cirrhosis and hepatocellular carcinoma are two of the major late complications of viral hepatitis.[3,7] HBV is associated with fulminate hepatitis in approximately 1–2% of acute cases, whereas HCV is rarely associated with this complication.[4–6] Injecting drug users (IDUs) belong to a section of population, more frequently exposed to many viral infections,

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including HBV, HCV, and HIV.[8] Furthermore, these subjects play a role as a reservoir and source of viral transmission in the intra- and extra-exposure categories. The prevalence of blood-borne hepatitis is usually higher among IDU than in other comparable non-IDU population strata.[9] Epidemiological data indicate that IDUs represent the largest risk group for HCV infection.[10] The aim of the present study was to assess the frequency of HBV, HCV, and HIV infections and their respective risk factors among IDUs from .

MATERIALS AND METHODS

IDU population and testing

The subject for this research included 200 injecting drug users hospitalized between 2001 and 2006, at Shehid Beheshti Hospital, Kashan, a city 200 km south of Tehran, Iran. The patients voluntarily participated in the study. The injecting users were hospitalized at the infection ward of the hospital. According to ethical guidelines, formal consent was obtained from each individual, who was interviewed using a standardized questionnaire including questions regarding socio-demographic status. All subjects were tested for the presence of anti-HBc, HBsAg, anti-HCV, and anti-HIV infection by drawing 5 cc of their blood samples. Serological markers including HBsAg, anti-HCV antibodies, and HIV were assessed by ELISA method using Monobid kits made in the US. Demographic data was collected by using a researcher designed questionnaire.

Statistical analysis

Following the completion of data collection for all the participants, statistical analysis were performed using the SPSS:pc version 15.0. The results of analysis are presented in Table 1. Tests of association between gender and affliction to infectious diseases were also performed using chi-square and Fisher's exact test (Yates corrected) and *t*-test for means were employed. Results were regarded at the *P* value set to 0.05.

RESULTS

In this research, 200 IDUs were examined. The results of analysis indicated that 177 patients were males (88.5%) and 23 were females (11.5%). The mean age of the subjects was 36.5 ± 10.2 years. The results of test analysis performed in lab revealed that the frequency of positive infection among the male with regards to HBV, HCV, and HIV was 4% (8 cases), 10.5% (21 cases), and 1.5% (3 cases); and for female it was 0.5% (1 case), 1.5% (3 cases), and 0% (0 case), respectively. These results are presented in [Table 1]. The results of demographic data analysis showed that 73% (146) individuals had under diploma degree and 27% (54) patients had higher than high school diploma; and all the HIV patients had less than diploma education. Also, 1% (2) had HBV and HCV simultaneously; whereas, none of the patient suffered from HBV, HCV, and HIV at the same time.

Table 1: Frequency percent of positive results of lab test according to the gender

Gender marker	Male % (+/N)	Female % (+/N)
HBsAg	4.5 (8/177)	0.04 (1/23)
HCV	11.9 (21/177)	1.3 (3/23)
HIV	1.6 (3/177)	0 (0/23)
Total	18 (32/177)	1.7 (4/23)

In addition, Chi square test was used to examine the relationship between gender and addition. The results of analysis showed that there was no significant association between these factors ($P > 0.05$), nor there was any significant association between the marital status and IVD ($P > 0.05$).

DISCUSSION

The present study shows a high prevalence of blood-borne viral hepatitis among IDUs from Kashan, a region of unknown endemicity for HBV infection. The frequency of HBsAg found in this study (4.5%) for men was within the range of approximately 1.30−8.69% by other researchers.[10,11] But, this was relatively lower than those observed in areas of high endemicity, with more than 8% of HBsAg prevalence studies of IDUs in Santos, SP, Brazil,[12] and 6.5% in Kabul, Afghanistan.[13] The frequency of HCV infection for male patients in this study was 11.9%, whereas 1.3% for female subjects. However, no significant association was found between the gender and affliction to this infection. These results are similar to those reported in a study conducted in China.[14] As HBV and HCV have the same transmission routes, dual infection may occur. Patients coinfected with HBV and HCV may have more severe liver disease and high mortality rate (10%).[15,16]

As De Jarlais[17] pointed, IDUs constitute an important source of viral infections and therefore can play an important role in the transmission of viruses to the general population. Hence, a public health intervention with the implementation of comprehensive prevention programs including information, face-to-face education, empowerment

strategies, distribution or exchange of clean injecting equipment and distribution of condoms must be encouraged. These measures are especially relevant in developing countries such as Iran, Afghanistan, and Brazil; where Public Health programs are under budgeted and understaffed, and frequently lack expertise and political support for implementation.

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