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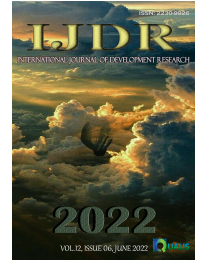
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RESEARCH ARTICLE

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EPIDEMIOLOGICAL PROFILE OF PREGNANT WOMEN WITH HEPATITIS B IN THE STATE OF PIAUÍ FROM 2012 TO 2017

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ABSTRACT

Viral hepatitis is a major public health problem worldwide. In 2015, viral hepatitis was responsible for 1.34 million deaths, which are associated with acute manifestations and the chronic development of the associated infection. The general objective of the study was to characterize the epidemiological profile of pregnant women with Hepatitis B in the State of Piauí, in the year 2012 to 2017. The study is quantitative, descriptive in nature with a retrospective and data survey approach, based on data provided by the State Department of Health of Piauí, based in Teresina - Capital of the State, Northeast Region of Brazil. The data were searched in the Information System of Notifiable Diseases - SINAN - of the Ministry of Health, comprising the period from 2012 to 2017, and tabulated in TABWIN and EXCEL. A total of 62 pregnant women registered in SINAN were analyzed, these pregnant women were infected with the Hepatitis B virus. Part of the pregnant women tested positive in the 1st trimester, or in the 2nd trimester, or in the 3rd trimester, with 37 (60%) tested only in the third trimester (table 2), i.e., the last period of pregnancy, while only 12 (20%) tested positive in the 1st trimester, and 13 (21%) in the 2nd trimester, noting that there are no cases reported in the following gestational periods: the 2nd trimester of 2016 and the 1st trimester of 2017. In the 224 municipalities of Piauí, only 17 municipalities notified cases in these 6 years surveyed. Regarding the age groups, the one that contributed most to the number of notifications was between the ages of 20 to 34 years, covering a total of 50 cases (81%) of the 62 cases studied, in the period from 2012 to 2017 (table 3). Regarding prevalence, the year that had the highest rate was the year 2013, with 36.32% pregnant women with hepatitis B per 100,000 live births. However, the simple task of implementing routines in the services does not guarantee the expected return, since operational problems can compromise the effectiveness and efficiency of a program. Therefore, there is a need for periodical evaluations, Permanent Health Education with annual planning for the teams involved in the process, FHS and Maternities, and especially for pregnant women, as mentioned in this research, i.e., instruments capable of promptly detecting the deficiencies and providing subsidies for the correction of the problems identified.

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INTRODUCTION

Viral hepatitis is a major public health problem worldwide, according to data from 10, published by the World Health Organization (WHO). In 2015 viral hepatitis was responsible for 1.34 million deaths, these being associated with acute manifestations and the chronic development of the associated infection. In the year 2000 to 2015 an increase of 22% was observed in mortality from viral liver

infections. Globally 257 million people are living with hepatitis B virus (WHO, 2016). According to WHO (2016), in May 2016, the World Health Assembly endorsed the Global Health Sector Strategy (GHSS) on hepatitis, 2016-2021. The GHSS calls for the elimination of viral hepatitis as a public health threat by 2030 (reduce new infections by 90% and mortality by 65%). In the period from 1999 to 2017, 218,257 confirmed cases of hepatitis B were reported in Brazil; of these, most are concentrated in the Southeast region (35.2%), followed by the South (31.6%), North (14.3%), Northeast (9.7%), and

Midwest (9.2%) (BRASIL, 2018). Hepatitis B virus (HBV) is a DNA virus belonging to the Hepadnaviridae family and has at least 10 genotypes (A to J). There is evidence that acute HBV infections of genotypes A and D result in higher rates of chronicity compared to genotypes B and C. The main forms of transmission are perinatal, sexual, percutaneous, and intimate person-to-person contact. When acquired perinatally, HBV infection results in approximately 90% chronicity; if acquired in early childhood, the chance of becoming chronic ranges from 20% to 40%; if contracted in adolescence and adulthood, the rate drops to 0-10% (BUSCH; THIMME, 2015). After coming into contact with the virus, the individual may develop acute oligo/symptomatic or symptomatic hepatitis. This acute picture can occur with infection with either virus, and its clinical and virologic features are limited to the first 6 months. In acute hepatitis there are 3 phases: prodromic or pre-icteric period, the symptoms are non-specific: anorexia, nausea, vomiting, diarrhea or, rarely, constipation, myalgia, photophobia, low-grade fever, headache, discomfort in the right hypochondrium, etc. Icteric phase: with the onset of jaundice there is a decrease in prodromal symptoms and painful hepatomegaly, with occasional splenomegaly, is observed. The convalescent phase follows the disappearance of jaundice and complete recovery after a few weeks. Chronic hepatitis: The B, C, and D viruses usually cause chronic disease (persistence of the virus after 6 months), which may be oligosymptomatic or symptomatic. In these cases, individuals show histological signs of liver damage (inflammation, with or without fibrosis). Fulminant hepatitis: a term used for acute liver failure characterized by the onset of jaundice, coagulopathy, and hepatic encephalopathy within 8 weeks. It is a rare and potentially fatal condition, whose lethality is high, between 40-80% of cases (BRASIL, 2013).

Vertical Transmission (VT), defined as transmission from mother to child from conception to five years of age, is of great importance in the epidemiology of the disease. While only 5 to 10% of those who acquire the infection in adulthood progress to the chronic form, in neonates born to mothers with hepatitis B virus (HBV), the risk is approximately 90%. Some researchers consider, within vertical transmission, perinatal transmission, which would occur from the 20th week of gestation until the first month of extrauterine life. Although vertical HBV transmission is more associated with regions of high HBsAg endemicity, epidemiological data show that 30 to 40% of carriers of this marker in industrialized countries, regions considered of low endemicity, acquired the infection before the age of 5 years (PERIM, PASSOS. 2005). In Brazil, there are few epidemiological studies on the prevalence of HBsAg marker in pregnant women, which is essential for the implementation of measures to prevent vertical transmission. Besides routine vaccination of children, officially adopted throughout Brazil, it is necessary for every newborn (RN) of a HBsAg carrier mother, the concomitant administration of Human Immunoglobulin against hepatitis B (IGHB) and the first dose of vaccine, both in the first 12 hours after birth. Exceptionally, administration of IGHB up to 7 days after birth is acceptable (PERIM, PASSOS. 2005). There is no specific treatment for acute forms, except for hepatitis C. For other hepatitis, if necessary, only symptomatic treatment for nausea, vomiting, and pruritus is required. As a general rule, relative rest is recommended until normalization of the aminotransferases. The only restriction is related to alcohol intake³. According to recent publications, it is recommended that decisions about treatment and therapeutic management be based on the following factors: individual and family characteristics (history of HCC, comorbidities, and pregnancy); clinical presentation; serologic profile (HBsAg); elevated ALT levels, when other causes are excluded; HBV-DNA levels; and liver histology, when available. With a diagnosis of chronic hepatitis B (defined as persistence of the virus or the presence of HBsAg for more than six months), patients should be promptly evaluated for treatment indication. If HBsAg has not been present for more than six months, treatment according to the inclusion criteria may be carried out, provided epidemiological investigation of the case is maintained (BRASIL, 2017). It is known that viral hepatitis is an important public health problem with significant morbidity and mortality, therefore the interest, as a health professional working in health

surveillance and in maternity hospitals, in knowing the profile of pregnant women with hepatitis B in the state of Piauí, I believe it is essential to improve the understanding of the disease and intensify actions to control this grievance, and one of these actions is to disclose the data for the years 2012 to 2017, so that health professionals can see how the distribution of the grievance among pregnant women is, and thus act as professionals in their health sectors to help break the chain of vertical transmission. Viral hepatitis is of great importance due to the number of individuals affected and the possibility of complications in the acute and chronic forms. Data reveals the underreporting of viral hepatitis and most people are unaware of their carrier status and constitute an important link in the chain of transmission of the hepatitis B virus (HBV) or hepatitis C virus (HCV), which helps perpetuate the transmission cycle of these infections (BRASIL, 2006). Thus, it is important that health professionals recognize the importance of developing actions concerning viral hepatitis, implementing the activities in the routines of their respective services. The overall objective of the study was to characterize the epidemiological profile of pregnant women with Hepatitis B in the state of Piauí, from 2012 to 2017.

METHODOLOGY

The study is quantitative, descriptive with a retrospective and data survey approach, based on data provided by the State Department of Health of Piauí, based in Teresina - State Capital, Northeast Region of Brazil. The data were searched in the Information System of Notifiable Diseases - SINAN - of the Ministry of Health, comprising the period from 2012 to 2017, and tabulated in TABWIN and EXCEL. A total of 62 pregnant women registered in SINAN were analyzed, these pregnant women were infected with the Hepatitis B virus. The State of Piauí has as prenatal routine the performance of serology for HIV, syphilis and hepatitis B in the 1st and 3rd trimesters of pregnancy centralized in the state reference laboratory. For the purposes of this study, we considered hepatitis B confirmed in the presence of any of the following positive serological markers:

Table 1. Frequency of Pregnant Women with Hepatitis B according to Year and Municipality of Residence, 2012 to 2017

Year	Municipality	Pregnant Women
2012	Castelo do Piauí	2
	Picos	1
	Teresina	6
	Capitão de campos	2
	Guaribas	1
2013	Parnaíba	2
	Passagem Franca do Piauí	1
	Picos	3
	Teresina	8
	Bom Jesus	1
	Brasileira	1
	Curimatá	1
Jaicós	1	
2014	Miguel Leão	1
	Parnaíba	1
	Picos	2
	Pimenteiras	1
	São José do Peixe	1
	Teresina	6
	Itainópolis	1
	Picos	3
2015	Regeneração	1
	São Julião	1
	Teresina	3
	Guaribas	1
2016	Picos	1
	Piripiri	2
	Teresina	3
2017	Arraial	1
	Teresina	2
	Uruçui	1
TOTAL		62

Source: SINAN NET 2018.

HBsAg (surface antigen), anti-HBc IgM ("core" antibody, immunoglobulin class M) and HBeAg ("e" antigen). The chronic form of the disease was defined by the presence of positive total anti-HBc ("core" antibody adding immunoglobulin classes M and G) and absence of the other markers mentioned above.

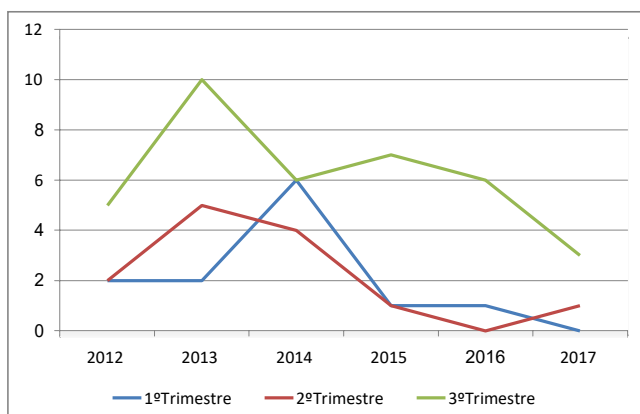
RESULTS

The period from 2012 to 2017 was analyzed, which included 62 pregnant women in the national SINAN registry. Part of the pregnant women tested positive in the 1st trimester, or in the 2nd trimester, or in the 3rd trimester, with 37 (60%) being tested only in the third trimester (table 2), that is, the last period of pregnancy, while only 12 (20%) were tested in the 1st trimester, and 13 (21%) in the 2nd trimester, noting that there are no cases reported in the following gestational periods: the 2nd trimester of 2016 and the 1st trimester of 2017.

Table 2. Frequency of Pregnant Women with Hepatitis B according to Year and Period of Pregnancy in the State of Piauí, 2012 to 2017

Year	1° Quarter	2° Quarter	3° Quarter
2012	2	2	5
2013	2	5	10
2014	6	4	6
2015	1	1	7
2016	1	-----	6
2017	-----	1	3
TOTAL	12	13	37

Source: SINAN NET 2018.



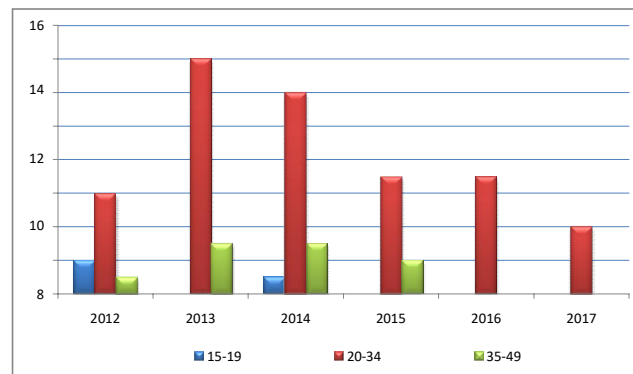
Source: SINAN NET 2018.

Graph 1. Frequency of Pregnant Women with Hepatitis B according to Year and Period of Pregnancy in the State of Piauí, 2012 to 2017

Table 3. Frequency of Pregnant Women with Hepatitis B according to Age Group, Piauí, 2012 to 2017

Year Age Group	15 – 19	20 – 34	35 – 49	TOTAL
2012	2	6	1	9
2013	-----	14	3	17
2014	1	12	3	16
2015	-----	7	2	9
2016	-----	7	-----	7
2017	-----	4	-----	4
TOTAL	3	50	9	62

According to the analysis, among the 224 municipalities7 currently existing in the state of Piauí, only 17 municipalities notified cases in these 6 years surveyed (table 1). Regarding age groups, the one that contributed most to the number of notifications was the age fx 20 to 34 years, covering a total of 50 cases (81%) of the 62 cases studied, in the period from 2012 to 2017 (table 3).



Source: SINAN NET 2018.

Graph 2. Frequency of Pregnant Women with Hepatitis B according to Age Group, Piauí, 2012 to 2017

Table 4. Prevalence of Pregnant Women with Hepatitis B, Piauí, 2012 to 2017

YEAR	CASES (C1)	CASES (C1)	PREVALENCE (P1%) X100.000
2012	9	47962	18,76
2013	17	46419	36,32
2014	16	47941	33,37
2015	9	49253	18,27
2016	7	46986	14,89

Source: SINAN NET 2018.

Table 5. Prevalence of Pregnant Women with Hepatitis B, according to State Reference Laboratory, Piauí, 2012 to 2017

YEAR	CASES (C1)	SAMPLE (N1)	PREVALENCE (P1%) X100.000
2012	64	6076	1,05
2013	98	7826	1,25
2014	241	17205	1,40
2015	157	23403	67,08
2016	133	22164	60,00
2017	138	25236	54,68

SOURCE: GAL/LACEN, 2019.

Regarding prevalence, the year that had the highest rate was the year 2013, with 36.32% pregnant women with hepatitis B per 100,000 live births. Compared to the reference State Laboratory, in this same period, 101,910 pregnant women were analyzed for Hepatitis B in filter paper exam, and the result was 831 reagent pregnant women. This gives an overall prevalence of 12.26/100,000 (table 5), that is, for every 101,910 pregnant women, 12.26 have Hepatitis B.

DISCUSSION

The execution of a study based on the collection of data obtained in health programs has the advantage of having a reduced cost, since the expenses with material or human resources are minimal. However, its execution presupposes that the system that produces these data is fully organized, making it possible to have good quality information. Even knowing that this does not always occur, its execution is a valuable means of subjecting the programs to a critical evaluation, which is necessary in order to identify existing difficulties. The present research aimed not only to study some characteristics of the pregnant women assisted by the SESAPI Hepatitis Program, but, in particular, to better understand the dynamics of this program, aiming to identify its virtues and problems regarding hepatitis B prophylaxis in pregnant women. This is particularly important at a time when the Brazilian Ministry of Health is implementing nationwide testing for the marker HBsAg in pregnant women in the first trimester. The study concluded that there is a great need to improve the SINAN information system, aiming at a better completeness and conciseness of data, considering the inefficiency of some data provided. It was also analyzed that the notification of hepatitis B in pregnant women occurred in larger quantities in the third trimester of pregnancy, which

compromises the prognosis of the disease in this pregnant woman, and consequently in this child. In the second and third cases, respectively, it is easier to solve the problem with continuing education for professionals and educational activities with pregnant women, promoting the understanding of the grievance studied. Another problem clearly identified is the reduced number of municipalities that notified pregnant women with hepatitis B in these 6 years followed up, only 8% of the 224 municipalities, it is understood that there is possibly an underreporting of cases. There is then the need to make health professionals aware of the obligation of Compulsory Notification⁸ of hepatitis B cases as well as of all notifiable diseases. Comparing with the cases of Hepatitis B registered in the state reference Laboratory, it was also confirmed the impacting difference in the number of cases, since in the Laboratory records there are 831 pregnant women with Hepatitis B, and only 62 in SINAN, one more reason to review these cases. Vertical transmission in the state of Piauí is not the most important means of transmission, but the sexual route, agreeing with the other Brazilian states, according to¹ where, among the cases whose probable source or transmission mechanism was known, the majority occurred via sexual route (21.2%), we conclude that the distribution of the probable sources of infection did not undergo many variations over time. Complementing the study further, we sought to have knowledge of which age group occurred the highest number of notifications among pregnant women, and the age group that prevailed was 20 to 34 years, comprising a total of 50 cases (81%) of 62 cases studied in the period 2012 to 2017, in this sense there was conformity comparing with national studies, where the age fx 15 to 19 years there was a reduction (48.5%) and 30 to 39 years and over 40 years, there was an increase of 46.4% and 5.5% respectively (BRASIL, 2018). Regarding the study of prevalence of cases, we crossed data from SINAN net with the data of live births in SINASC (Live Births Information System), and the highest prevalence rate, occurred in the year 2013 comprising a percentage of 36 cases of hepatitis b per 100,000 live births.

CONCLUSION

However, the simple task of implementing routines in the services does not guarantee the expected return, since operational problems can compromise the effectiveness and efficiency of a program. Therefore, there is a need for periodical evaluations, Permanent Health Education with annual planning for the teams involved in the process, FHS and Maternities, and especially for pregnant women, as mentioned in this research, i.e., instruments capable of promptly detecting the deficiencies and providing subsidies for the correction of the problems identified.

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