

## Original Article

## Epidemiologic Situation of Human Immunodeficiency Virus (HIV/AIDS Patients) in a Private Clinic in Tehran, Iran

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**Background:** Injection drug use has been the major route of HIV transmission over the past several years in some countries. The aim of this study was to describe epidemiologic and demographic factors, as well as the risk behavior data in HIV-positive patients referred to a private clinic in Tehran.

**Methods:** A retrospective study was conducted in 2005 based on documents of 150 HIV-infected patients referred to a private clinic from 1992 through 2004 in Tehran.

**Results:** Documents of 150 HIV-positive patients (124 males and 26 females) were analyzed. Injection drug use with one other risk factor, namely shared needle (n = 46), injection drug use without any other known risk factor (n = 37), and sexual activity (n = 25) were the major possible routes of transmission of HIV infection. The major possible route of transmission in female patients was sexual activity (n = 17), mostly from infected husbands (13/17).

There was no patient with a history of drug abuse from 1992 to 1997. The frequency of HIV-positive injection drug users was 1 in 1997 – 1998, 6 in 1999, 3 in 2000, 24 in 2001, 32 in 2002, 37 in 2003, and 11 in 2004.

Eighty-three (55%) of 150 and 64 (74%) of 86 patients had a history of drug abuse and incarceration, respectively.

**Conclusion:** We observed high rates of hepatitis C and B virus coinfection in our HIV-positive patients. Injection drug use is the main risk factor associated with HIV infection in Iran.

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**Keywords:** HBV infection • HCV infection • HIV/AIDS • injection drug user • sexual transmission

### Introduction

At the beginning of 1980's, acquired immune deficiency syndrome (AIDS) and its etiological agent were for the first time described to be associated with sexual contact, especially sex with other men as the main risk factor of human immunodeficiency virus (HIV) transmission. Nowadays, in many countries including Iran, however, drug abuse has been the major route of HIV transmission over the past several years. Among males with AIDS in

Argentina, 45% were injection drug users (IDUs). It was estimated that 50% of women had acquired infection through heterosexual contact and 12% through sex with IDU male partners; 31% of women were themselves IDUs; 7% showed blood transfusion as the possible route of transmission. Among children who developed AIDS, it was estimated that 3% acquired the infection through blood transfusions and 95% were children whose mothers were infected with HIV.<sup>1</sup>

According to the United States (US) Center for Disease Control and Prevention (CDC), drug abuse remains the second most common cause of exposure to HIV among cases in the United States.<sup>2,3</sup>

Considering the above points and regarding the increasing rate of drug abusing in Iran, this study was aimed to investigate this problem. Although, HIV and drug abuse are associated with numerous medical and health consequences, we focused on

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the prevalence of drug abuse and co occurrence of blood-borne infections and demographic features of our HIV-positive patients referred to a private clinic from 1992 through 2004.

### Patients and Methods

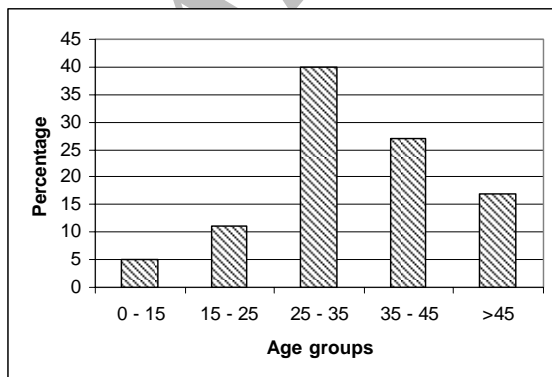
This retrospective study was carried out in 2005, using the existing data of 150 HIV-positive patients who were referred from other clinics to a private clinic in Tehran from 1992 through 2004. We studied some demographic characteristics including age, sex, history of injection drug using, possibility of other routes of transmission, having a risky behavior, history of incarceration, etc. We also examined some laboratory tests including anti-hepatitis C virus (HCV) antibody (Ab) and hepatitis B virus surface antigen (HBsAg) using ELISA, in their documents. All these patients were enrolled into our study (inclusion criteria). Data obtained from these 150 documents were extracted and statistical analyses were performed using SPSS (version 11.5) software.

### Results

Anti-HCV Ab and HBsAg were detected in only 95 patients and referral date were not recorded in seven of 150 patients. History of incarceration was not reported in 64 documents.

In this study, documents of 150 referral HIV-positive patients were retrospectively analyzed. There were 124 (83%) male and 26 (17%) female patients. The mean  $\pm$  SD age of patients was  $33.8 \pm 9.5$  (range: 2 – 57) years (Figure 1).

Injection drug use with one other risk factor, namely shared needle ( $n = 46$ ), Injection drug use without any other known risk factor ( $n = 37$ ),



**Figure 1.** Distribution of HIV-positive patients in different age groups.

sexual activity ( $n = 25$ ), blood disorders (e.g., hemophilia and thalassemia major) ( $n = 12$ ), and surgery ( $n = 7$ ) were the major possible modes of transmission. In 16 patients, the possible acquisition routes included perinatal transmission ( $n = 3$ ), oral addiction ( $n = 2$ ), needle stick ( $n = 2$ ), dental manipulation ( $n = 2$ ), shared blade ( $n = 2$ ), bleeding ( $n = 1$ ) tattooing ( $n = 2$ ), *Ghamehzani* [self-injury with poniard in ritual ceremonies] ( $n = 1$ ), and self-injury with an infected needle for suicide ( $n = 1$ ). In seven (5%) patients, we could not detect any probable route of HIV transmission. From 143 patients with detectable route of HIV transmission, 49 (34%) had more than one risk factor.

Out of 150 HIV-positive patients, 88 (55%) were IDUs. Sixty-three (74%) of 86 patients had a history of incarceration (data were not available for the remaining 64 patients).

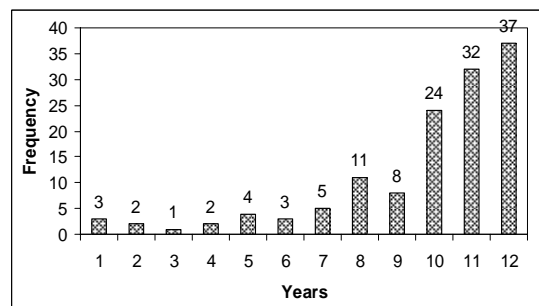
In female patients, sexual transmission was the major possible route of transmission (17 of 26 cases). In 13 female patients, the possible source of sexual acquisition was their husbands.

Only 95 patients were checked for HCV Ab and HBsAg. The seroprevalence of anti-HCV Ab and HBsAg were 68% ( $n = 65$ ; 63 males and 2 females) and 9.4% ( $n = 9$ ; all males), respectively.

From the year 1992 through the end of 2003, 132 patients were included in our study. Of these HIV-positive patients, 37 (28%) were diagnosed in 2003, 32 (24%) in 2002, and 24 (18%) in 2001 (Figure 2). In 2004, we diagnosed 11 patients (date not available in seven patients). Trend of HIV positive patients with drug abuse from 1992 through 2004 is shown in Table 1.

### Discussion

We showed an increasing trend from 1992 through 2003 in HIV-positive patients with



**Figure 2.** Trend of HIV-positive patients from the years 1992 through 2004.

**Table 1.** Trend HIV-positive patients with drug abuse from 1992 through 2004 in Iran.

Year	HIV-positive patients with history of drug abuse
1992	0
1993	0
1994	0
1995	0
1996	0
1997	1
1998	1
1999	6
2000	3
2001	17
2002	23
2003	22
2004	5

injection drug use. Although this study was restricted to a private clinic, considering the number of cases and many referral patients from other clinics or organizations, relatively high prevalence of drug abuse and incarceration in HIV-positive patients could be noted. But in 2004, because of the establishment of counseling centers for behavioral diseases and the AIDS Research Center in Tehran, Iran, we observed a reduction in HIV-positive IDUs referred to our private clinic. In fact, the most HIV-positive IDUs were referred to other centers for receiving methadone.

The major findings of this study were the high frequency of injection drug use (55%) and high coinfection rate (68%) of HIV and HCV in our patients. Syringe sharing was the major risk factor for the spread of HIV and HCV infections.

Numerous seroprevalence studies have shown a high rate of coinfection with hepatitis C among HIV<sub>1</sub>-infected patients, ranging from 98% in hemophiliacs and 80% among IDUs, to 3% – 15% in homosexual/bisexual men. Data have shown that HIV increases the rate of HCV progression; there is also some evidence suggesting that HCV worsens HIV progression, although this is controversial. There is growing recognition of the significant impact of co-infection on the management of HIV disease. Hepatitis morbidity and mortality among co-infected patients have increased five-fold in the recent years.<sup>4</sup>

Most HIV-infected IDUs were 20 to 35 years old. An estimated 1.8 million adults and children are currently living with HIV in Latin America and the Caribbean, and injection drug abuse remains a major factor in initial exposures to HIV in these parts of the world.<sup>5</sup> In Spain, 75% of the 61,000 cases of AIDS have been related to injection drug use.<sup>5</sup> In comparison to low frequency of HBV

coinfection in our patients (9.4%), in Spain, this number was very high (73%).

In Argentina, among the 12,252 HIV-infected individuals, the frequency of injection drug use was 47%, HCV infection 92%, and HBV infection 73%.<sup>5</sup>

Among 285 addicts, including 242 IDUs and 43 oral drug users living in three cities of China, HIV and HCV were presented as detected by ELISA and/or PCR. The overall prevalence of HIV infection was 71.9%. The rate of HCV coinfection among 138 HIV-infected IDUs was 99.3%. In this study, most HIV-infected patients with injection drug use were aged between 20 to 35 years (similar to our study). The prevalence of HIV in female IDUs (81.2%) was significantly higher than male IDUs (68.2%) (in contrast to our study).<sup>6</sup>

In another study performed by Islam et al in Bangladesh, 505 male drug addicts, including 250 IDUs and 255 non-IDUs were investigated for presence of anti-HIV<sub>1</sub> by ELISA. Amongst the IDUs (n = 250), the seroprevalence rate was 5.6% (n = 14) and in non-IDUs (n = 255) it was 1.96% (n = 5).<sup>7</sup>

Another study carried out by Nguyen et al in Vietnam on IDU patients, the nationwide prevalence of HIV increased from 10.1% in 1996 to 32% in 2002.<sup>8</sup> They reported that an HIV epidemic is predominant among IDUs.<sup>8</sup> Our study also showed a rising trend in HIV-positive patients with injection drug use.

In a study on HIV-seropositive IDUs in Manipur, India, the rate of HCV infection reached 92%.<sup>9</sup>

The trends in HIV prevalence among IDUs in Rotterdam (1994 – 2002) was studied by de Boer and coworkers.<sup>10</sup> The prevalence of HIV did not change over time, being 11.4% in 1994, 9.4% in 1997, and 10.2% in 2002. In Iran, we had a rising trend in HIV-positive IDUs.

In the present study, injection drug use and sexual behavior were the major possible mode of transmission of HIV infection. Injection drug use had an increasing trend from 1992 through 2003. Based on this report, evaluation of several strategies for HIV infection/AIDS harm reduction such as AIDS education, access to condoms, as well as exchange and provision of means for disinfecting injectable devices are recommended.

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