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Prevalence of Hepatitis B among Pregnant Women and Clinical Profile of Their Newborns in Lome, Togo

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Abstract

Introduction: Hepatitis B is a global public health problem, particularly worrying in sub-Saharan Africa where mother-to-child transmission remains high. This study aims to describe the clinical profile of newborns born to mothers infected with the hepatitis B virus (HBV). Materials and methods: This was a cross-sectional study conducted in the Gynaecology-Obstetrics and Paediatrics Departments of the CHU Campus in Togo from 1st January 2023 to 31st December 2025. It included records of pregnant women who were HBsAg-positive and their newborns. Results: The prevalence of HBV among pregnant women at the CHU Campus was 5.2%, 95% confidence interval (95% CI) [3.8% - 6.6%]. The average age of women infected with HBV was 27.6 ± 11.4 years (16 - 38 years). Half (48.6%) were asymptomatic. Elevated transaminases were noted in 26.5% of pregnant women and 27.7% were HBeAg positive. The viral load was greater than 200,000 IU/ml in 21.7%. Four out of five women (79.5%) received tenofovir. The average weight of newborns was 3016.5 ±

353.6 g. The average height was 50.1 ± 1.8 cm and the average head circumference was 33.6 ± 3.3 cm. The sex ratio of newborns exposed to HBV was 1.1. Eight newborns (10.3%) were resuscitated in the first minute. Fifty-seven newborns (69.3%) received the HBV vaccine within 12 hours. Conclusion: Newborns of HBV+ mothers had normal measurements at birth. Systematic follow-up of these children should be instituted to determine their status.

Keywords

Hepatitis B, Pregnancy, Newborn, Mother-to-Child Transmission, Prevention

1. Introduction

In 2022, 254 million people worldwide were living with chronic hepatitis B [1]. Among them, 1.1 million deaths were mainly due to cirrhosis or hepatocellular carcinoma [1]. The average prevalence in sub-Saharan Africa is between 6% and 12% [2]. In Togo, prevalence is estimated at 15% across the country and 35% in the north, according to the Togolese League Against Hepatitis [3]. Mother-to-foetus transmission is one of the main modes of hepatitis B virus (HBV) infection [4]. Despite the effective implementation of a hepatitis control programme since 2021 [3], prenatal screening is not always systematic in maternity wards. In addition, access to tenofovir administration for pregnant women, vaccination at birth and the use of immunoglobulins remain fragmented interventions [5]. The aim of this study was to describe the profile of newborns born to women infected with HBV at the University Hospital Campus (CHU-C).

2. Methods

The Gynaecology-Obstetrics and Paediatrics Departments of the CHU-C served as the setting for the study. It was a cross-sectional study covering the period from 1 January 2023 to 31 December 2025 (3 years). The target population consisted of women who tested positive for HBV during prenatal screening and their newborns. HBV-positive women referred to the CHU-Sylvanus Olympio for other complications were not included. The variables studied were the sociodemographic characteristics of the mothers (age, educational level, occupation, marital status, place of residence), clinical data (gestation, parity, mode of delivery, newborn status at birth), paraclinical data (transaminases, bilirubinemia, viral load, HIV serology, liver ultrasound), and data on therapeutic management (maternal antiviral treatment, neonatal care, newborn vaccination, serotherapy, breastfeeding). Data collection was carried out using a digital questionnaire created with Kobocollect software. Processing and analysis were performed using R© statistical software (version 4.3.1) and Microsoft Office Excel 2021. Data entry was performed using Microsoft Word 2021 software. The medical school ethics-committee approval was obtained. Official authorisation was granted by the management of the CHU

Campus for maternal and newborn record use. The anonymity of the respondents and the confidentiality of the information were strictly respected.

3. Results

3.1. Prevalence

During the study period, 1885 births were recorded at the CHU Campus, of which 1595 were screened for HBsAg (84.6%). Eighty-three women who gave birth were infected with HBV, representing a prevalence of 5.20% (83/1595), 95% confidence interval (95% CI) [3.8% - 6.6%].

3.2. Socio-Demographic Data on Mothers

The majority of women were screened between 16 and 31 weeks of amenorrhea (61.5%) and 25.6% between 32 and 40 weeks of amenorrhea. The average age of women infected with HBV was 27.6 ± 11.1 years (16 - 38 years). Pregnant women were aged between 25 and 30 years (30.8%). The level of education was secondary (43.6%) and 28.2% had higher education. Housewives and shopkeepers accounted for one-third (33.3%) and 12.8% of the total, respectively, and 61.5% were married, compared with 33.3% who were single. The proportion of women who had given birth to few children was 41.0%, and two-thirds had given birth to few children (66.7%). At least four prenatal contacts were made in 69.2% of cases.

3.3. Clinical and Paraclinical Data for Mothers

Among the women who gave birth and were surveyed (N = 83), 48.6% were asymptomatic. Asthenia (35.9%) and abdominal pain (12.8%) were the symptoms recorded. Elevated transaminases were noted in 26.5% of pregnant women and 27.7% were HBeAg positive. The viral load was greater than 200,000 IU/ml in 21.7% (Table 1). HIV serology was negative for all mothers (100.0%) and 15.4% had moderate anaemia (haemoglobin level < 10 g/dl).

Antiviral therapy with tenofovir disoproxil fumarate (TDF) 300 mg once daily was administered to 79.5% of the women, from the time of diagnosis until three months postpartum.

Seventy-nine women (94.9%) gave birth vaginally and four by caesarean section (5.1%). No invasive procedures such as vacuum extraction or amnioscopy were performed during delivery.

3.4. Clinical Characteristics of Newborns (N = 83)

All newborns were swabbed with chlorhexidine immediately after birth (100.0%). Before the section, the umbilical cord was cleaned with yellow polyvidone (100.0%).

The average weight of the newborns was 3016.5 ± 353.6 g (range 2309 g - 3724 g). The average height was 50.1 ± 1.8 cm (46.5 cm to 53.7 cm) and the average head circumference was 33.6 ± 3.3 cm (27.0 cm to 40.2 cm). The sex ratio of newborns exposed to HBV was 1.1.

Eight newborns (10.3%) were resuscitated in the first minute and 7.7% in the fifth minute (Table 2).

Fifty-seven newborns (69.3%) received the HBV vaccine within 12 hours of birth. Anti-HBs immunoglobulins were administered to 13.3% of children. Breastfeeding was possible within one hour for 92.8% of children (Table 3).

A quarter of newborns (25.3%) presented clinical signs that required hospitalisation (Table 4).

Table 1. Distribution of women according to liver function test results (n = 83).

	N = 83	%
Transaminases ASAT/ALAT		
Normal	55	66.3
increased	22	26.5
Not done	06	7.2
AgHBe		
Negative	28	33.7
Positive	23	27.7
Not done	32	38.6
Antibodies AntiHBs		
Negative	26	31.3
Positive	21	25.3
Not done	36	43.4
Viral load (UI/ml)		
<200,000	23	27.7
≥200,000	18	21.7
Not done	42	50.6
Liver Ultrasound		
Normale	26	31.3
Anormale	00	00.0
Not done	57	68.7
Total	83	100.0

Table 2. Clinical characteristics of newborns exposed to HBV at the University Hospital Campus in 2025.

	Number N = 83	Percentage %
Gender		
Male	44	53.8
Female	39	46.2
Weight (grammes)		
<2500	09	10.8
2500 - 4000	71	85.5
>4000	03	3.6

Continued

Gestationnel duration (weeks of amenorrhoea)		
<37	07	8.4
37 - 42	75	90.4
>42	01	1.2
Resuscitation (Apgar score)		
1st minute		
<7	08	9.6
>7	75	90.4
5th minute		
<7	06	7.7
>7	77	92.3
10th minute		
<7	06	7.2
>7	77	92.8
Evolution		
Normal	83	100.0
Stillbirths	00	0.0
Postnatal deaths	00	0.0

Table 3. Distribution of newborns exposed to HBV according to therapeutic management.

	N = 83	(%)
HBV vaccine		
Before 12 h	57	69.3
After 12 h	21	25.3
Not done	5	6.0
Anti-HBs immunoglobulins		
Yes	11	13.3
No	72	86.7
Early breastfeeding		
Yes	77	92.8
No	6	7.2
pediatric follow-up		
Yes	80	96.4
No	3	3.6
Serology scheduled at 9 - 12 months		
Yes	83	100.0

Table 4. Distribution of newborns exposed to HBV according to their health status.

	N = 83	(%)
Presence of clinical signs		
Yes	21	25.3
No	62	74.7
Jaundice		
Yes	6	7.2
No	77	92.8
Respiratory problems		
Yes	15	18.1
No	68	81.9
Hospitalisation		
Yes	21	25.3
No	62	74.7

4. Discussion

The prevalence of hepatitis B among pregnant women at the Lomé University Hospital Campus was 5.2%. This is among the lowest rates recorded. In several sub-Saharan African countries, prevalence varies between 5% and 15% (**Table 5**) [6]-[12].

Table 5. Prevalence of hepatitis B virus in pregnant women.

Town, country	Prevalence	Author	Year
Abidjan, Ivory Coast	4.2	Hamidine [7]	2019
Kara, Togo	10.6	Ekouévi [8]	2020
Ziguinchor, Senegal	7.6	Aw [9]	2020
Ouagadougou, BF*	4.8	Guingane [10]	2021
Cotonou, Benin	5.5	Kpossou [11]	2023
Kati, Mali	6.0	Keita [12]	2025

BF* = Burkina Faso.

These figures, which are among the lowest at the University Hospital Campus, can be explained by the referral of a number of women in labour to the national hospital, the Sylvanus Olympio University Hospital, in cases of serious complications in 2023-2024. They highlight the importance of systematic HBV screening during pregnancy in order to reduce mother-to-child transmission and the need to strengthen the obstetric team at the CHU Campus.

The average age of HBV+ pregnant women was similar to data from Africa [13] [14]. The relatively satisfactory literacy rate could promote a better understanding of the issues related to vertical transmission of the virus. However, the persistence of risky practices shows that education alone is not enough and must be accompanied by an effective awareness-raising strategy. The majority of women were

married and engaged in informal activities (housework, trading), reflecting the typical socio-economic structure of pregnant women in urban and semi-urban areas in Togo. These women, often without comprehensive health coverage, may face barriers to accessing comprehensive prenatal care.

Analysis of obstetric history shows a predominance of women with few pregnancies and few births. This relatively young obstetric profile highlights the importance of intervening from the first pregnancies onwards to limit HBV transmission to newborns.

The main symptoms reported during prenatal consultations were asthenia (35.9%) and abdominal pain (12.8%). These symptoms are non-specific and often underestimated, as they can be confused with physiological signs of pregnancy. These clinical signs are consistent with those described in the literature, where chronic forms of hepatitis B are often asymptomatic or manifest as persistent fatigue, abdominal discomfort, or digestive disorders [13].

According to the World Health Organisation (WHO), all pregnant women infected with the hepatitis B virus should be assessed by measuring their viral load (HBV DNA) in the third trimester of pregnancy. If the viral load is >200,000 IU/ml, antiviral treatment (particularly with tenofovir disoproxil fumarate, TDF) must be initiated from the 28th week of pregnancy to reduce the risk of perinatal transmission [15]. Three women (7.69%) had high levels viral load requiring treatment. This shows a significant gap between recommendations and practice.

In this study, 71.8% of women received antiviral treatment during pregnancy, which is relatively encouraging. However, 28.2% received no treatment, which remains a concern given that current WHO recommendations advocate antiviral treatment from 28 weeks of pregnancy in cases of high viral load [16].

The average weight of newborns was 3016.5 ± 353.6 g. The average height was 50.1 ± 1.8 cm and the average head circumference was 33.6 ± 3.3 cm. Despite premature births (8.5%) and low birth weight (11.4%), these children were generally well nourished according to WHO and African standards [9] [10] [17]. Resuscitation was indicated for 10.3% of newborns, which is close to the data for newborns not exposed to HBV in Togo (9% - 10%) [18]-[20] and Senegal [9].

The majority of newborns were vaccinated within the first 12 hours of life, in accordance with WHO recommendations [9] [21]. However, 86.7% of newborns did not receive anti-HBs immunoglobulins, probably due to the high cost ($100), which is a significant shortcoming, especially in children born to highly viraemic mothers. Exclusive breastfeeding was the preferred feeding method, due to financial barriers. No deaths were recorded.

5. Conclusion

The clinical condition of newborns born to HBV-positive mothers was satisfactory, with a normal average weight. Despite a good neonatal vaccination rate, the low coverage with anti-HBs immunoglobulins remains a concern. Improved screening, access to antiviral treatment, and greater awareness are essential for

reducing vertical transmission of HBV. A targeted public health policy, combined with enhanced education, will enable better management of this preventable disease.

Author Contributions

Akouvi Sêlomin AGOSSOU, Zakiyat ATCHA-OUBOU, Ayélé Jaël LOGOSSOU for collecting and analysing data at the Lomé University Hospital Campus.

Affiavi Mawouegnigan Raymondo, Abaléa Tchamon for supervising the study.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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