ARQGA/1746

OCCURRENCE AND SPATIAL DISTRIBUTION OF HEPATITIS C IN A WESTERN BRAZILIAN AMAZON STATE

Gabriel de Deus **VIEIRA**, Cledson Gonçalves **VENTURA** and Camila Maciel de **SOUSA**

ABSTRACT – ***Context*** - Hepatitis C causes a major impact on public health due to the high prevalence in the population. ***Objectives*** - Evaluate the epidemiological data of hepatitis C in the State of Rondônia, Brazil. ***Methods*** - Data from hepatitis C were analyzed during the period 2002 to 2012, assigned by the Agency for Sanitary Vigilance of the State of Rondônia. The variables studied were: year of diagnosis, gender, age, associated disease, exposure to risk factors and clinical presentation. ***Results*** - Eight hundred fifty-nine cases were reported during the study period. Of this total, 542 (63.1%) cases were male. In relation to age group, the one with the highest number of cases was between 40-59 years (54%), followed by 20-39 years (33.5%). In relation to sexually transmitted diseases (STDs) association, 1.8% of patients had HIV and 2.1% other type of sexually transmitted disease. About exposure to risk factors, 288 (28.1%) individuals were exposed to a surgical procedure. Was also analyzed the clinical form of the disease, 9.9% are in acute disease and 91.1% in the chronic phase. ***Conclusions*** - In the State of Rondônia, hepatitis C had a mean annual incidence of 5.1 cases/100,000 inhabitants, similar to the national rate.

HEADINGS – Descriptive epidemiology. Hepatitis C. Hepacivirus.

INTRODUCTION

The Hepatitis C virus (HCV) is an RNA virus with an estimated size of 30 to 60 nm of diameter, belonging to the genus *Hepacivirus* from *Flaviviridae* family[14]. It is estimated that 3% of the population worldwide is infected with HCV, in other words, about 200 million individuals[20]. On the American continent, the prevalence is 1.7% and Brazil is 1%[8, 27].

The HCV infection has high mortality[3], being a public health problem because it has a high prevalence in the general population, severe comorbidities, the treatment demand high costs and during the terminal phase, the infected individuals progress to chronic stages of the disease, developing cirrhosis and hepatocellular carcinoma[1]. The liver disease generated by HCV is the most common cause of liver transplantation in Brazil, and even after transplantation, can recur and progress to cirrhosis[4, 6].

Among the risk groups, users of intravenous illicit drugs, individuals on dialysis or who received blood transfusions before 1992, hemophiliacs and imprisoned are those with the highest risk, because the main route of transmission is through contaminated blood[8]. If it is not treated, HCV infection persists for all life of the infected person, been a mean of spreading the virus[10].

In 2002, the Ministry of Health created the National Program of Viral Hepatitis, whose purpose is to act in the prevention, surveillance and care actions in this area. In Brazil, it is estimated that about 3 million people are carriers of HCV, largely located in the northern region, which has difficulties in implementing social programs and health, further worsening the situation. The Brazilian government in 2004, has spent U$136,358.05 with preventive measures and treatment of hepatitis C, but only 5% of this amount was directed to the Amazon region[18].

The state of Rondônia is located in a high endemic region of the disease[16]. A study in rural areas of Rondônia, showed a prevalence of up to 67.9% for anti-HBc total antibodies[15]. In view of this, this study aims to evaluate the epidemiological data of Hepatitis C in the state of Rondônia.

METHODS

This is an epidemiological descriptive study of cases of hepatitis C diagnosed in the state of Rondônia population during the period 2002-2012. Data and statistics officially assigned by State Agency of Sanitary Surveillance of Rondonia (AGEVISA/RO) were used, through the Information Systems of Notification

Declared conflict of interest of all authors: none
Research performed at: Departamento de Medicina, Faculdade São Lucas, Porto Velho, RO, Brasil.
Departamento de Medicina, Faculdade São Lucas, Porto Velho, RO, Brasil.
Correspondence: Gabriel de Deus Vieira. Departamento de Medicina, Faculdade São Lucas, Rua Alexandre Guimarães, 1927, Areal, CEP: 76804-373 - Porto Velho, RO, Brasil. E-mail: gabrielvieira.mg@hotmail.com

SINAN NET and SINAN W, in order to provide a better analysis of epidemiological data on the disease. To create the prevalence map, the program TABWIN (www.datasus.gov.br/tabwin) was used. The variables studied were: year of diagnosis, gender, age, associated disease, exposure to risk factors and clinical presentation.

RESULTS

Were reported 859 cases of hepatitis C during the studied period, with an average prevalence of 77.4 cases/year and average annual incidence of 5.1 cases per 100,000 population (Figure 1). Of this total, 542 cases (63.1%) were male and 317 (36.9%) female. Twenty-nine (1.3%) women were pregnant. In relation to known contact with carrier of HCV, 28 (3.2%) of patients had sexual contact and 25 (3.1%) had intimate household contact. As for the age variable, the one with the highest number of cases was between 40-59 years (54.3%). On exposure to risk factors, 288 (28.1%) individuals were exposed to any surgical procedure and 142 (13.8%) individuals were exposed to three or more partners (Table 1). In relation to sexually transmitted diseases (STD) associated, 1.8% of patients had HIV and 2.1% other type of STD. On the clinical form of the disease, 9.9% are in acute disease phase and 91.1% in the chronic.

The municipalities that had the highest number of cases were Porto Velho (n = 475), Ariquemes (n = 94), Ji-Paraná (n = 60), Vilhena (n = 55) and Cacoal (n = 55) (Figure 2).

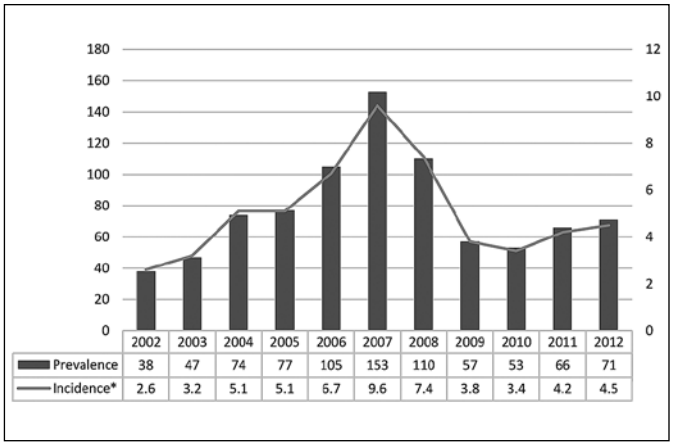

FIGURE 1. Prevalence and annual incidence of cases of hepatitis C diagnoses in the state of Rondônia during the period 2002-2012. Source: SINAN W and SINAN NET. * Calculation based on 100,000 inhabitants.

DISCUSSION

The state of Rondônia is located in a region with high endemicity of hepatitis C. In this study, was observed a similar incidence with theBrasilian rates, ranging from 5 to 5.4 cases per 100,000 population between the years 2006-2010[17]. Was also noted, the internalization of the disease, affecting several municipalities in the state. According Lobalo et al.[16], this

TABLE 1. Social and clinical data of patients with hepatitis C in Rondônia during the period 2002-2012

Variables	Nº	%	Ignored*
Age group			0
0-09	13	1.6	
10-19	34	3.9	
20-39	288	33.6	
40-59	467	54.3	
>60	57	6.6	
Contact with a patient with HCV			0
Sexual contact	28	3.2	
Intimate household contact	25	3.1	
Exposure to risk factors			0
Surgical procedure	288	28.1	
Three or more partners	142	13.8	
Blood transfusion	133	12.9	
Use of Injecting medication	103	10.1	
Tattoo / Piercing	71	6.9	
Inhaled drugs	65	6.3	
Use of illicit intravenous drug	52	5.1	
Acupuncture	21	2.1	
Hemodialysis	11	1.2	
Accident at work	9	0.8	
Transplant	1	0.1	
Clinic form			314
Acute	52	9.9	
Cronic	493	91.1	

* Absence of data in the system, due to not completing the notification form.
Source: SINAN W and SINAN NET.

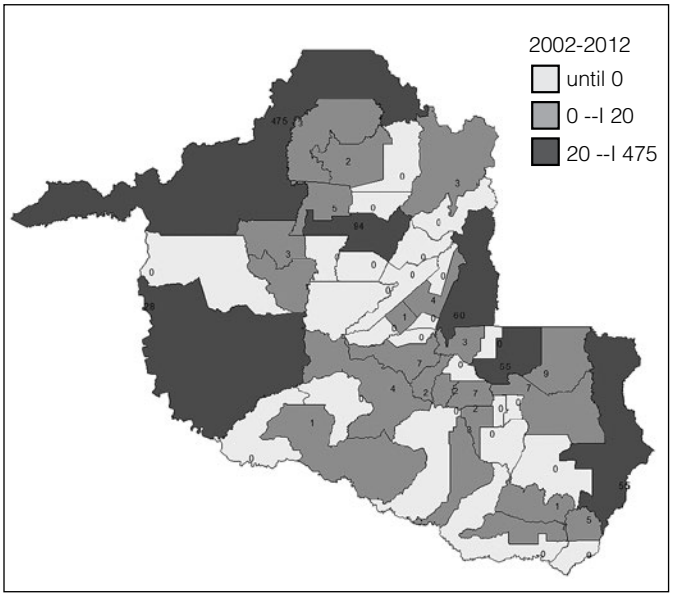

FIGURE 2. Prevalence of cases diagnosed with hepatitis C in Rondônia during the period 2002-2012. Source: SINAN W and SINAN NET.

can be explained due to failure in social programs and from public health control as prenatal, control of blood transfused and the habits of the population, such as promiscuity and the habit of sharing utensil personal use. In this study it was shown that 3.1% of the infected individuals had some known intimate household contact with a person infected by the virus.

In this study, shows a predominance of males over females. Vasconcelos et al.[24] in their study, found that 56.3% of individuals with hepatitis C were males and 43.7% females. Aquino et al.[2] in their study on hepatitis C in Pará, also found higher prevalence in males. The prevalence of hepatitis C virus was 3.6% in the study population and there was a predominant among individuals above 50 years. In this study, the age group with the highest prevalence was between 40-59 years (54.3%). Vertical transmission of HCV can reach up to 25% of pregnancies with infected mothers, and that value can increase if the pregnant woman is in viral replication during labor[19]. The presence of 3.3% of pregnant women was noted in this study. According Gardenal et al.[12] in his study of prevalence of HCV infection in pregnant women during prenatal, noted that 0.2% of pregnant women were infected. According to the authors, some factors are associated with the increased vertical transmission of the virus, such as blood transfusion, tattoo, intravenous drug use and the presence of multiple partners, and many of partners were drug users or had done blood transfusion.

HCV is the cause of 90% of post-transfusion hepatitis. All the people who received blood before age 90 should be examined and conducted laboratory tests for hepatitis C. Currently, the post-transfusion hepatitis is rare, but other means of transmission by contact with contaminated blood can propagate HCV, as syringes and/or contaminated needles and inhalation of drugs with the use of pipes and contaminated mirrors[23].

In this study it was noted that 12.9% of individuals were exposed to blood transfusion, 6.3% for inhaled drugs, 5.1% for injecting illicit drugs and 1.2% for hemodialysis. In a study conducted among blood donors in Uberaba-MG by Garcia et al.[11], the authors found that 0.3% of donors had the presence of anti-HCV. According to the authors, this was due to increased drug use and the reduction of transmission by transfusion mode due to serological screening tests. According to Fonseca et al.[9] in a study conducted in the northern region of the country, was shown the prevalence of 2.1% among candidates for blood donation.

In this study were evidenced the presence of co-infection with human immunodeficiency virus (HIV) in 1.8% of cases. This occurs because both diseases present almost the same transmission routes. In the United States and Europe, it is estimated that 30% of HIV patients are also infected with HCV, this association is greater when these individuals contract HIV by parenterally mode[22]. In co-infected patients, the aggression and progression of HCV infection is higher and have a high viral replication, with further development of liver cirrhosis and hepatocellular carcinoma[7]. Carvalho et al.[5] in a study with 343 HIV patients, showed that the prevalence of co-infection based on the detection of anti-HCV was 4.1% (n = 14) and 3.2% (n = 11) when used in the RT-PCR. In Rondônia, this association may be even higher, because studies on the epidemiology of HIV/AIDS in the state show that the disease is on the rise[25, 26].

In this study it was noted that 91.1% of the infected individuals are in the chronic phase of the disease. This is worrisome because there is high chance of these individuals evolve to cirrhosis or hepatocellular carcinoma, may be indicated for liver transplantation in most cases[13]. According to Rodriguez-Luna et al.[21], HCV recurrence after transplantation occurs almost in all patients and the evolution of the disease in transplant patients is much faster and more aggressive than in non-transplanted patients. Vasconcelos et al.[24] in their study on risk factors in the chronic phase of hepatitis C with 426 patients, found that the most common risk factor for the development of the disease were blood transfusion followed by the use of inhaled drugs. According to the authors, there was an association between over 40 years at the time of liver biopsy, serum albumin levels below the lower limit of normal, the platelet number less than 150.000 mm³, necro-inflammatory activity and fibrosis level with the chronicity of the disease.

Katsuragawa et al.[15] in their study on the serum prevalence of anti-HCV in the riverine population of Rondônia, found that 7.4% of the population tested were reagent. According to the authors, the high rate of HCV infection occurs due to migration processes occurred in the 70s and 80s and due the local habits of sharing personal objects.

CONCLUSION

The state of Rondônia is situated in a region with the highest rates of infection with the hepatitis C virus in Brazil, which is the Amazon region, with average annual incidence of 5.1 cases per 100,000 population, but it is believed that this rate may be even higher due to sub-notification cases. Control and public education measures are necessary, in order to awareness the population about the modes of transmission and means of diagnosis and treatment of the disease.

Vieira GD, Ventura CG, Sousa CM. Ocorrência e distribuição espacial da hepatite C em Estado da Amazônia Ocidental Brasileira. Arq Gastroenterol. 2014,51(4):316-9.

RESUMO – ***Contexto*** - A hepatite C causa um grande impacto na saúde pública, devido à alta prevalência na população. ***Objetivos*** - Avaliar os dados epidemiológicos da hepatite C no Estado de Rondônia, Brasil. ***Métodos*** - Foram analisados os dados da hepatite C durante o período 2002 a 2012, cedidos pela Agência de Vigilância Sanitária do Estado de Rondônia. As variáveis estudadas foram: ano de diagnóstico, gênero, faixa etária, agravo associado, exposição a fatores de risco e forma clínica. ***Resultados*** - Foram notificados 859 casos durante o período analisado. Desse total, 542 (63,1%) casos são do gênero masculino. Em relação à faixa etária, a que obteve o maior número de casos foi entre 40-59 anos (54%), seguida de 20-39 anos (33,5%). Em relação às doenças sexualmente transmissíveis associadas, 1,8% dos pacientes tinham HIV e 2,1% outro tipo de doença sexualmente transmissível. Sobre exposição a fatores de risco, 288 (28,1%) indivíduos foram expostos a algum procedimento cirúrgico. Também foi analisada a forma clínica da doença, sendo que 9,9% estão na aguda da doença e 91,1% na fase crônica**.** ***Conclusões*** - No Estado de Rondônia, a hepatite C teve incidência média anual de 5,1 casos/100.000 habitantes, semelhante à taxa nacional.

DESCRITORES – Epidemiologia descritiva. Hepatite C. Hepacivirus.

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Received 22/3/2014
Accepted 27/5/2014