Incidence of Hepatitis B and HIV Virus at Cadaver of IV Drug Abusers in Tehran

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Abstract- Injection drug use has been the most growing rout of drug abuse in Iran in the past decade and it has been responsible for the transmission of HIV virus in more than two third of cases. The aim of the present study was to determine the prevalence of HIV and hepatitis B in a group of IDU cadavers and to compare the results to a group of cadavers of the normal population. In a case-control study the blood samples of the cadavers of 400 randomly chosen IDUS and 400 other cadavers as control group were checked for HBS antigen and Anti HIV antibody in the forensic medicine center of Tehran. The prevalence of HIV and HBV infection was compared in two groups according to their demographic characteristics. The number of HIV and HBV positive cadavers was significantly higher in the IDU group than the controls (6.25% vs 0.5%, $P<0.001$, 27.5% vs 3%, $P<0.001$). The risk of getting infected by HIV virus was 13.27 times greater in the IDU group and the risk of HBV infection was 12.26 times greater in this group as compared to the control group. The age distribution of IDU cadavers indicated that the percentage of IDU cadavers in the reproductive (21-40 years old) age was 80%. The greater prevalence of the HIV and HBV infection especially in the reproductive age of IDUS indicates a greater concern to the authorities for more attention to prevention and harm reduction programs.

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Introduction

As a whole, Iran enjoys the highest per capita of using Opium and Heroin in the world: from every 17 Iranian, one uses narcotics regularly, and 20 percent of the Iranian population of 15-60 year-old are involved in using narcotics (1, 2). Historically, in previous decades, the prohibition of production and distribution of narcotics in the Country gradually caused to develop traffic of Heroin in Afghanistan (3). The lower price and high presentation of Heroin, caused to increase of the number of its takers and finally eruptive growth of the number of the addicts of drugs injection in the Country, in a way that, in the previous decades, the injection of narcotics had been the developing way of using drugs in Iran, and up to 2004, more than 300000 addicts of drug injection appeared in the country which included 67 percent of reported new HIV cases since this year (4-6). According to the annual report of World Health Organization (WHO), up to 2005, 38.6 million people were infected by HIV that among this number 4.1 million people were infected in this year and 2.8 million one have died of HIV (7). The recent statistics indicate that HIV is developing in Iran, Algeria, Morocco, and Libya with more speed (8). The number of infected peoples is estimated for more than 30000 (9). It is noticeable that unlike most of the regions of the world which intravenous injection of drugs enjoys third grade in incidence of this disease after sexual infection and infection from mother to fetus, in Iran there is a close relationship between injection of drugs and HIV infection, in a way that based on the report of World Health Organization, 67.3 percent of these HIV infected patients and 85 percent of HIV affected patients, have the prehistory of drugs injection in their pathological history (10).

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Detriments of intravenous injection on personal and social health are explicit to everyone. On the other hand, hazardous behaviors of this kind of addicts such as using joint syringe, using the same syringe again or several times, or using infected syringes, are from the main factors for infection of AIDS, Hepatitis B and C and various lung and cerebral abscesses (11-12), and that sexual hazardous behaviors of this infected group will cause the infection of these types of diseases in the level of families and society. As a whole, various kinds of studies in farthest reaches of the and C have a high level of infection in addicts of drug injection and their level of infection is indicated up to 78 percent for Hepatitis C, 32 to 70 percent for Hepatitis B and 12 to 30 percent for HIV. Some of these studies show that up to 90 percent of these people suffer from one of viral diseases and there is a direct relationship between the level of cases infected by these viruses and duration of drugs intravenous injection (13-22).

Totally Iran was endemic for Hepatitis B and more than 35 percent of the population is exposed to this disease. 3 percent of the population of Iran was indicated as chronic transmitters of this disease in 2000 (23). The way of transmission of this virus which exists in all of the secretions of the body, is mainly through sexual relationships, but according to the studies its transmission develops all over the world through drugs injection by polluted syringe (21). Another important issue is the high possibility of being affected simultaneously by these viruses, which causes considerable increase of death rate, for example in a study, the simultaneous affection of HIV and Hepatitis B caused to increase of death rate of HIV infected patients in a determined period of time, from 6 to 15 (22-24).

The current study aimed in estimating the rate of infection of HIV and Hepatitis B in the bodies of drugs injection addicts and determining their sexual and age distribution and sexual and age hazardous groups from the point of view of infection by these viruses, has been planed and performed.

Patients and Methods

In this Case-control study which was performed in Forensic Medicine Centre, Tehran, bodies of 400 drugs injection addicts and 400 person as control group, were studied from point of view of infection with AIDS virus and Hepatitis B. The persons who had external symptoms in favor of drugs injection and their pathological history showed that they had intravenous drug injection for minimum 1 month, and in this period they had minimum of 7 intravenous drugs injections, were studied as drugs injection addicts. On the contrary, criteria for selecting control group such as lack of physical marks of intravenous drugs abuse and findings in favor of intravenous drugs addiction were found in their pathological history. As a whole, this group included bodies of persons who had died of car accidents, sudden death and.

After selecting bodies, their characteristics were collected from police or their families and the information were added to the special questionnaires. Then, in completely sterilized environment two blood samples each for 10 cc, were provided from peripheral veins of each body, and in sampling day they were sent from Anatomy Hall to the Laboratories on the sampling day, in two separate test tubes and in standard testing conditions, in cool box and on temperature of 2-5 C, to the laboratories of contract parties. Ethical considerations were observed for execution of this plan, and besides considering cultural values and respect to the rights of under studying persons, all of the interferences were planned and executed in a way that no physical injury and diagnostic interference was made on the bodies.

After centrifugation, the samples which were sent to the laboratory were tested for infection with AIDS (Anti HIV Ab) and Hepatitis B (HBS Ag) viruses, through Eliza Method.

Results achieved from laboratorial findings, and the mentioned information in questionnaires was statically analyzed.

The Chi2 Test was used for analysis. $P<0.05$ assumed meaningful and in necessary occasions risk chances was estimated by calculation of odds ratio for the under-study population.

Results

The results of this study, indicates that the incidence of HBS positive cases in drugs injection addicts (27.5 percent) is considerably more than its incidence in control group (3%) ($P = 0.0001$) and the risk(odds ratio) for being infected with Hepatitis B, for drugs injection addicts is 12.26 times higher than control group (safe distance of 95%: 6.631-22.684).

HIV incidence in the bodies of drugs injection addicts (6.25%) is considerably higher than its incidence in control group (0.5%) ($P<0.0001$) and the risk for infection with this virus in drugs injection addicts group is 13.27 times higher than control group (safe distance of 95%: 3.121-56.397).

Age distribution of the bodies of drugs injection addicts shows a considerable statistical difference comparing with the control group (P ,0.0001), in a way that the highest frequency of drugs injection addiction in the age group of 20-30 year-old was (46%) and the highest frequency of control group in the age group of more than 50 years old was (25.25%) (Figure 1). As a whole, the age of 20-40 years old, includes 80% of drugs injection addicts, whereas this rate is 41.75% in control group. However, statistical comparison of the number of HIV positives in both age groups was impossible because of the insufficient number of these cases in control group (2 cases), but comparison of infection with Hepatitis B virus shows a considerable difference in all of the age groups (Table 1).

Sex distribution of drugs injection addiction shows a considerable difference in both groups (P = 0.0001), and the percentage of men in drugs injection addicts group (92%) is more than the percentage in control group (73.25%) (X^2 = 48.177).

However, the rate of infected cases for both men and women in drugs injection addicts is more than witness group (Table 2).

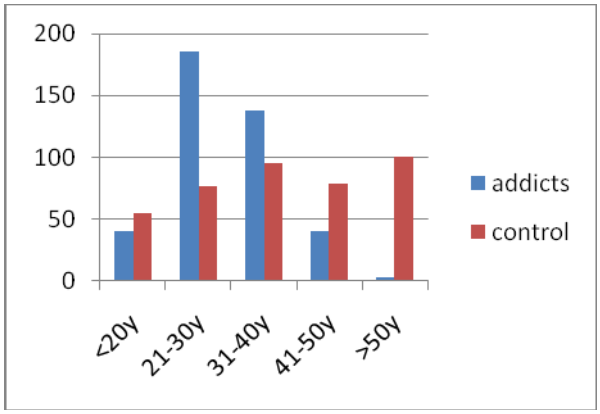

Figure 1. Frequency distribution of age in drugs injection addicts and control groups.

Table 1. Comparsion of the number of HIV and HBV positive in both age groups.

	Age(Year)	IV Drug abuse	control	P value
HIV^+	<20	5.1%	0%	NS
	21-30	6.5%	1.4%	NS
	31-40	5.9%	1.1%	NS
	>40	7.3%	0%	NS
HBS^+	<20	23.1%	1.9%	0.001
	21-30	26.6%	4.1%	<0.0001
	31-40	31.6%	4.3%	<0.0001
	>40	22%	2.2%	<0.0001

Table 2. Sex distribution and percentage of infected cases in two groups.

	Sex	IV Drug abuser	Control	*P* value
HIV+	Male	6%	0.7%	<0.0001
	Female	9.4%	0.0%	<0.001
HBS+	Male	27.4%	3.4%	<0.0001
	Female	28.1%	1.9%	<0.0001

In this case, Jaundice prehistory in drugs injection addicts (34.75%) is more than the control group (3.25%) (*P*<0.0001).There is not a statically considerable difference between drugs injection addicts and control group, from the point of view of transmission blood prehistory (*P* = 0.182).

It is noteworthy that the rate of tattoo cases in drugs injection addicts (59.75%) is much more than witness group (7.75%) (*P*<0.0001).

Discussion

The results of this study indicate the higher incidence of Hepatitis B and infection with AIDS virus in drugs injection addicts and a much higher risk of infection in compare with control group. These results are totally parallel to the previous studies and national reports in this field (10, 18-22).

Lesser incidence of infection with AIDS virus in our study in compare with most of the foreign studies may be different, because of that this virus is new in Iran's society, and that the cases were selected from a special geographical district, not from all regions of the country, and the laboratorial measuring method. Anyhow, regarding to that the policies for decreasing detriments in Iran was set into program of policy makers too late in compare with other pioneer points of the world (3, 10), the possibility for change of infection rate in our country, comparing with the other countries in future, does not seem unlikely. But fewer infected cases promises that in case of performing on-time detriment prevention and decreasing measures will cause future satisfying results in this case.

Difference of age distribution of drugs injection addicts with control group is so noteworthy, but it is warning. As it was mentioned before, about 80 percent of drugs injection addicts are in the ages of 20 to 40 years old or better to say, in fertility ages. It means that developing process of drugs injection addiction and death rate is highly increasing in the mature group of drugs injection addicts' society. With regard to the

development of drugs injection addiction based on current statistics and age distribution of drugs injection addicts, we can conclude that in case of continuation of current process, besides development of these diseases through injection, in near future we would meet an ever-increasing incidence of the disease through sexual relationship and the vertical transmission from mother to child, and it can be said that after passing several generations, the consequences of this process will be greatly astonishing.

According to the UNAIDS report, in this regard, AIDS will be the main problem for world health in 2th half of 21 century (25). We see a similar process about Hepatitis B, that with regard to the higher sexual transmission of Hepatitis B against AIDS (30% versus 0.3%), it is considered that much more people of various ages will be exposed to be infected with this disease. Youth group, according to this study, is estimated as the largest group that is exposed to danger of drugs injection addiction and its detriments; such as viral infections, that apart from hygienic affairs, a vast spectrum of economical, social and judicial consequences will come after.

Yet few numbers of dead addicts in the age group of more than 50 years old and its high rate in low ages of drugs injection addicts, indicates that survival of this group of addicts is highly decreased. Another important point is consideration of hazardous behaviors of drugs injection addicts. As an example, high statistics of tattoo in this group indicates a hazardous behavior in this group, which with regard to tattoo in unsanitary conditions and its high rate in the society provides the possibility of transmission of these diseases to other people of the society.

According to this information, the necessity of considering prevention plans firstly and decreasing detriments, secondly, in policy-makings and plans of the country is inevitable. Vast vaccination or at least vaccination of the groups exposed to danger of infection, against Hepatitis, educating spouses of drugs injection addicts about using particular contraceptives to lessen the possibility of transmission of this virus in this way, warning to people of the society about sexual and non-sexual hazardous behaviors such as tattoo, using joint personal equipments and observance of occupational health in the occasions of contact with the transmitters of these viruses, which decreases the possibility of hazardous direct or indirect contact with the infection sources in the society, should be considered in the plans of mass medias and other related organizations.

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