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Research Article

Hepatitis B and C in testing and Counselling Center – Current Aspects

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• Hepatitis B; Hepatitis C; Epidemiological surveillance

Abstract

Introduction: The World Health Organization 2017 report shows that 325 million people are infected by HBV or HCV. Therefore, Tests and Counseling Centers are already done screening tests and diagnosis of hepatitis, for places in which care is primarily for those who are at greater risk of infection and populations in situations of vulnerability.

Methodology: Observational, descriptive and analytical study using data from electronic and physical records of patients treated at CEDAP in 2017 diagnosed with Hepatitis B and / or C.

Results: There were 124 HBV and 90 HCV carriers among 6,319 individuals. There was predominance of males with HBV. The transmission route for both was significant, being 76.1% by sex in HBV and 53.3% by way unknown in HCV. Coinfection with HIV was 47.6% with HBV and 35.5% with HCV. And drug use was higher in the HCV group (p <0.001).

Discussion: The prevalence was higher than in the population without increased risk, but it resembled that found in drug users and other CTAs. Epidemiological data, such as sex, age and ethnicity corroborate with that found in general populations.

Conclusion: The prevalence of B and C virus and the co-infection with HIV in CTA in 2017 were high, male, brown, and Salvador-Bahia origin predominated. Co-infection between HBV, HCV and HIV was significant, as was the use of drugs in these groups.

INTRODUCTION

Viral hepatitis are infectious diseases caused by viruses with special tropism by the liver, generating necroinflammation. They have high morbidity and affect a high number of people, being considered a worldwide public health problem. The 2017 World Health Organization (WHO) report showed that 325 million people live with hepatitis B virus (HBV) or Hepatitis C (HCV) infection and most do not have access to tests and treatments [1]. In 2015 hepatitis B and C virus infections accounted for about 1.34 milliondeaths, higher than deaths caused by HIV [2].

The detection of HBV infection in Brazil in 2016 was 6.9 cases per 100,000 inhabitants. Since 1999, the year in which hepatitis was included in the compulsory notification list, a total of 212,000 cases have been confirmed.[3]HBV is the second leading cause of death among viral hepatitis, totaling 13,252 deaths from 2000 to 2015. [3]On that note , it reveals the importance of prevention through the vaccine that had its first records dated 1980, being available for more than two decades[4,5].

In addition to this, there is the possibility of prophylaxis with immunoglobulin, if exposure, as with health workers[6,7]. Due to its silent evolution, usually oligosymptomatic, HBV is often discovered late, approximately 5 to 10% of the infected become chronic patients, when its consequences, such as cirrhosis and hepatocellular carcinoma (CHC), are already installed [8].

Currently, approximately 390,000 people die each year from Hepatitis C and even nowadays, there is no vaccine for this disease, even though 60 to 80% of those infected will evolve to a chronic form[9]. The number of deaths in 1990 was333,000 and in 2013, 704,000. This increase reflects the fact that HCV had not yet been fully discovered in the 1990s [10] HCV infection and consequences are the leading cause of death among viral hepatitis in Brazil, representing 25,000 deaths between 2000 and 2015. It is estimated that in 2015, worldwide, there were 1.75 million new infections. [2,3] Moreover, only half of the patients receive the new treatment, more effective and tolerated, which in addition to avoiding progression, also increases the quality of individual life [2,11].

Developments for HBV and HCV have been so broad in the past decade that it is now possible to control HBV and cure HCV [12] However, both infections can evolve asymptomatically, thus only being confirmed with serological tests, such as AgHBs and anti-HCV [13] Therefore, in 2004, serological screening and diagnosis of hepatitis were included in the Testing and Counseling Centers

(CTAs). In these places, care is primarily focused on those who have the highest risk of infection, such as sex workers, men who have sex with other men (MSM), people deprived of liberty, those who use alcohol or other drugs, with special attention to injectable drugs, and transsexuals, as well as other populations framed in situations of vulnerability such as those exposed to violence, poverty and racism [14,15].

The struggle against the hepatitis B and C epidemic has already been delineated by the WHO until 2030, with goals such as the improvement and simplification of therapies for HBV and the intensification of the search for HCV vaccine [16] As a result, it is justified to expand the supply of epidemiological research lines for better development of prophylactic and curative actions, in addition to the propagation of current information from the hepatitis scenario of higher prevalence worldwide.

Therefore, the objective is to describe the epidemiological profile of patients diagnosed with Hepatitis B and C in 2017 at the State Center specialized in Diagnosis, Care and Research (CEDAP) in Salvador-BA, comparing the profile of individuals with HBV and HCV and their co-infections with HIV.

METHADOLOGY

This is an Observational , descretive, and Analytical study that used data from the medical records of patient treated at CEDAP, A centre of Excellence in HIV treatment, in infectious disease and sexually transmitted disease. About 40 to 60 people per day attend CTA.

Patients of both sexes, older than 18 years, who presented positive serological markers for Hepatitis B and/or C were included.

The variables of interest were gender, age, origin, ethnicity, HIV co-infection, current pregnancy, illicit drug use, blood transfusion, health care professional.

For data analysis, a data collection form was used and tabulated in Microsoft Excel. For descriptive statistics, frequency and percentage distribution tables were used for categorical variables, average, standard or median deviation and interquartile interval for numerical variables (according to data distribution), using the Graphpad Prism version 8 statistical analysis program. For the numerical variables, the t. E test was applied for the qualitative variables, the chi-square test. In both tests, the $P<0.05$ value was considered statistically significant.

This research was approved by the Research Ethics Committee (CEP) of SESAB with exemption from the TCLE because it is a retrospective study. The privacy and confidentiality of the recorded data are guaranteed, according to the guidelines of 466/2012 Resolution. Authorized in The Consubstantiated Opinion Number 3,152,859.

RESULTS

During 2017, 6,319 people were treated at CEDAP, 127 individuals tested positive for Hepatitis B, 35 (27.7%) AgHBs positive and 91 (72.2%) positive total antiHBC, with a prevalence total of 2%. Under Hepatitis C, there were 90 patients with positive HCV testing, which corresponds to 1.45% of the total tested.

In the sample, 96 (76.1%) with positive serology for HBV and 53 (58.8%) positive serology for HCV. The comparison between the genders of Hepatitis B and C showed statistical significance ($p=0.006$) that emphasizes a greater number of male individuals in the HBV group. The average age of those infected with Hepatitis B was 41.3± 14.3 years, while in Hepatitis C it was 42.7 ± 14.3 years. In the descriptionof the patients' ethnicity, there was a greater number of cases amongbrown people, 83 (65.8%) with HBV and 48 (53.3%) HCV. When grouping by origin, almost totalitarian proceeded from Salvador-BA, totaling 97 (76.9%) among individuals with HBV and 69 (76.6%) HCV.

Comparing the transmissionroute, we found differences ($p=0.001$) between the proportions, among patients with Hepatitis B, the main transmissioncategory was by sexual route, with 96 (76.1%) followed by 15 (12%) unknown route and 6 (4.7%) by sharing sharp objects. In Hepatitis C, 48 (53.3%) patients with unknown route, 21 (23.3%) patients through drugs and 13 (14.4%) by sharing sharp objects.

Evaluating co-infection with HIV was positive in 60 (47.6%) patients with HBV and 32 (35.5%) HCV patients. Regarding the exposure of health professionals had positive results for HBV 5 (3%) people and HCV 7 (7%) people in the studied population. Pregnant patients were 2 (1.5%) Hepatitis B and 1 (1.1%) Hepatitis C. The prevalence of patients who reported illicit drug use was 18 (14.2%) with Hepatitis B and 29 (32.2%) with Hepatitis C, a statistically significant result ($p<0.001$), showing that drug use was higher in HCV patients (Table 1).

We stratified HBV patients between the profile of HIV-positive and negative patients. A higher frequency was found in males, both in HIV-positive patients, 81.6%, and in HIV-negative, 71.2%. The average age of patients with HIV and HBV was 39 ± 13.3 years, in those with only HBV it was 42.7 ± 15.9 years. Both groups had a higher origin prevalence in Salvador-BA, 46 (76.6%) HIV-positive patients and 51 (77.27%) HIV-negative patients.

Mixed ethnicity prevailed in both groups with 34 (56.67%) co-infected patients with HIV and 49 (74.24%) only with HBV. Sexual transmission was significant, with higher transmission by sexual route in those with HIV positive, total of 86.6%.

Regarding pregnancy, 2 (3%)patients were HIV negative. Drug use prevailed in those with HIV and HBV co-infection, representing 21.7%, given with statistical significance ($p=0.024$). About health professionals 3(5%) had HIV-positive result (Table 2).

The stratification of Hepatitis C and co-infection with HIV showed a higher number of male patients in both groups, 19 (59.3%) and 34 (58.6%), respectively. The average age remained near to 45.13 ± (11.85) in patients with HCV and HIV and 41.43 ± (15.4) in those monoinfected with HCV. The most prevalent origin was from Salvador-BA and 26 (81.2%) patients with HIV and 43 (74.1%) patients without HIV. The most prevalent ethnicity was brown, 18 (56.2%) HIV-positive patients and 30 (51.7%) HIV-negative patients. There was 1 (1.7%) ongoing pregnancy in HIV-negative patients.

Comparing the proportions of the transmission route between the HIV-positive and negative groups, statistical significance was

Table 1: Epidemiological and comparative profile of Hepatitis B and C.

	HEPATITIS B	HEPATITIS C	PVALUE
GENDERǂ			
Male	96, (76,19%)	53, (58,89%)	0.006
Female	30, (23,81%)	37, (41,11%)	
AGE¥	41,33, (14,35)	42,74, (14,28)	0.232
ORIGINǂ			0.641
Salvador	97, (76,98%)	69, (76,67%)	
Other	29, (23,02%)	20, (23,33%)	
ETHNICITYǂ			0.211
Black	29, (23,02%)	32, (35,56%)	
White	7, (5,56%)	6, (6,67%)	
Yellow	2, (1,59%)	2, (2,22%)	
Brown	83, (65,87%)	48, (53,33%)	
Non registered	0, (0%)	1, (1,11%)	
TRANSMISSIONǂ			0.001
Vertical	1, (0,79%)	0, (0%)	
Sexual	96, (76,19%)	2, (2,22%)	
Sharing sharp objects	6, (4,76%)	13, (14,44%)	
Drug use	1, (0,79%)	21, (23,3%)	
Blood transfusion	2, (1,59%)	0, (0%)	
Tattoo	5, (3,97%)	6, (6,67%)	
Unknown	15, (11,9%)	48, (53,33%)	
HIVǂ			0.077
Positive	60, (47,62%)	32, (35,56%)	
Negative	66, (52,38%)	58, (64,44%)	
PREGNANTǂ			0.768
Yes	2, (1,59%)	1, (1,11%)	
No	124, (98,41%)	89, (98,89%)	
DRUG USEǂ			0.001
Yes	18, (14,29%)	29, (32,22%)	
No	108, (85,71%)	61, (67,78%)	
HEALTH PROFESSIONAL ǂ			0.228
Yes	5, (3,97%)	7, (7,78%)	
No	121, (96,03%)	83, (92,22%)	

Source: Author's data base.
ǂ, Chi Square Test
¥, Student T Test

Table 2: Description Coinfection Hepatitis B and HIV.

HEPATITIS B	HIV +	HIV -	PVALUE
GENDERǂ			
Male	49, (81,67%)	47, (71,21%)	0.168
Female	11, (18,33%)	19, (28,79%)	
AGE¥	39,82, (13,33)	42,7, (15,9)	0.247
ORIGIN ǂ			
Salvador	46, (76,67%)	51, (77,27%)	0.663
Other	14, (23,33%)	15, (22,73%)	
ETHNICITYǂ			
Black	19, (31,67%)	10, (15,15%)	0.153
White	3, (5%)	4, (6,06%)	
Yellow	1, (1,67%)	1, (1,52%)	
Brown	34, (56,67%)	49, (74,24%)	
TRANSMISSIONǂ			
Vertical	1, (1,67%)	0, (0%)	0.011
Sexual	52, (86,67%)	44, (66,67%)	
Sharing sharp objects	2, (3,33%)	4, (6,06%)	

Drug use	0, (0%)	1, (1,52%)	
Blood transfusion	2, (3,33%)	0, (0%)	
Tattoo	2, (3,33%)	3, (4,55%)	
Unknown	1, (1,67%)	14, (21,21%)	
PREGNANTǂ			
	0, (0%)	2, (3,03%)	0.174
DRUG USEǂ			
Yes	13, (21,67%)	5, (7,58%)	0.024
No	47, (78,33%)	61, (92,42%)	
HEALTH PROFESSIONALǂ			
	3, (5%)	2, (3,03%)	0.571

Source: Author's database.
ǂ, Chi Square Test
¥, Student T Test

Table 3: Description of Hepatitis C and HIV co-infection.

HEPATITIS C	HIV +	HIV -	PVALUE
GENDERǂ			
Male	19, (59,38%)	34, (58,62%)	0.944
Female	13, (40,63%)	24, (41,38%)	
AGE¥	45,13, (11,85)	41,43, (15,4)	0.242
Ł			
Salvador	26, (81,25%)	43, (74,14%)	0.320th
Other	6, (18,75%)	14, (25,86%)	
ETHNICITYǂ			
Black	10, (11,11%)	22, (37,93%)	0.574
White	3, (3,33%)	3, (5,17%)	
Yellow	0, (0%)	2, (3,45%)	
Brown	18, (20%)	30, (51,72%)	
Not registered	1, (1,11%)	0, (0%)	
TRANSMISSIONǂ			
Sexual	1, (1,11%)	1, (1,11%)	0.026
Sharing sharp objects	1, (1,11%)	12, (13,33%)	
Drug use	13, (14.44%)	8, (8.89%)	
Tattoo	3, (3,33%)	3, (3,33%)	
Unknown	14, (15,56%)	34, (37,78%)	
PREGNANTǂ			
	0, (0%)	1, (1,72%)	0.454th
DRUG USEǂ			
Yes	17, (53,13%)	12, (20,69%)	0.001
No	15, (46,88%)	46, (79,31%)	
HEALTH PROFESSIONAL			
	2, (6,25%)	5, (8,62%)	0.687

Source: Author's Database.
ǂ, Chi Square Test
¥, Student T Test

found (p=0.0261). The HIV-negative group had high transmission by unknown route, with 37.7% and sharing sharp objects, with 12.3%.

Regarding drug use, it showed that HIV-positive patients use more drugs, 17 (53.1%) statistically significant data (p<0.05). And in health professionals, co-infection was lower: 2 (6.2%) HIV-positive (Table 3).

DISCUSSION

The prevalence of viral hepatitis in Latin America is heterogeneous due to population factors. [17] Moreover, it was remarkable to maintain the high prevalence of HBV infection, even with the vaccine, created in 1981, being offered to children under 02 years old in Brazil since 1992. [2] It is known that vaccination has a great impact on infections in this decade, since the countries that succeeded in their vaccination campaigns drastically reduced the prevalence, [18,19] However, it is likely that the group tested in this sample did not benefit from this coverage, due to the average age found in the 5th decade.

However, several national studies since 2000 show

prevalence below 1% in all regions of Brazil, in individuals without additional infectionrisk, meaning a downward trend compared to the historical series.[20] Based on this, we see that at-risk populations keep the prevalence as in scenarios of the past decade, which makes it necessary to maintain prophylactic and curative measures in these groups that are constantly reintroducing into society.

The worldwide prevalence of HCV represents 1% of the population, according to the WHO, showing that the population studied even in its vulnerability scenario had a slight increase in prevalence. In contrast, in Brazil in 2016 the prevalence was 0.7%. [21] In the European Union the prevalence of HCV varies widely, especially in groups at higher risk of infection. [22] Therefore, it is believed that the population of this study has an increased infectionrisk, since the use of drugs, the main route of transmission, is more prevalent in relation to the population ingeneral. In addition, there is healthcare to the public of MSM, sex workers, who have a higher chance of transmission through sexual means, as already demonstrated. [11,23]

Although evaluating anat-riskpopulation, Hepatitis B and Cepidemiological data, such as age and gender, are close to that observed in general populations, which corroborates that detection has been more prevalent in men and aged around 45 years old [3] The brown ethnic group was the one with the greatest declaration, which is demonstrated in another epidemiological study in CTA in Bahia. 24 However, in the study developed at the CTA in northern Bahia, there was a higher prevalence of women in reproductive age. The distinction for the present study can be explained by the CTA studied having attended more men that year. And in relation to ethnicity that was higher in brown people, it is justified by the origin that have been higher in Salvador-BA, because it is the place where the CTA is located and in this locality the populationmiscegenation is intense.

Nevertheless, there is no differentiation of the sexual orientation and diversity of partners, as well as co-infection with other sexually transmitted infections, because in the medical records there were not enough recordsof thesedata, which were well scored and broughtin previous studies. [24] Thus, itis undeniable the importance of the information about these factors for better development of exposed populationcounseling strategies.

Regarding the greater detection of individuals with HBV infection through total AntiHBC, similarly seen in a study developed at the CTA in the state of Ceará, making evident the importance of this serological test as the most frequent screening marker [26]

Increased co-infection of HBV and HIV was found, an association already found that increases the mortality of HIV patients, including a higher risk of progression to hepatocellular carcinoma (HCC), even in patients who are under treatment. [27] A significant sexual procedure transmission was found, especially in the HIV co-infected group, demonstrating once again that it is a well-known and frequent transmission route of both infections. [28]

Drug use showed a great deal of significance, also drawing attention to HIV-infected drugs, this linkage of illicit drug use and higher prevalence of HBV has already been demonstrated in a CTA in Pará, which showed a higher risk of HBV infection 1.7 in long-term non-injecting drug users.[28,29]

In the context of Hepatitis C, the high prevalence of transmission by drug use and the statistical significance of drug use in the group within HIV were noted, as also found in the study by Rahman M. et all, conducted in a Bangladesh CTA.[30]

HIV/HCV co-infection has a variance of 3.3 to 82.4%, in Brazil.31 However, HCV/HIV co-infection in this study was superior to the population that does not expose to the risk, thus, it is very close to what was found in drug users in Pará.[32] It is known that HIV/HCV co-infection makes prognosis worse and can interfere in a negative treatment, increasing the morbidity and mortality rate. [33,34] Therefore, hepatitis is considered as an opportunistic disease of HIV and before the above, the need to approach Hepatitis B and C is emphasized whenever an HIV-positive patient comes, even if asymptomatic.

As evidenced in an European Union study, which has already led to a decrease in risk groups, the elimination of these hepatitis is not only a public health issue, but also a human rights issue. [22] Therefore, it is essential to trace risk groups in a well-defined way, since these individuals are in constantly resocializing, to minimize the proliferation of new infections, which are at the mercy of the lack of prevention and treatment policies that include it.

Therefore, it is concluded that the epidemiological profile of Hepatitis B and C found in the CTA, followed the pattern of diagnoses in the population not considered at risk, being more prevalent in males, aged between 40 and 45 years old, brown, from Salvador-BA. In addition, there was a high co-infection of both hepatitis with HIV. Hepatitis B and HIV share the highest prevalence of sexual transmission and significant drug use in this group and Hepatitis C had a higher prevalence of co-infection with HIV in the drug user group, corroborating that this is its main route of transmission.

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