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ORIGINAL ARTICLE

High-risk behaviors in HIV positive individuals in Shiraz

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ABSTRACT

Background: Risk for HIV is primarily associated with two behaviors of unprotected sexual contact and injected drug use (IDU). This study was carried out to determine the demographic data and high-risk behaviors in HIV positive individuals in southern Iran.

Patients and methods: Totally, 304 HIV-infected individuals referring to Center for Counseling of Behavioral Changes in Shiraz entered our study. Their demographic data and risk factors for HIV (injection addiction, unprotected sexual contact, and blood transfusion) were recorded. Blood specimens were provided and tested for HIV antibodies using an enzyme-linked immunosorbent assay (ELISA) at Fars Blood Transfusion Organization were carried out. Specimens reactive upon enzyme-linked immunosorbent assay were confirmed by western blot assay.

Results: Study population included 269 males and 35 females mostly aged 25-34 years. Totally, 60% of females and 30.8% of males were married, while 80.3% of males and 74.3% of females belonged to poor-educated level (had not got diploma). Of 269 males, 247 (91.8%) had been jailed. The risk behaviors were as follow: 40.8% IDU, 16.4% unprotected sexual contact, 32.6% both IDU and unprotected sexual contact, 1.6% blood transfusion, 7.9% other high risk behaviors including tattooing, shared blade and knife injury and 0.7% had unknown high risk behavior. Maternal transmission was not observed.

Conclusion: It seems that establishing Drop In Center for giving free disposed syringes to IDUs, training a correct injection and a good dressing service, bathroom, nutrition and methods replacement therapy would be effective means to reduce high risk behaviors.

Keywords: *AIDS, HIV, Injected drug use, High-risk behavior*.
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INTRODUCTION

AIDS is considered as a major health, cultural and economical concern worldwide (1). Risk for HIV is primarily associated with two behavior categories of unprotected sexual contact and injected drug use (IDU). According to CDC (2002) report, these are the primary exposure categories for African Americans. It has been suggested that health and well-being are strongly influenced by behavior, and behavior is influenced by certain social factors acting as a motivator or barrier for behaviors. In the case of HIV, social factors are associated with high-risk behaviors such as unprotected sex and drug use, which subsequently influence participation in behaviors increasing the chances of spreading HIV. In addition to social factors, cultural, organizational, community, economical, legal, and policy-related aspects can influence behaviors found in most communities

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(2). The common routes of transmission are sexual contact with an affected individual, sharing of syringe and paraphernalia between IDU, contaminated blood or blood products transfusion, and from an infected mother to her infant during pregnancy, parturition and breast feeding. Sexual contact is the most common route for transmission of the virus worldwide. The most common route of transmission in Iran is illegal drug use, but in the recent years, sexual transmission has been increased. Meanwhile, the probability of being infected by HIV through unprotected sexual contact is more in women than men (1). Wassim et al. reported that the most frequent mode of HIV transmission is sexual route (71.9% of all cases; heterosexual, 53.9% of all cases), which consequently increases the perinatal transmission of the disease (4.3% of all cases) (3). Unprotected sexual activity, particularly with people living with HIV-AIDS, is the major means of HIV spread in African countries. Accordingly, prevention efforts have focused on condom distribution and education about proper condom use. Yet, for various reasons, some people living with HIV-AIDS continue to indulge in unprotected sexual activity, as shown by these residents of Togo (4). Sexual risk behaviors are also common among IDUs and that these behaviors are associated with demographic and drug use characteristics (5). Mackenize et al. studied 142 HIV-infected patients that were treated between April 1985 and December 1997. The risk behavior related to the acquisition of the HIV infection was 39% homosexually infected, 32% heterosexually-infected, 21% injecting drug users (IDUs), and 5% blood products or not known (6). Growing poverty, social tension, unemployment, migration as well as changes of moral values and rising crime have led to the proliferation of drug abuse and unsafe sexual behavior, which led to an increase in the risk of transmission of HIV and other sexually transmitted infections (7).

The purpose of this study was to determine demographics and high-risk behaviors in HIV positive individuals in southern Iran during 2004-2005.

PATIENTS and METHODS

In a cross-sectional study from March 2004 to December 2005, 304 HIV-infected individuals referring to Center for Counseling of Behavioral Changes in Shiraz (southern Iran) entered our study. All participants were informed about the research and they were requested to fill a written consent. The study protocol was approved by the Ethics Committee of Shiraz University of Medical Sciences. Subjects were interviewed and their demographic data and possible risk factors for HIV (history of IDU, unprotected sexual contact, and blood transfusion) were gathered. Blood specimens were provided and tested for HIV antibodies using an enzyme-linked immunosorbent assay (ELISA) at Fars Blood Transfusion Organization. Specimens reactive upon enzyme-linked immunosorbent assay were confirmed by a western blot assay. The collected data were statistically analyzed using SPPS software (Version 11.5, Chicago, IL, USA).

RESULTS

The study population included 269 (88.5%) males and 35 (11.5%) females. Totally, 60% of females and 308% of males were married (121 unmarried, 5 widows and 60 divorced). Frequencies of HIV positive individuals according to gender and marital status are presented in table 1.

Table 1. Frequency of HIV positive individuals according to sex and marital status in Center for Counseling of Behavioral Changes in Shiraz, 2004-2005

Marital status	Male (%)	Female (%)	Total (%)
Married	83(30.8)	21 (60.0)	104 (34.2)
Single	121 (450)	2 (5.8)	123 (40.5)
Divorced	60 (22.3)	3 (8.5)	63 (20.7)
Widow	5 (1.9)	9 (25.7)	14 (4.6)
Total	269 (100)	35 (100)	304 (100)

A total of 216 males (80.3%) and 26 (74.3%) females belonged to poor-educated level (had not got diploma), meanwhile, 247 males (91.8%) had been jailed of whom 81% were poorly educated and 73.7% were single (120 unmarried, 59 divorced and 3 widows).

Majority of patients aged 25-34 years consisting of 46.1% and 45.7% of males and females, respectively (table 2).

Table 2. Frequency of HIV positive individuals according to age group in Center for Counseling of Behavioral Changes in Shiraz, 2004-2005

Age group (years)	Male (%)	Female (%)	Total (%)
0-4	0 (0)	0 (0)	0 (0)
5-14	0 (0)	1 (2.9)	1 (0.3)
15-24	7 (2.6)	3 (8.6)	10 (3.3)
25-34	124 (46.1)	16 (45.7)	140 (46)
35-44	98 (36.4)	4 (11.4)	102 (33.6)
45-54	35 (13)	9 (25.7)	44 (14.5)
55-64	3 (1.1)	1(2.9)	4 (1.3)
>65	2 (0.8)	1 (2.9)	3 (1.0)
Total	269 (100)	35 (100.1)	304 (100)

Table 3 shows the high-risk behaviors associated with HIV acquisition in our patients. As shown, 40.8% were IDU, 16.4% had unprotected sexual contact, 32.6% experienced both IDU and sexual contact, 1.6% received blood transfusion (2 men, 3 women), and 7.9% were fund to have other high risk behaviors including tattooing, shared blade and knife injury and finally 0.7% had unknown high risk behaviors.

Surprisingly, no case of maternal transmission was observed.

Table 3. Frequency of HIV positive individuals according to high risk behaviors in Center for Counseling of Behavioral Changes in Shiraz, 2004-2005

Risk factors	Male (%)	Female (%)	Total (%)
IDU	123 (45.7)	1 (2.9)	124 (40.8)
Sexual	20 (7.4)	30 (85.7)	50 (16.4)
Sexual and IDU	98 (36.4)	1 (2.9)	99 (32.6)
Blood transfusion	2 (0.8)	3 (8.5)	5 (1.6)
Others	24 (8.9)	0 (0)	24 (7.9)
Unknown	2 (0.8)	0 (0)	2 (0.7)

IDU: injected drug use

DISCUSSION

The Azarbaiejan epidemy evaluated in 2001 showed that 89% of HIV positive individuals were between 15-45 years old and the main route of transmission was sharing of paraphernalia among IDUs (7). A cross-sectional survey of 141 IDUs conducted by Min Zhao et al. showed that IDUs were a unique population for HIV prevention efforts, because they had dual risks for transmission including risk associated with injection behaviors and risk associated with sexual behaviors (5). Unsafe injection behaviors were common while 125 participants (88.7%) reported at least one unsafe injection behavior and 61 (48.8%) of them reported two or three unsafe injection behaviors. Needles were most frequently shared with friends (81%), and 67.6% of those reporting syringe share did not use a cleaning procedure (5). Sexual risk behaviors among IDUs in Shanghai were common, and many IDUs were vulnerable for transmission of disease. Prevention efforts with IDUs should address sexual risk behaviors in addition to needle-sharing behaviors. Unsafe injection behaviors included reusing syringes and needles, not sterilizing injection works; not using sterile solvents; and sharing needles and syringes, cotton, or solvent with other IDUs within the previous 3 months were common (5). Chin-Hui Yangb et al. reported 10,158 HIV infections by the end of 2005 in Taiwan (8). When interviewing IDUs, needle sharing behaviors were found to be common and 40% of them reported having shared needles within the past 3 months. In order to alleviate the IDU-driven HIV/AIDS epidemic, the Taiwanese government implemented a trial “Harm Reduction Program” which included a needle-syringe program (NSP) and substitution treatment in four counties in August 2005. The sharing of unclean injecting equipment is one of the most efficient means of transmitting HIV and other blood–borne organisms (8). Injected drug use has been the primary route of transmission for

HIV/AIDS in Xinjiang, which accounts for 90% of all reported HIV infections. This study also found that the male IDUs were more than twice as likely to be HIV positive than females in Xinjiang (9). Needle exchange programs, HIV counseling and testing and bleach distribution may reduce levels of needle-sharing risks (10). Our findings showed that 91.8% of males had been jailed of whom 81% were poorly educated and 73.7% were single. The prevalence of AIDS in Iranian prisons was reported 12-63% (11). Kang et al. study in New York prison showed that high risk behaviors in prisons were mostly shared injections and unprotected sexual behavior which required effective measures to reduce the rate of injection in prisons. Since shared injection was the most high risk behavior, presence of an active counseling center in prison for syringe exchange and methadone therapy programs would be effective in order to reduce AIDS incidence (12). Our findings also showed that 40.8% of HIV positive individuals were IDUs, and 32.6% had both IDU and unprotected sexual contact. In our study, about 70% of men were single, and 80% of HIV positive individuals were poorly educated. Socioeconomic status has been identified as a critical social factor influencing high-risk HIV behaviors. When knowledge about HIV was low, individuals were more likely to participate in risky behaviors. The lack of basic information about HIV appeared to be a major factor associated with high-risk behaviors (2). Social instability, deteriorating economies, and resulting unemployment have fostered an environment in which individuals are more likely to engage in high-risk behavior. Previous studies in similar settings of the region, including the countries of Eastern Europe, Ukraine, and the Russian Federation, have documented the relationship between the poor socioeconomic conditions, which are distinguished by high unemployment rates and adoption of risky drug and sexual behaviors, and the emergence of HIV epidemics (11). The association between HIV infection and lack of condom use in the study population might represent indirect evidence of sexual transmission of HIV beyond the IDU risk group (13). Aidala et al. study showed that homelessness was a contextual factor in HIV positive individuals, as high risk behaviors, such as IDU and sexual behavior were 2-4 times more prevalent in homeless individuals (14).

In conclusion, it seems that establishing of a DIC (Drop In Center) for giving free disposed syringes to IDUs, training a correct injection and a good dressing service, bathroom, nutrition and methods replacement therapy (MRT) would be an effective method to reduce such high risk behaviors. Meanwhile, presence of a counseling center and performing voluntary tests to prevent infection among spouses and sexual partners seems necessary. As methadone treatment project is carried out in our area for many addicted sex worker women, educating this group would be of utmost importance.

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