

Prevalence of Hepatitis B and C Infections and Their Associated Risk Factors in Addict Prisoners of Central Provinces of Iran

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Citation

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Abstract

Introduction: Hepatitis B or C infections are one of the major health problems in the world and its high prevalence of infection in prisoners suggests them as one of the main infection source in community. Use of preventive measures along with screening and active treatment and education about dangerous behavior for prisoners can possibly decrease the rate of infection in community. Regarding this fact, we evaluated prevalence of hepatitis B and C infections and its relation to dangerous behavior in addict prisoners. **Materials and Methods:** This study was a cross-sectional and in that, prisons of central provinces of Iran were evaluated for hepatitis B and hepatitis C. 1431 prisoners were selected randomly and grouped by duration of imprisonment. The patients' characteristics were evaluated by questionnaires. The blood samples of the patients were evaluated for hepatitis B and C.

Results: results showed that 51 prisoners (3.5%) had hepatitis B antigen and 513 prisoners (35.8%) had hepatitis C. Odd's ratio for hepatitis B and hepatitis C were 10.3 and 9.6 for I.V drug abusers, respectively.

Conclusion: Considering the results of this study, education for dangerous behavior along with screening and vaccination and appropriate treatment against hepatitis is strongly recommended to control this persistent infection source for hepatitis B and C in the community.

INTRODUCTION

Hepatitis B or C infections are one of the major health problems in the world (1). 13% to 47% of prisoners in the USA had Hepatitis B infection (2). 57.7% of prisoners in the Australia had hepatitis C infection (3) that is 2-6 times more than its prevalence in the community (2). One study showed that hepatitis B and hepatitis C were seen in 68% and 65% of addict prisoners, respectively (4). As it is estimated by Centers for Disease Control and Prevention (CDC), about 8 millions prisoners return to community annually that may be dangerous for community health. As 35% of prisoners have history of addiction (5,6,7,8,9), use of preventive measures along with screening and active treatment and education about dangerous behavior for prisoners can possibly decrease the rate of infection in the community. Regarding this fact, we evaluated prevalence of hepatitis B and C infections and its relation to dangerous behavior in addict

prisoners.

MATERIALS & METHODS

In this study, we evaluated Jails of the 3 central province of IRAN (including Isfahan, Lorestan and chaharmahal Bakhtiari). Our target population included all male prisoners who were arrested because of their addiction. 1898 prisoners were selected randomly and classified by duration of being in prison. Questionnaires were distributed between them and finally 1437 questionnaires (75.3%) were filled by prisoners and then analyzed. These questionnaires had been verified for validity and contents by a psychiatrist, social medicine specialist and infectious disease specialist. The reliability of questionnaires were calculated in 30 prisoners that showed cronbach's alpha of 88%. The samples of the pilot study were included in this study. The questionnaires had no name and the prisoners were helped by the prison assistants to fill out the questionnaires. Blood samples were

taken from all of this prisoners and in the maximum period of 4 hours, they were sent to central laboratory of Isfahan in standard conditions.

Half of the samples were stored in 30 of centigrade. The kits used in this study were made by Italian Diasorin Company and their specificity and sensitivity were more than 90%. All of the positive samples were reexamined for confirmation. All of the tests were done by the same laboratory, and by the same instrument and laboratory specialist. Photo absorption tests at wave length of 450nm were considered negative, suspected and positive if they were less than 1, between 1 to 1.2 and more than 1.2, respectively. The collected data were analyzed by logistic tests and with SPSS program. This paper was prepared in Skin Disease and Leishmaniasis Research Center in Isfahan

RESULTS

Our results showed that 51 prisoners (3.5%) had hepatitis B antigen and 513 prisoners (35.8%) had hepatitis C. Suspected titers of hepatitis B were seen in 14 prisoners (0/97%) and hepatitis C in 137 prisoners (9.5%).

Table 1 shows history of risk factors in the prisoners. In this study, 58.8% of the patients with hepatitis B and 62.2% of the patients with hepatitis C had positive antibody titer

Figure 1

Table 1: The Relative prevalence of dangerous behaviors in the evaluated prisoners

	Number of cases	Percent
History of I.V injection	401	28
History of needle sharing	236	16/5
Presence of injection marks on the body	297	20/7
Tattooing	726	50/7
History of previous addiction	1153	80/5
History of transfusion	173	12/1
History illegal sexual contacts	399	27/9
History of homosexuality	113	7/9
History of current addiction	403	28/3
History of needle sharing	515	36

At the time of this study, 903 of the prisoners had been imprisoned for less than 1 year and 621 (43.4%) of the prisoners were imprisoned for their first time. 323 of prisoners (22.6%) were imprisoned for at least 4 times. In this study, odd's ratio for hepatitis B and hepatitis C were 10.3 and 9.6 in I.V drug abusers, respectively.

Figure 2

Table 2: Odd's ratio for hepatitis B and C in the prisoners by the type of the dangerous behavior.

		Adjusted odd's ratio	CI95%	P value
History of the drug abuse	Hepatitis B	10/3	7/8-16/2	0/001
	Hepatitis C	9/6	3/4-13/4	0/05
History of the illegal sexual relationship	Hepatitis B	1/6	0/9-1/8	0/14
	Hepatitis C	1/02	0/6-3/2	0/062
History of transfusion	Hepatitis B	1/3	1-2/3	05/0
	Hepatitis C	1/8	0/6-3/01	0/05
History of barber blade sharing	Hepatitis B	1/1	0/8-3/1	0/006
	Hepatitis C	3/4	1/6-5/2	0/015
History of the needle sharing	Hepatitis B	3/6	1/1-3/9	0/0001
	Hepatitis C	2/3	1-3/2	0/06
Being in prison for less than year	Hepatitis B	1/3	0/8-2	0/3
	Hepatitis C			
Being in prison between 1-5 years	Hepatitis B	2/4	1/4-4/1	0/001
	Hepatitis C	4	1/8-7/6	0/005
Being in prison for more than 5 years	Hepatitis B	2/9	1/7-5	0/001
	Hepatitis C	6/3	2/6-12/8	0/01

DISCUSSION

In this study 3.5% percent and 35.8 percent of prisoners were HBS antigen and HCV antibody positive, respectively. The most common dangerous behavior in these patients were I.V drug abuse, tattooing and use of shared barber blade.

The greatest threat was for the I.V drug abuse as odd's ratio for hepatitis B and hepatitis C were 10.3 and 9.6 in I.V drug abusers, respectively. 1/3 of the prisoners had been reported to have hepatitis B and C in the similar study (7). Chronic hepatitis B infection has been reported to occur in 1 to 3.7% of prisoners in the USA (2). Prevalence of antibodies to hepatitis B and C was shown to be 6% and 22% in Irish prisoners, respectively (8). In the British prisons, the rate of infection with hepatitis C was shown to be 30% (1). The prevalence of hepatitis B and C were as high as 61.1% and 82.2%, respectively in IV drug abusers of Mexican jails (10). The prevalence of the hepatitis C virus in Australian correctional facilities was reported to be 57.5% (3). The prevalence of hepatitis B and hepatitis C infections among males in Rhode Island prisons were evaluated to be 20.2% and 23.1%, respectively. The odd's ratio for hepatitis B and C were 7.9 and 32.4, respectively (11). The prevalence of hepatitis B and C were 64% and 87% among Danish prisoners with history & IV drug abuse (12). In the New South Wales prisons, 37% of the prisoners had hepatitis C antigen, 3.2% of them had HBS Ag and 31% of them had antibody against HBC antigen (13). The prevalence of hepatitis C and hepatitis B (by positive results of HBS antigen or antibody against HBS Ag) were reported to be 29.7% and 25.2% respectively (14).

The presence of permanent infection source in the prisons can be demonstrated by the high prevalence of hepatitis B and C in prisoners, especially for I.V drug abusers and , more obviously in the case of needle sharing in this and other studies (15). Inadequate information of the prisoners about dangerous behaviors for hepatitis B and C infections that is guessed to be less than 20% (13), along with incomplete attention to preventive measures has caused that less than 2% of prisoners had been vaccinated against hepatitis B(12). Considering the results of this study, education for dangerous behavior along with screening and vaccination and appropriate treatment against hepatitis them(that are demonstrated to be cost benefit (16,17,18)), is strongly recommended to control this persistent infection source for hepatitis B and C in the community.

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