



Hepatitis B vaccination use and risk behaviors among users of illicit drugs*

Cobertura vacinal contra hepatite B entre usuários de drogas ilícitas

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ABSTRACT

Objective: To identify hepatitis B vaccine use and risk behaviors among users of illicit drugs (IDU) in Dourados (Mato Grosso do Sul, Brazil). **Methods:** A descriptive cross-sectional field study was conducted by questionnaire with 49 users of illicit drugs who were receiving assistance through rehabilitation centers and support programs within the city. **Results:** A predominance of young men using non-injectable drugs was identified. A history of imprisonment, hepatitis, tattooing, multiple sexual partners and participation in all forms of sexual intercourse were the most common risk factors. **Conclusion:** These factors, combined with low vaccination rates and lack of completion of the recovery and support programs, confirm the vulnerability of users of IDUs for acquiring hepatitis B.

Keywords: Hepatitis B virus; Illicit drugs; Vaccination

RESUMO

Objetivo: Identificar a cobertura vacinal contra a hepatite B e os comportamentos de risco entre usuários de drogas ilícidas (UDI) em Dourados-MS. **Métodos:** Trata-se de uma pesquisa de campo, descritiva de corte transversal realizada mediante aplicação de questionário em 49 usuários atendidos pelos centros de recuperação e programas de apoio desse Município. **Resultados:** Identificou-se predomínio de homens jovens que utilizavam drogas não injetáveis. A história de prisão, e de hepatite na família, tatuagens, múltiplos parceiros sexuais e realização de todas as formas de relação sexual, foram os fatores de risco mais frequentes. **Conclusão:** Estes fatores combinados com a baixa cobertura vacinal e a falta de término do esquema confirmam a vulnerabilidade do grupo em adquirir a hepatite B.

Descritores: Vírus da hepatite B; Drogas ilícitas; Vacinação

RESUMEN

Objetivo: Identificar la cobertura de vacunas contra la hepatitis B y los comportamientos de riesgo entre usuarios de drogas ilícidas (UDI) en Dourados-MS. **Métodos:** Se trata de una investigación de campo, descriptiva de corte transversal realizada mediante la aplicación de un cuestionario a 49 usuarios atendidos por los centros de recuperación y programas de apoyo de ese Municipio. **Resultados:** Se identificó predominio de hombres jóvenes que utilizaban drogas no inyectables. La historia de prisión, y de hepatitis en la familia, tatuajes, parejas sexuales múltiples y realización de todas las formas de relación sexual, fueron los factores de riesgo más frecuentes. **Conclusión:** Estos factores sumados a la baja cobertura de vacunas y la falta de término del esquema confirman la vulnerabilidad del grupo para adquirir la hepatitis B.

Descriptores: Virus de la hepatitis B; Drogas ilícitas; Vacunación

* Study carried out in the city of -MS, in Rehabilitation Centers and other support programs for injecting and non-injecting drug users.

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INTRODUCTION

Hepatitis B is among one of the main infectious diseases worldwide, and it is considered a severe public health problem⁽¹⁾. About two billion people are estimated to have already been infected, at some point of their lives, with hepatitis B virus (HBV)⁽²⁾.

In Brazil, about 15.0% of the population has already been in contact with the virus. The chronic cases affect about 1% of the population⁽³⁾. In the Mid-West region, studies carried out in Goiás have demonstrated the prevalence for HBV infection markers, ranging from 6.1% in the female urban population⁽⁴⁾ to 63.4% in renal chronic patients⁽⁵⁾. In Mato Grosso, a 31% index has been found in a rural community⁽⁶⁾ and 37.1% in those that had contact with blood donors positive for HBsAg⁽⁷⁾. In Mato Grosso do Sul, studies carried out in Campo Grande pointed out 9.4% indexes in blood donors⁽⁸⁾, 19.8% in Afro descendents⁽⁹⁾ and 10.8% in dentists⁽¹⁰⁾.

The etiological agent of hepatitis B, HBV, is an enveloped DNA virus belonging to the *Hepadnaviridae* family of the gender (*Orthohepadnavirus*). Regarding its morphology, it has an icosahedral capsid formed by central antigen (HBcAg), by antigen "e" (HBeAg) and by the viral DNA. The viral envelope is formed by the surface antigen (HBsAg). In addition to the complete viral particle, during viral replication, several incomplete particles with no nucleic acid, formed only by surface antigen are excessively produced⁽¹¹⁾.

The transmission of this virus occurs through vertical/perinatal, horizontal/intrafamily, sexual and parenteral via. The first is one of the most efficient and worse forms of transmission of HBV, and occurs especially among children whose mothers are HBsAg and HBeAg reagent. As for sexual transmission (unprotected sex, multiple partners, etc.) and parenteral (blood transfusion, reuse of non-sterile syringes and needles, invasive medical procedures, accidents with sharp instruments, sharing hygiene material and etc.) are more frequent in regions with low and intermediate prevalence⁽¹²⁻¹⁴⁾. Based on these transmission routes, illegal drug users (IDU) present a high risk for acquiring this infection, because of the risk behaviors of this group such as unsafe sex, and sharing needles and syringes⁽¹⁵⁾.

About, 50.0% to 70.0% of the IDU become infected by HBV in five years of injecting drug use, and usually, 35% to 70% of the drug users present positivity to HBc⁽¹⁶⁻¹⁷⁾. Among IDU in England, indexes of 15.0% and 36.0% of past or present HBV infection has been seen⁽¹⁸⁾. In New York (USA), studies have showed that indexes of 23.0% and 25.0% in non-injecting and injecting drug users, respectively⁽¹⁹⁾.

In Brazil, a study carried out with 609 injecting drug users in the period from 1999 to 2001, demonstrated a 27.1% prevalence for HBV infection markers, and 3.4%

were positive for HBsAg and 0.8% for anti-HBs⁽²⁰⁾. In the Mid-West Region, a study carried out with 268 illegal drug users in Campo Grande-MS identified a 10% positivity index for HBV⁽²¹⁾.

Hepatitis B vaccine is the main form to prevent HBV infection⁽³⁾. In Brazil, currently, this vaccine is universal, and it is offered to all individuals below one year of age⁽²²⁾. Risk groups such as sex workers, hemodialysis patients, health professionals and injecting drug users find the vaccine available in the Single Health System at any age group⁽²³⁾.

The control and the prevention of HBV transmission among IDU aim to reach several risk factors that are present in this group. The vaccine against hepatitis B has been recommended for this population since 1982, however, the vaccination coverage remains small^(16,24).

In this group, the vaccination coverage rates were 10.0% and 25.0% in Europe and in the United States of America, which may allow for high transmission indexes of this infection in this population⁽¹⁴⁾. Studies carried out in Brazil with young drug users in the city of Rio de Janeiro-RJ and Campo Grande-MS showed 3.3% and 9.7% indexes of vaccination coverage respectively⁽²⁰⁾.

Studies have demonstrated that small vaccination coverage among drug users may be attributed to several factors, such as: economic and social barriers, absence of health programs that supervise and provide vaccine to risk group, lack of health professionals' knowledge on how to approach the group, lack of information and interest of the drug users' families to send them to a clinic that offers the vaccine, and lack of knowledge on hepatitis B and its vaccine among drug users⁽¹⁴⁾.

Thus, the strategies to increase vaccination coverage in this group are extremely necessary and include the identification of places where these people can be routinely vaccinated, such as drug recovery clinics, treatment clinics for sexually transmitted disease, juvenile detention homes, as well as prisons and jails^(14,16,24).

In Brazil, as well as in the Mid-West region, there are a few studies approaching the prevalence of hepatitis B infection and vaccination coverage among drug users. In this sense, the present study had the purpose of identifying hepatitis B vaccination coverage and the risk behaviors among illegal drug users in Dourados-MS.

METHODS

Cross-sectional descriptive study, carried out in the city of Dourados-MS, in Recovery Centers and other injecting and non-injecting drug users support programs connected with the Peniel Mission church, to Esperança Farm, to Geovagiré Farm and outpatient follow-up centers such as the Center of Psychosocial Care – Alcohol and Drug (CAPS AD), connected with the Municipal Health Secretariat, and Amor Exigente, a program to follow-up

addicts connected with the religious action.

In residential treatment centers such as Peniel Mission, Esperança and Geovagiré Farms, the average of admitted IDU is 20 individuals. As for the outpatient follow-up clinics, the number is small and variable, because of the several characteristics of the group, among them the difficulty of following the treatment.

Thus, the sampling technique of the study was that of convenience, reaching a sample of 49 IDU. The inclusion criteria were to be an IDU, to be registered in one of the institution and/or centers above mentioned and to accept taking part in the study.

The city of Dourados is 120 km from the border of Brazil-Paraguay and 214 km away from Campo Grande, the capital city. It is formed by Dourados, the main area, and by eight districts. It is the second greatest city in the State of Mato Grosso do Sul, and it has about 183 thousand inhabitants, with an economy based on the agriculture and livestock.

Table 1 – Illegal drug users, according to sociodemographic characteristics - Dourados/MS, dec./2007 to May/2008.

Characteristics	n	%
Gender		
Female	1	2.0
Male	48	98.0
Color/ ethnic group		
White	27	55.1
Black	9	18.4
Brown	6	12.2
Yellow	7	14.3
Marital Status		
Married/Live with partner	13	26.6
Divorced	7	14.3
Single	29	59.2
Age		
<25 years old	18	36.7
26 to 36 years old	22	44.9
37 to 47 years old	7	14.3
Not informed	2	4.1
Family income*		
< 1 mw	10	20.4
2 to 5 mw	26	53.1
6 to 9 mw	3	6.1
> 10 mw	2	4.1
Not informed	8	16.3
Place of birth		
Dourados	28	57.2
Other cities	17	34.7
Not informed	4	8.1
Profession		
General services	41	83.7
Shop owner	5	10.2
Not informed	3	6.1

*mw: Minimum Wage

The investigation technique for data collection was to apply a questionnaire with open, dichotomous and multiple choice questions, already used in previous studies with drug users and other risk group for hepatitis B virus infection^(15,17,21). After data collection, Epi Info version 3.3 was used to assess the program. The study has been approved by the Human Research Ethics of Universidade Federal de Mato Grosso do Sul, (Protocol #. 1,075). The 49 participants gave their written consent. From December 2007 to May 2008, the 49 IDU participants of the study have been distributed this way: 15 Esperança Farm, ten Geovagiré Farm, six Peniel Mission, ten Amor Exigente, and 8 from the Psychosocial Care Center– Alcohol and Drugs.

RESULTS

Among the subjects studied, we have identified that 57.2% of the interviewees lived in Dourados-MS, with a predominance of males (98.0%), 55.1% identified themselves as White; 59.2% were single with ages ranging from 26 to 36 years old (44.9%) and family income from two to five minimum wages (53.1%) (Table 1).

Among the risk behaviors for HBV infection identified in the sample, most of them had a history of imprisonment (55.1%); a little less than half of them referred history of hepatitis in the family; (36.8%) and 42.9% had a tattoo (Table 2).

Table 2 – Illegal drug users in Dourados/MS, according to risk behavior for hepatitis B virus transmission, Dec./2007 to May/2008.

Behaviors	n	%
Surgery		
Yes	13	26.5
No	28	57.2
Not informed	8	16.3
History of Imprisonment		
Yes	27	55.1
No	22	44.9
Blood transfusion		
Yes	9	18.4
No	39	79.6
Not informed	1	2.0
Tattoo		
Yes	21	42.9
No	24	49.0
Not informed	4	8.2
Piercing		
No	41	83.7
Not informed	8	16.3
Case of hepatitis in the family		
Yes	18	36.8
No	21	42.9
Not informed	10	20.3

Among the total of IDU interviewees, 49.0% had all sorts of sexual intercourse, with prevalence of more than two partners in a period of six months. Most (69.0%) denied history of sexually transmitted diseases, and 36.7% have or had homosexual relations at some point of their lives (Table 3).

According to data of Table 4, most IDU in Dourados used non-injecting drugs (91.8%), with an early start during childhood that lasted through the adolescence and adulthood.

Table 3 – Illegal drug users in Dourados/MS, according to risk sexual behavior, Dec./2007 to May/2008.

Behavior	Fr*/n	%
Type of sexual intercourse		
Anal	1/49	2.0
Oral and vaginal	4/49	8.2
Vaginal	17/49	34.7
All	24/49	49.0
Not informed	3/49	6.1
Amount of partners in the last six months		
< 2	19/45	42.0
> 2	26/45	58.0
STD		
Yes	15/49	31.0
No	34/49	69.0
Sexual intercourse with same-sex partner		
Yes	18/49	36.7
No	30/49	61.2
Not informed	1/49	2.1

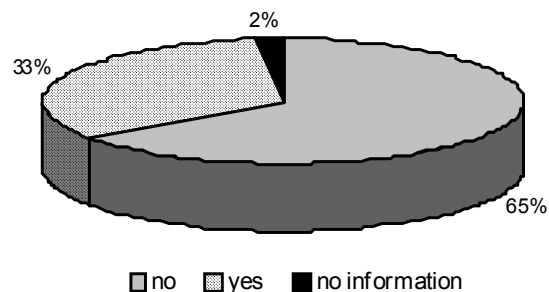
*Fr: frequency

Table 4 – Illegal drug users in Dourado/MS according to behaviors related to drug use, Dec./2007 to May/2008.

Behaviors	Fr*/n	%
Type of drug used		
Injecting	2/49	4.1
Non-injecting	45/49	91.8
Not informed	2/49	4.1
Starting age of non-injecting drug use		
8 – 15	25/49	51.0
16 – 23	18/49	37.0
24 – 32	3/49	6.0
Not informed	3/49	6.0
Associated legal drugs used		
Alcohol	5/9	55.6
Tobacco	4/9	44.4

*Fr: frequency

Hepatitis B vaccination coverage identified in the study was 33 % of the investigated IDU (Picture 1).



Picture 1 – Illegal drug users in Dourados/MS, according to Hepatitis B vaccine coverage, Dec./2007 to May/2008.

DISCUSSION

During data collection we could identify that the capacity of the care centers to drug addicts in the city of Dourados-MS was never higher than the limit number of 20 inpatients: normally about 10 inpatients are admitted. In follow-up groups such as CAPS-AD and Amor Exigente, there is no admission, therefore the presence of drug users is not mandatory, it occurs only on appointment days or psychological follow-up days.

These characteristics were one of the limitations of the study because it was a small sample which makes it impossible to extrapolate the data to other IDU, considering that many drug users do not attend support centers or are admitted for rehabilitation, either because they fear discrimination of society or because they become anxious due to withdrawal symptoms.

In the present study, the sociodemographic characteristics identified demonstrated predominance of young, single men. This reflects the standard of care of the drug addict recovery units where men are more present than women and confirm the findings of studies with illegal drug users in several countries in the world such as the United States of America, Spain, Germany, and also in Brazil, in the city of Campo Grande-MS, where a predominance of young, single males has been identified⁽²⁵⁾.

Risk behaviors identified among individuals were: history of imprisonment and of hepatitis B in the family and having a tattoo⁽²⁶⁾. A study carried out in São Paulo showed that convicts, individuals admitted to correctional facilities, injecting IDU and people tattooed with materials not properly sterilized contribute to the spread of Hepatitis B in our country⁽²⁷⁾ and another study carried out in Minas Gerais identified a relationship between HBV infection and the presence of tattoos⁽²⁸⁾.

As for family history of Hepatitis, several studies, especially in areas of high endemicity, have pointed out intrafamily transmission, thus considering history of

hepatitis in the family as important. A study carried out in the State of Amazonas with 97 HBV positive investigated individuals identified 9.3% prevalence for history of hepatitis in the family and of the 258 relatives, (51.6%) presented some marker of past infection for HBV⁽²⁹⁾.

Among the sex behaviors identified in subjects researched we found the change of partners in six months, unsafe sex, and having all kind of sexual relations. Changing partners among IDU has been also seen in a study carried out in which 82.0% of the interviewees referred they had sexual relations with casual partners of the opposite sex⁽³⁰⁾. These data also corroborate several studies carried out in the United States and in Brazil^(25,30) that point out the sexual behavior as an important risk factor for HBV transmission among illegal drug users, especially among non-injecting drug users.

Several studies point out that sex with several partners, both homosexual and heterosexual, increase the risk for HBV infection⁽²⁷⁾. Individuals with history of sexual activity with more than one partner in six months presented a high risk for virus exposure⁽²⁵⁾. Unprotected sex increases the chance of getting the virus, with an increased risk in anal sexual relations, gradually decreasing, up to oral sex⁽²³⁾. Therefore, anal sex both insertive and receptive increases the indexes of HBV infection⁽³¹⁾.

The prevalence of non-injecting IDU showed by the present study was similar to that recently found in a survey carried out in Campo Grande-MS, in which 87.0% of the sample referred the use of non-injecting drug⁽²⁵⁾. In these individuals, as already mentioned, the unsafe sex behavior is an important risk factor.

Finally, as for Hepatitis B vaccination coverage, this investigation identified a 33.0% rate. This is a high index when compared to vaccination coverage rates identified by other studies with drug users, such as those that identified a 10.0% coverage in Europe^(24,30), in the United States (13.4%), and 9.7% of vaccination coverage among

drug users in Campo Grande-MS⁽²⁵⁾.

This difference may be related with the form to identify the situation of vaccination in the present study, since none of the participants could prove vaccination with the vaccine card and a test to detect anti-HB immunity marker; this could be another limitation of the study.

Also regarding the vaccination among drug users, only 31.0% of the population studied said they had completed the three-dose scheme. This shows the small compliance of drug users regarding the three-dose scheme of Hepatitis B vaccine, pointed out by authors^(14,24) and reinforces the need for strategies to ensure effective increase of the coverage of this vaccine in this risk group.

CONCLUSION

According to the data analysis, we have concluded that most illegal drug users in Dourados-MS used non-injecting drugs, had all kinds of sex with multiple partners, with predominance of heterosexual relations. Therefore, there are many risk factors to acquire hepatitis B in this group. Vaccination coverage identified by the study (33.0%) was higher than the rates seen in some studies. This may be related with the report of illegal drug users and because they could not prove they had taken the vaccine with the card.

The low compliance to the complete vaccination scheme has also been clear. These data reinforce the need for public health strategies that are based on an intersectoral action especially between Education and Social Work aiming at health education and the opportunity of an integral care to this population, taking into account social, economic and cultural issues of this group. Last, the results of this investigation also point out to the need of further studies on Hepatitis B vaccination coverage not only in illegal drug users, but also in other risk groups, such as sex workers, health workers, hemodialysis patients, convicts among others.

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