

The Frequency of HBV and HIV among injection Drug Users in Shahre-Kord, Iran

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Abstract

Background: Drug injection is one of the most significant risk factors for viral hepatitis and human immunodeficiency virus (HIV) infection. The present study was performed to evaluate the frequency of hepatitis B (HBV) and HIV infection in IDUs and to identify the risk factors of these infections in this group in a central city of Iran, Shahre-Kord.

Methods: This study was conducted in 2004 with a study population of 133 Intravenous drug users (IDUs) in a voluntary drug treatment center. Information on demographics, HBV, and HIV-related risk behaviors were obtained through an interviewer-assisted questionnaire. IDUs serum samples were screened for HBV and HIV infection using Enzyme-linked immunosorbent assay (ELISA). All HIV positive samples were confirmed by Western blotting.

Results: Of the 133 IDUs, 1 (0.75%) was HIV+ and 8 (6.2%) were Hepatitis B surface antigen positive (HbsAg+). The mean age of HBV infected IDUs was 31.13 years. The prevalence of HBV infection was more than that of the HIV infection. Using Chi-square test it was found that there was significant correlation between using shared syringe and infection with both HIV and HBV ($P < 0.05$).

Conclusion: This is the first prevalence study of HBV and HIV infection among IDUs in Shahre-Kord. We concluded that drug users had an elevated prevalence of HBV and HIV infection. Drug injection is the most important risk factor associated with blood-borne viral and particularly HIV and HBV infections.

Keywords: *HIV, hepatitis B virus, intravenous drug users, Iran*

Introduction

Intravenous drug users (IDUs) constitute a group of frequent exposure to many viral infections, since they usually engage in high-risk injecting behavior (1). HBV and HIV share the common features of having a lipid envelope and being transmitted by blood contact (2). Therefore, using sharing injection equipment such as needle is one of the most significant risk factors in the transmission of these infections in IDUs (3-5). The prevalence of blood-borne hepatitis is usually higher among IDUs

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than in other comparable non-IDU population (6).

Epidemiological data indicate that IDUs represent the largest risk group for HCV infection (7). Both HCV and HBV infections are also of major public health concern and the prevention of these two viral diseases are imperative. This is because infected individuals carry a substantial risk of chronic liver disease (5 to 10%) of HBV and more than 50% of HCV. Moreover, individuals infected with HBV, and to a lesser degree those with HCV infection, may transmit the virus to their sexual partners, and in case of females to their offspring (6, 7). It is now rec-

ognized as most important to prevent HCV infection among groups at high risk of HIV infection, because HCV infection frequently progresses to chronic hepatitis, cirrhosis, and eventually hepatocellular carcinoma (6, 7).

There are some evidences indicating the high prevalence rates of blood-borne infections among IDUs in different parts of Asia (8-10). HIV infection is one of the most important public health concerns. A variety of more specific risk factors of HIV infection in human such as needle sharing and number of drug injecting have been identified. Significant outbreaks of HIV infection among IDUs have occurred in about half of the countries in North Africa and the Middle East, notably in Iran. Sixty-five percent of the known and reported HIV cases in Iran have been attributed to injection drug use (11). A recent study in Fars Province of Iran revealed 30% and 78% prevalence rates of HIV and HCV infection among IDUs, respectively (12).

It is important to identify specific risk factors for HBV and HIV infection among IDUs, based on epidemiological data, in order to implement appropriate prevention measures. Considering the limited data on the epidemiology of blood-borne viral infections among IDUs in our country, this study was undertaken to assess the prevalence of HBV and HIV infections and their respective risk factors among this group in Shahre-Kord, Iran.

Materials and Methods

Subjects: A total of 133 serum samples from IDUs were tested for hepatitis B surface antigen (HBsAg) and HIV specific antibody during July to October 2004 in Shahre-Kord. The study population comprised all of 133 IDUs in a voluntary drug treatment center. The injecting users were 131 (98.4%) males and 2 (1.5%) females, with a mean age of 32 yr (ages ranged between 18 and 65 yr).

Serological assays. Serum samples were screened for HBsAg and HIV specific antibody

using enzyme-linked immunosorbent assay (ELISA; Vironostika HTLV I/II, Organon Teknica). All HIV positive samples were confirmed by Western blotting (WB; Gene Labs Diagnostics, Ltd).

Demographic data and statistical analysis: A questionnaire including questions about socio-demographic status, history of incarceration and using shared syringe obtained from each individual, who was interviewed. Statistical analysis and data merging were performed using the SPSS 8.0 statistical package for IBM-PC. Results were regarded as significant when $P < 0.05$. Descriptive results were presented as crowd frequencies, ratios, and 95% confidence intervals. The correlation between different factors was evaluated by Chi-square test.

Results

The frequency of HBsAg and anti-HIV in IDUs is shown in Table 1. As the table shows, none of the females was positive for anti-HIV and HBsAg and the frequency of HBV was more than anti-HIV in the males.

Analysis of individual risk factors

Information on demographics and HBV and HIV-related risk behaviors was obtained through an interviewer-assisted questionnaire. The mean age of HBV+ IDUs was 31.13 yr. The mean age of HBV- and HIV- IDUs were 31.26 and 31.4 yr, respectively. All of the HBV+ and HIV+ IDUs used shared syringe and had the history of at least one previous incarceration. Using Chi-square test it was found that there was significant correlation between using shared syringe and infection with HBV ($P < 0.05$). Some other information is shown in Table 2.

Discussion

Injection drug using is a key factor in the transmission of blood-borne pathogens. Behavioral epidemiological studies show that both injection-related risk factors, years of injecting drugs, type of drug injected and direct and indi-

rect sharing of injection are conducive to the spread of HIV and HBV among IDUs (13). This is the first prevalence study of blood-borne infections among IDUs in Shahre-Kord.

It has been reported that sixty-five percent of the known and reported HIV cases in Iran have been attributed to injection drug use (11). In addition, prevalence of HIV in Fars Province has been 30% (12). Therefore, the results of this study may have underestimated the prevalence (0.75%) of HIV infection. Our results also showed that the number of shared injected IDUs was less than that of non shared-injected IDUs (Table 2). Alternatively, this could be another explanation of low rate of HIV infection.

A relatively low rate of HBV infection compared to the results of some other studies (14-16) could be due to use of test, which was performed to find hepatitis B surface antigen. Using this test, only 6.2% of the cases were positive (Table 1). Since any exposure to hepatitis B virus would result in a positive test for anti-HBc (antibody to hepatitis B core antigen) (16), more samples may have tested positive using a test for detection of this antibody.

In this study we identified a history of syringe sharing as an important determinant of HBV and HIV infection as there was significant correlation between using shared syringe and infection with HIV and HBV ($P < 0.05$). There are some published results indicating that shared injection IDUs are at high risk of these infections (17-19). This study provides further evidence confirming that this behavior is a main risk factor for these infections.

In spite of the low prevalence of the two blood-borne viral infections in this study, due to increasing number of IDUs in Iran (20), harm reduction programs are needed. Two issues must be addressed to halt the spread of HIV and HBV infections. The capacity of syringe-exchange programs to refer participants to drug treatment programs and facilitate access to health and social services must be increased. Culturally appropriate behavioral interventions targeting risk behaviors among ethnic and racial minorities, especially women, must be developed and put in place (21).

Table 1: The frequency of HIV (anti-HIV) and HBV (HbsAg) infection in IDUs population from Shahre-Kord

Infection	Gender	No. (%)	Male No. (%)	Female No. (%)
	HIVab+		1 (0.75)	1 (0.75)
HIVab-		132 (99.2)	132 (99.2)	0 (0)
HbsAg+		8 (6.1)	8 (100)	0 (0)
HbsAg-		125 (93.9)	123 (98.4)	2 (1.6)

Table 2: The related risk behaviors of HBV, HCV and HIV infection in IDUs population from Shahre-Kord

Behavior	Infection	HbsAg+ No. (%)	HbsAg- No. (%)	HIV+ No. (%)	HIV- No. (%)
	Ever shared syringe/needle		5 (19.2)	21 (80.7)	1 (2)
Never shared syringe/needle		3 (2.8)	104 (97.2)	0 (0)	84 (100)
Previous incarceration		4 (8.5)	43 (36.1)	1(1.7)	55 (98.2)
Without previous incarceration		4 (4.6)	82 (95.3)	0 (0)	77 (100)

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