

Seroprevalence of Hepatitis B Virus in Pregnant Women in Pointe-Noire

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ABSTRACT

Objective: To characterize the epidemiological profile of HBV infection in women pregnant in Pointe-Noire.

Patients and Methods: This was a descriptive cross-sectional study conducted in Pointe-Noire over a 6-month period. The study concerned pregnant women received in antenatal care in some hospitals in the city. Screening for HBsAg was performed using two tests, namely the HbsAg immunochromatographic test and the fourth generation ELISA. The socio-demographic factors of the study population as well as the risk factors for transmission of the virus were studied.

Results: During the study, 150 pregnant women were enrolled. The average age was 27.22 +/- 6.10 years old. The most represented age group was 25 to 35 years old. The majority of women were common-law, had a college-level education, were unemployed and consulted from the second trimester of pregnancy. Scarification was the most important risk factor in 52% of cases. Immunization coverage was low, around 3.33%. The frequency of HBsAg was 2.67%. Infection predominated in scarified women, women in middle school, and women in common-law unions. However, no significant difference was found between this biological marker and the study variables.

Keywords

Seroprevalence, HBV, Pregnancy, Pointe-Noire.

Introduction

Viral hepatitis B is a highly endemic infection and a public health problem [1,2]. It is estimated that there are 350 million chronic HBV carriers worldwide [3]. Africa and Asia are the most affected areas, with prevalence generally above 8% [4]. Modes of transmission are known, viremic women constitute a veritable reservoir of vertical transmission, which increases the frequency and incidence of this infection, especially in developing countries [5]. Indeed, the prevalence of the virus in pregnant women ranges from 0.6% in areas with low endemicity to 20% in areas of high endemicity [6]. The risk of mother-to-child transmission of HBV reaches 90% in the perinatal period with a similar transition rate to chronicity [5]. Although often asymptomatic, the infection can induce complications of variable severity in both mother and child

[5,7]. In the Congo, HBV work in pregnant women was restricted to Brazzaville [8,9]. The objective of the study was to characterize the epidemiological profile of pregnant women carrying HBV living in Pointe-Noire in order to contribute to the fight against this virus.

Study method

This was a cross-sectional descriptive study that took place from June to November 2018, for a six-month period, in Pointe-Noire Integrated Health Centers and Loandjili Hospital. The consenting pregnant women in the study, who had been living in the city for more than 6 months and had an unknown HBV serological status and who received antenatal care regardless of the term, were included systematically. Sociodemographic factors in the study population (age of female, age of pregnancy, level of education, occupation, marital status) and risk factors for transmission of the virus were studied. The HBsAg Gold Rapid Screen immuno-

chromatographic test was used for the detection of HBsAg in the sera collected. The fourth-generation ELISA technique, using the Monolisareagent TM HbsAg ULTRA, confirmed the results. The Microsoft Excel version 2013 and Epi-Info version 7.2.2.6 software were used for data entry and analysis. The odds ratio (OR) and the 95% confidence intervals (95% CI) were calculated, the significance level was set at 5%.

Results

Sociodemographic Factors of the Study Population

Data collection allowed to include 150 women in the study. The extreme ages were 15 and 43 years, the average age of 27.22 +/- 6.10 years. The most represented age group was 25 to 35 years old. Figure 1 illustrates the distribution of the population by age group.

The majority of pregnant women were common-law (84.67%), had a college-level education, were unemployed and consulted from the second trimester of pregnancy. Table 1 shows the distribution of the population by marital status, educational attainment, occupation of women, and age of pregnancy.

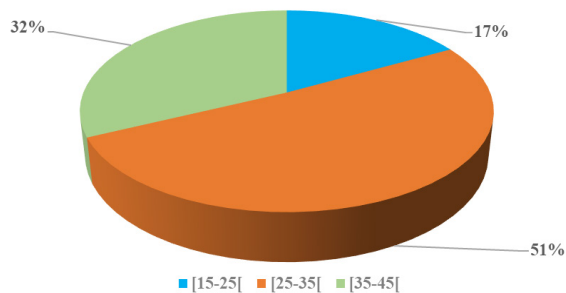


Figure 1: Distribution of the population by age group.

variables		n	%
Marital status	Free union	127	84.67
	Bride	12	8
	Single	11	7.33
Level of education	Illiterate	1	0.67
	Primary	17	11.33
	College	82	54.67
	High school	36	24
	University	14	9.33
Profession or occupation	Housewife	73	48.67
	Merchant	33	22
	Civil servant	17	11.33
	worker	27	18
Age of pregnancy	1st quarter	26	17
	2nd quarter	76	51
	3th quarter	48	32

Table 1: Distribution of the population by socio-demographic factors.

Transmission Risk Factors

Scarification was the most represented risk factor at 52%, followed by piercing, tattooing and sexual risk. Immunization coverage was low at 3.33%. The distribution of the population according to the

risk factors for HBV transmission is shown in Figure 2.

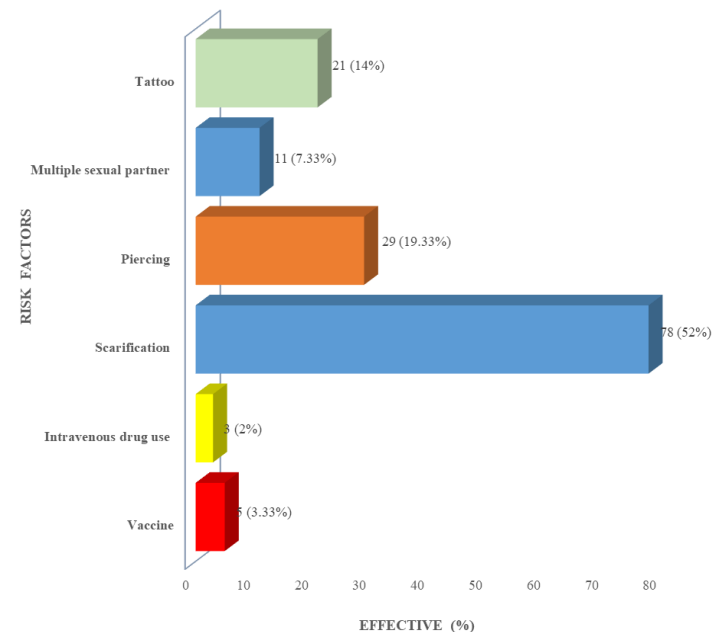


Figure 2: Distribution of the population as of transmission of HBV risk factors.

HBV carriage frequency

Of the 150 women examined, only four had HBsAg at a frequency of 2.67%.

Distribution of HBV positive pregnant women according to epidemiological data

The young population, especially those aged between 15 and 25 years, was the most exposed to HBV in the study. It is the same for women at the college level and those living in a common-law relationship. Table 2 shows the distribution of pregnant women with HBsAg according to socio-demographic factors.

Variables		AgHBs				OR (IC à 95%)	p-value
		Positive		Négative			
		n	%	n	%		
Age class	[15-25]	2	50	53	36.3	0.79 (0.7-9.21)	0.852
	[25-35]	1	25	72	49.32	0.29 (0.2-4.86)	0.391
	[35-45]	1	25	21	14.38	1	
Level of study	Illiterate	-	-	1	0.68	3.67(0.09-135.66)	0.481
	Primary	1	25	16	10.96	1	
	College	3	75	79	54.11	0.61 (0.05-6.22)	0.675
	High school	-	-	36	24.66	0.15 (0.01-3.89)	0.254
	University	-	-	14	9.59	0.37 (0.01-10.05)	0.562
Profession or occupation	Housewife	2	50	71	48.63	1	
	Merchant	2	50	31	21.23	2.29 (0.31-17.01)	0.417
	Official	-	-	17	11.64	0.82 (0.04-17.79)	0.897
	Workers	-	-	27	18.49	0.52 (0.02-11.18)	0.676

Marital status	Married	-	-	12	8.22	NA	
	Common-law	4	100	123	84.25		
	Status single	-	-	11	7.53		
Age de la grossesse	1st quarter	-	-	26	17.81	0.35 (0.01-7.59)	0.504
	2nd quarter	2	50	74	50.68	0.62 (0.08-4.57)	0.641
	3th quarter	2	50	46	31.51	1	

Table 2: Distribution of HBV positive pregnant women by socio-demographic factors.

OR: Odd ratio; IC: confidence interval; NA: not applied.

Infection predominated in scarified women, tattooed women and those wearing a piercing. The distribution of pregnant women with HBsAg according to risk factors for transmission is shown in Table 3.

		AgHBs				OR (IC à 95%)	p-value
		Positive		Négative			
		n	%	n	%		
Intravenous drug	Yes	-	-	3	2.05	4.55 (0.20-101.96)	0.339
	No	4	100	143	97.95	1	
Piercing	Yes	1	25	28	19.18	1.40 (0.14-14.01)	0.772
	No	3	75	118	80.82	1	
Multiple sexual partners	Yes	1	25	11	7.53	4.09 (0.39-42.68)	0.239
	No	3	75	135	92.47	1	
Scarifications	Yes	2	50	76	52.05	0.92 (0.12-6.71)	0.935
	No	2	50	70	47.95	1	
Tattoos	Yes	1	25	20	13.7	2.10 (0.20-21.19)	0.529
	No	3	75	126	86.3	1	
Vaccine	Yes	-	-	5	3.42	2.85 (0.13-59.96)	0.490
	No	4	100	141	96.58	1	

Table 3: Distribution of HBV positive pregnant women according to risk factors for transmission.

Discussion

In order to optimize the reliability of the results, we opted for the use of two identification tests. These means of diagnosis are traditional in some works, in particular they were used in a study on the seroprevalence of HBV in the department of Likouala in Congo [10].

Similar observations concerning the youth of our study population have been made in other countries of sub-Saharan Africa [11-13]. The predominant marital status in the study may be related to the lack of financial means, marriages in civil status previously requiring a customary marriage which is usually very expensive in our country. The small percentage of women employed in sub-Saharan Africa in general and in Congo in particular could explain the high number of unemployed women in the study. The same observation was made by Noubiap et al. in Cameroon in 2015 and Mulu et al. in Ethiopia in 2014 [14,15]. College-level women were the most represented, this confirms the average level of education of Congolese as reported by the Demographic and Health Survey

of Congo [16].

The predominance of scarification could be explained by the fact that this ancient practice is very widespread in our country. It was also one of the most important risk factors in a 2013 study on the prevalence of hepatitis B, C and HIV in pregnant women in Brazzaville [8]. The low immunization coverage could be explained by the lack of knowledge about vaccination in the general population, since the Expanded Program on Immunization was systematic only in 2012.

Our analyzes show that the carrying frequency of HBV is low. area of high prevalence of HBV infection such as Congo would be expected to have a higher frequency. In fact, higher prevalences of HBsAg have been reported in earlier work in pregnant women in Brazzaville and in women who gave birth in Pointe-Noire [8,9,17].

The high percentage of HBV in pregnant women aged 15 to 25 may be explained by the fact that this age group is more exposed to risk factors, especially sexual risk. The same observation was made by Ugbebor et al. in 2011 in Benin, Onwuiri et al. in 2017 and Esan et al. in Nigeria in 2014 [12,18,19]. The lack of sufficient knowledge about this infection would explain the high percentage among women with average education. The explanation is the same for housewives who are more exposed to HBV.

The high percentage of scarified patients is justified by the fact that this ancestral practice, usually used in sub-Saharan Africa and Congo in particular, is a frequent mode of contamination in these highly endemic areas. However, we found no statistically significant difference between the carriage of the virus and the variables studied.

Conclusion

Our study reported a low frequency of HBsAg in pregnant women in Pointe-Noire. These results require large-scale studies to determine the true HBV carriage rate in this population. Nevertheless, preventive and educational measures of the population on the modes of transmission of the virus as well as the systematic and early screening of pregnant women are necessary.

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