

Prevalence of HIV infection in individuals with history of intravenous drug use via community announcement in Isfahan- Iran

Marjan Hashemipour¹, Zary Nokhodian², Majid Yaran³,
Behrooz Ataei⁴, Katayoon Tayeri⁵, Reza Fadaei Nobari⁶, Zamanimoghadam Ali⁷

ABSTRACT

Objective: Injection drug using is a major risk factor for Human Immunodeficiency Virus (HIV) infection in developing countries. Ten percent of the HIV/AIDS cases worldwide are attributed to Injection drug use. Among injection drug users (IDUs), HIV and other blood-borne infections are spread primarily through risk behaviors related to sharing of contaminated syringes and drug injection equipments. The aim of present study was to determine HIV prevalence among cases with background of intravenous drug use via community announcement in Isfahan, Iran.

Methodology: The cross-sectional study was conducted in 1599 volunteers from 16 different cities of Isfahan province, Iran who had a history of intravenous drug use in 2009. Participants were invited to reference laboratories and Serum samples were separated. Diagnosis of HIV infection was determined by enzyme linked immunosorbent assay (ELISA). Western blotting was done to confirm HIV ELISA positive specimen. The collected data was coded and entered in a data base file. Descriptive statistical method was used for data analysis.

Results: Out of 1599 volunteers with a history of Intravenous drug use 24 of them (1. 5%) were HIV-antibody-seropositive.

Conclusion: Prevalence of HIV infection among IDUs in Isfahan province is relatively high. Therefore it is essential to perform more effective prevention strategies and continuous education programs to control risk behaviors among IDUs. Moreover, available prevention services such as needle and syringe programs are useful to reduce the frequency of HIV among the population of drug users.

KEY WORDS: IDUs, HIV, Community announcement.

doi: [http://dx.doi.org/10.12669/pjms.291\(Suppl\).3541](http://dx.doi.org/10.12669/pjms.291(Suppl).3541)

How to cite this:

Hashemipour M, Nokhodian Z, Yaran M, Ataei B, Tayeri K, Nobari RF, et al. Prevalence of HIV infection in individuals with history of intravenous drug use via community announcement in Isfahan- Iran. *Pak J Med Sci* 2013;29(1)Suppl:395-398.

doi: [http://dx.doi.org/10.12669/pjms.291\(Suppl\).3541](http://dx.doi.org/10.12669/pjms.291(Suppl).3541)

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/3.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

1. Marjan Hashemipour, MSc,
2. Zary Nokhodian, MSc,
Research Assistant Nosocomial Infection Research Center,
Isfahan University of Medical Sciences, Isfahan, Iran.
3. Majid Yaran,
Medical Laboratory
4. Behrooz Ataei,
Associate Prof. of Infectious Diseases and Tropical Medicine,
5. Katayoon Tayeri,
Specialist of Infectious Diseases and Tropical Medicine,
6. Reza Fadaei Nobari,
Specialist of Infectious Diseases and Tropical Medicine.
Isfahan Province Health Center,
7. Zamanimoghadam Ali, BS,
- 1,3-5,7: Infectious Diseases and Tropical Medicine Research Center.
Isfahan University of Medical Sciences, Isfahan, Iran.

Correspondence:
Zary Nokhodian,
E-mail: Nokhodian@yahoo.com

INTRODUCTION

Human immunodeficiency virus (HIV) infection is a worldwide health problem and nearly all of countries are faced with its political, social, cultural, economic problems.¹ Based on United Nations Programs on HIV/AIDS (UNAIDS) report, by 2011, prevalence of HIV-infected cases are estimated to be 34 million in the world and it has an increasing tendency. About 2.5 million people have become newly infected and 1.7 million people die of AIDS.² Most of the new HIV cases are occurring among young population in developing countries which are the productive part of the population.^{3,4}

Intravenous drug users (IDUs) are known as a primary and major risk factor in the transmission of blood-borne infection diseases such as hepatitis C virus (HCV), hepatitis B virus (HBV) and HIV infections. Human immunodeficiency virus (HIV) is acquired by IDUs via sharing drug equipment with HIV-infected persons and by engaging in risky sexual behaviors.⁵ According to the WHO reports 10% of all reported HIV cases are related to Injecting drug users and the proportion of HIV infections caused by injecting drug use is 1–10% in southern and south-eastern Asia.⁶ It is estimated that more than 260,000 IDUs exist in Iran and about 100,000 people living with HIV/AIDS in this country.^{7,8} Based on recent studies, Iran similar to many other countries in south-eastern Asia is facing with concentrated epidemic level of HIV infection prevalence more than 5% in injection drug users (IDUs).⁹ According to multiple studies among Iranian IDUs overall prevalence of HIV infection among people with history of drug injecting is about 15% now, there is true reduction in previous reported prevalence (till 24%) due to effective harm reduction programs.^{7,10} Increased rates of injecting drug use in Iran have been associated with several factors such as poverty, unemployment and noticeable neighbouring with Afghanistan which is the fundamental opium producer in the world.^{11,12} Most of the studies in Iran for determining the prevalence of HIV infection have been conducted in particular groups such as prisoners, hospitals, sex workers, etc.^{7,13} Also, there aren't any studies which mentioned widespread survey among IDU proportion in Isfahan province community.

Based on the above explanation, it is useful to comprehensively approach HIV infection among IDUs in Iran. The purpose of this study was to determine the prevalence of HIV infection among individuals with history of IDUs in Isfahan province through a community announcement study for the first time.

METHODOLOGY

The cross-sectional study was conducted in 1599 volunteers who had a history of intravenous drug use from 16 cities of Isfahan province, Iran in 2009. This study was carried out after two pilot studies (in Tiran and Golpayegan cities) during four month via an announcement-based detection. Participation to study was voluntary for individuals and the name of participants remained unknown. No questioner was distributed since all members introduce themselves. Comprehensive public announcement

was done for physicians and public places in each city. Based on the protocol, all IDUs and those with history of IDU were invited to the reference laboratory of each city for HIV infection test.

Five ml blood sample were obtained from each person. Samples were centrifuged and transferred to the sterile tubes. The extracted sera were stored at -20 °C, until the specimen analyzed (10 days). After that period, all stored sera were transferred to the laboratory of Isfahan Infectious and Tropical Diseases Research Center for laboratory processing. HIV antibody (HIV-Ab) was detected with Commercial enzyme-linked immunosorbent assay (ELISA) fourth generation (Diapro Italy kit) and anti HIV kit (Diapro, Italy). Confirmation of seropositive HIV samples was done by Western blotting (Inno lipa kit, Germany) that is the most widely accepted confirmatory assay and consider as a gold standard for validation of HIV results.¹⁴

This study was approved by Ethical Committee of Isfahan University of Medical Sciences. The collected data was coded and entered in a data base file. Descriptive statistical method was used for data analysis.

RESULTS

A total number of 1599 injection drug users that are estimated 50% of all expected intravenous drug users in the community were enrolled in this study. The prevalence of HIV seropositive was 1.5% (24/1599) in Isfahan province. HIV prevalence was 3.5% among cities located in eastern areas, 1.2% in the north 1% in the south and 1.7% in the cities located in the west region of Isfahan province. The prevalence of HIV seropositive was 1.5 % in Isfahan city. The prevalence of positive HIV-Ab in the regions of Isfahan province is presented in Table-I.

DISCUSSION

Injecting drug use is one of the most important risk factors of HIV transmission and accounts for about 10% of HIV/AIDS cases worldwide.⁶ It is estimated more than 3400 IDUs or people with history of IDUs are living in Isfahan province. This statistics are related to ID user groups except those who exists in prisons, drop in centers (DIC), hospitals, etc.¹⁵

In this study, we found that 1.5% of all injecting drug users were HIV infected. Several studies have reported different prevalence of HIV among IDUs in especial high risk groups in Iran but there aren't any studies which mentioned widespread survey among IDU proportion in Isfahan province

Table-I: Prevalence of positive HIV-Ab by region (total 1599).

<i>Isfahan province areas (cities)</i>	<i>IDUs volunteers</i>	<i>Positive HIV Ab(%)</i>
North	82	1(1.2)
Shahinshahr		
Golpayegan		
Dolat abad		
Natanz		
South	589	6(1)
Shahreza		
Dehaghan		
Mobarakeh		
Falavarjan		
Semirom		
Lenjan		
West	479	8(1.7)
Fereydan		
Khomeini shahr		
Najaf abad		
East	113	4(3.5)
Ardestan		
Naein		
Isfahan city	336	5(1.5)

community, also other community based studies exists which are limited to few IDUs in the community.⁷ Our study carried out on a larger scale of IDUs population that is unparalleled in Iran. The prevalence of HIV-Ab among IDUs of Isfahan province is lower than the Prevalence of HIV in two other similar studies in Tehran (24.1 % and 14.9% respectively).^{10,16}

Despite lower prevalence of HIV infection among IDUs in Isfahan, and concentric situation of transmission in Iran, this prevalence is very important and can be an alarm for the future. IDUs seem more likely to engage in risk behaviors moreover these people are not aware of their infection and they are in contact with family, friends, use of public health care systems, so there is the possibility of transferring the infection to other people. Our data suggest that having information about HIV/AIDS prevalence is an essential factor to design an effective program to eradicate this threatening viral infection.

In comparison with other Asian countries the prevalence of HIV amongst IDUs of Isfahan was higher than Iraq (0%) and lower relative to Kazakh-

stan (7.4%), Kyrgyzstan (8%), Tajikistan (14.7%), Vietnam (20.2%), China (8.1%), Afghanistan (3.4%), Egypt (2.55%) Pakistan (2.6%) and Turkey (2.65%), also it was similar to Georgia (1.1%) and Morocco (1.6%).¹⁷⁻²¹

Prevalence of HIV antibody in eastern cities was higher than other regions (3.5%). May be neighboring Eastern regions of Isfahan province with provinces such as Kerman that is one of the drugs trafficking area in Iran can explain higher prevalence in these areas. Also previous studies suggest that diversity in sexual risk behaviors, drug-related risk factors, social and economic elements could be responsible for variations in HIV infection among IDUs.^{11,21}

The main reasons of success in calling up volunteers (1599 IDUs) in this study were good advertising, observing morality elements, collaboration of lab staffs and good collaboration in Isfahan province administration.

Actually we focused on the greatest number of injecting drug users in province so we didn't give any questioner to individuals and this leads to defect in evaluation of risk factors such as history of needle sharing, unsafe sexual contacts and other risky behaviors among IDUs.

The findings of current study indicated that there are unknown cases of HIV infection among general population. Since the high risk behaviors among IDUs such as needle sharing and sexual contact are risk factors for transferring HIV infection, there are opportunities to prevent and decrease HIV epidemics in IDUs through comprehensive educational program, access to free testing, treatment programs, safe sex awareness, and condom distribution.²² In addition, the data from these surveys can provide important national information that can be used for planning HIV prevention programs for IDUs in the community.

CONCLUSION

In conclusion available prevention services and comprehensive HIV prevention interventions such as needle and syringe programs can lead to reduction in the frequency of HIV among proportion of IDUs. By utilize of this experience, it is useful to improve appropriate practical strategies to evaluate further important infectious diseases in large scale and evaluation of true risk factors.

ACKNOWLEDGMENT

The authors are grateful to research council of Isfahan university of Medical Science for financial support of this study.

REFERENCES

1. Kaushik S, Levy A. Desk encyclopedia of microbiology. Oxford: Academic Press. 2009;2:391-413.
2. United Nations Programs on HIV/AIDS (UNAIDS). UNAIDS report on the global AIDS epidemic. 2012.
3. Harries AD, Zachariah R, Lawn SD. Providing HIV care for co-infected tuberculosis patients: a perspective from sub-Saharan Africa. *Int J Tuberc Lung Dis*. 2009;13(1):6-16.
4. Muniyandi M, Ramachandran R, Balasubramanian R. An economic commentary on the occurrence and control of HIV/AIDS in developing countries: special reference to India. *Expert Opin Pharmacol*. 2006;18:2447-2454.
5. Centers for Disease Control and Prevention (CDC). HIV/AIDS surveillance report, 2007. Vol. 19. Atlanta, GA: US Department of Health and Human Services. 2009;7(18):2447-2454.
6. World Health Organization (WHO), Geneva. Policy and programming guide for HIV/AIDS prevention and care among injecting drug users. 2005.
7. Rahimi-Movaghara A, Amin-Esmaeilia M, Haghdoost A. HIV prevalence amongst injecting drug users in Iran: A systematic review of studies conducted during the decade 1998-2007. *Int J Drug Policy*. 2012;23(4):271-278.
8. United Nations Programs on HIV/AIDS (UNAIDS). Epidemiological fact sheet on HIV and AIDS core data on epidemiology and response, (Islamic Republic of Iran). 2008.
9. Fallahzadeh H, Morowatisharifabad M, Ehrampoosh MH. HIV/AIDS Epidemic Features and Trends in Iran, 1986-2006. *AIDS Behav*. 2009;13:297-302.
10. Rahimi-Movaghar A, Razaghi EM, Sahimi-Izadian E, Amin-Esmaeili M. HIV, hepatitis C virus, and hepatitis B virus co-infections among injecting drug users in Tehran, Iran. *Int J Infect Dis*. 2010;14(1):28-33.
11. Samii AW. Drug Abuse: Iran's "Thorniest Problem". *The Brown J World Affairs*. 2003;IX(2):283-299.
12. Ramezani A, Mohraz M, Gachkar L. Epidemiologic situation of human immunodeficiency virus (HIV/AIDS patients) in a private clinic in Tehran, Iran. *Arch Iran Med*. 2006;9:315-318.
13. Kolahi AA, Rastegarpour A, Abadi AR, Nabavi M, Sayyarifard A, Sohrabi MR. The knowledge and attitudes of a female at-risk population towards the prevention of AIDS and sexually transmitted infections in Tehran. *J Res Med Sci*. 2011;16(11):1452-1458.
14. Constantine NT, van der Groen G, Belsey EM, Tamashiro H. Sensitivity of HIV-antibody assays determined by seroconversion panels. *AIDS*1994;8:1715-1720.
15. Nobari RF, Meshkati M, Ataei B, Yazdani M, Heidari K, Kassaian N, et al. Identification of Patients with Hepatitis C Virus Infection in Persons with Background of Intravenous Drug Use: The First Community Announcement-Based Study From Iran. *Int J Prev Med*. 2012;3(Suppl 1):S170-175.
16. Zamani S, Kihara M, Gouya MM, Vazirian M, Nassirimanesh B, Ono-Kihara M, et al. High prevalence of HIV infection associated with incarceration among community-based injecting drug users in Tehran, Iran. *J Acq Imm Def Syn*. 2006;42(3):342-346.
17. Aceijas C, Stimson GV, Hickman M, Rhodes T. Global Overview of Injecting Drug Use and HIV Infection among Injecting Drug Users. *AIDS*. 2004;18(17):2295-2303.
18. Platt LP, Vickerman M, Collumbien S, Hasan N, Lalji S, Mayhew R, et al. Prevalence of HIV, HCV and Sexually Transmitted Infections among Injecting Drug Users in Rawalpindi and Abbottabad, Pakistan: Evidence for an Emerging Injection-Related HIV Epidemic. *Sex Transm Infect*. 2009;85(Suppl 2):17-22.
19. Alami K. Tendances récentes de l'épidémie à VIH/SIDA en Afrique du nord. Presentation, Research and AIDS Workshop in North Africa, Marrakech, Morocco. 2009.
20. Abu-Raddad L, Akala FA, Semini I, Riedner G, Wilson D, Tawil O, et al. Characterizing the HIV/AIDS epidemic in the Middle East and North Africa: Time for Strategic Action. Middle East and North Africa HIV/AIDS Epidemiology Synthesis Project. World Bank/UNAIDS/WHO; 2010.
21. Needle RH, Zhao L. Center for Strategic and International Studies. HIV Prevention among Injection Drug Users. Strengthening U.S Support for Core Interventions. 2010.
22. Nasrullah M. Concentrated HIV Epidemic in Pakistan: An Opportunity to Prevent Generalized Epidemic. *Int J Prev Med*. 2012;3(12):824-826.

Authors Contribution:

Marjan Hashemipour	30%
Zary Nokhodian	30%
Majid Yaran	15%
Behrooz Ataei	10%
Katayoon Tayeri	5%
Reza Fadaei Nobari	5%
Zamani A	5%