

Clinical Profile and Outcomes of HBeAg-Negative Chronic Hepatitis B in a High-Endemic African Setting: A Retrospective Cohort Study from Senegal

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Abstract

Background: Chronic hepatitis B remains a major public health concern, particularly in regions of high endemicity such as sub-Saharan Africa. Among individuals with chronic hepatitis B surface antigen (HBsAg) carriage, a substantial proportion present with HBeAg-negative chronic infection, usually reflecting low-level viral replication under immune control. In Senegal, data on this clinical profile remain limited. The aim of this study was to describe the epidemiological, clinical, biological, and evolutionary characteristics of patients with HBeAg-negative chronic hepatitis B infection followed in the Hepato-Gastroenterology Department of Hospital Aristide Le Dantec. **Methods:** We conducted a retrospective, longitudinal study with both descriptive and analytical components over a six-year period, from January 1, 2015, to December 31, 2020. All patients followed for HBeAg-negative chronic hepatitis B infection were included. Epidemiological, clinical, biological, therapeutic, and follow-up data were collected from medical records and analyzed using SPSS version 18. **Results:** A total of 95 patients were included, corresponding to a hospital-based proportion of 5.65% among all patients with chronic hepatitis B followed in the department during the study period. The sex ratio was 0.38, indicating a

female predominance. The mean age was 35 years (range: 19 - 59 years). Diagnosis was most frequently established during routine screening (32.7%), antenatal follow-up (28.4%), or blood donation (17.9%). Clinically, 79% of patients were asymptomatic. HBV DNA was undetectable in 9 patients. The mean viral load was 489 IU/mL (range: 26 - 1974). Liver fibrosis assessment using FibroScan performed in 43 patients showed stage F0 - F1 in all patients. A FIB-4 score greater than 1.45 was observed in 5 patients. The mean follow-up duration was 36 months (range: 12 - 82) with a loss to follow-up rate of 65.2%. Transient elevations in transaminases were observed in 9 patients (9.45%). These were attributed to herbal medicine use in 2 cases, viral reactivation in 1 case, and remained unexplained in the remaining cases. During follow-up, the mean viral load was 738 IU/mL (range: 10 - 21,500). HBV DNA became undetectable in 25 patients (26.9%). Only one case of viral reactivation was documented. FibroScan performed in 15 patients during follow-up confirmed absent or minimal fibrosis. HBsAg seroclearance occurred in 3 patients (3.2%). No cases of cirrhosis, hepatocellular carcinoma, or death were recorded. Preventive antiviral therapy was initiated in one patient receiving corticosteroids. **Conclusion:** In this cohort, HBeAg-negative chronic hepatitis B infection appeared relatively uncommon and was associated with a favorable medium-term outcome. However, the high rate of loss to follow-up represents a significant limitation and underscores the need for structured and sustained monitoring to prevent complications and allow early detection of potential viral reactivation.

Keywords

Chronic Hepatitis B, HBeAg-Negative Chronic Infection, Outcome, Senegal

1. Introduction

Hepatitis B virus (HBV) infection remains a major global public health issue. In 2022, the World Health Organization estimated that approximately 254 million people were living with chronic HBV infection, with nearly 1.1 million deaths annually attributable to its complications [1]. HBV continues to represent the leading cause of mortality related to liver disease worldwide [2].

Sub-Saharan Africa is among the most affected regions. In Senegal, exposure to HBV is widespread, with nearly 85% of the population having encountered the virus at some point. According to data from the Programme National de Lutte contre les Hépatites, the prevalence of chronic HBV infection in Senegal is estimated between 8% and 10% in the general population [3].

Chronic HBV infection is defined by the persistence of hepatitis B surface antigen (HBsAg) for more than six months. Its natural history is characterized by a dynamic and evolving course, classically divided into five phases: HBeAg-positive chronic infection, HBeAg-positive chronic hepatitis, HBeAg-negative chronic infection, HBeAg-negative chronic hepatitis, and occult HBV infection.

Accurate identification of these phases is critical as it directly informs patient management and follow-up strategies. Among them, HBeAg-negative chronic HBV infection, formerly described as the inactive carrier state, represents a common clinical profile [4]. Although generally associated with low viral replication and a favorable clinical course, this phase is not entirely benign. A residual risk of progression to cirrhosis or hepatocellular carcinoma (HCC) persists, albeit at a lower level [5].

For this reason, regular monitoring remains essential not only to identify possible virological reactivation but also to detect HBsAg seroclearance, which represents a key milestone in the disease course [6].

In Senegal, however, data specifically addressing this subgroup are scarce. Against this background, we conducted a retrospective cohort study with descriptive and analytical components to better characterize the epidemiological, clinical, para-clinical, and evolutionary features of patients with HBeAg-negative chronic HBV infection followed at the Hepato-Gastroenterology Department of Hôpital Aristide Le Dantec.

2. Patients and Methods

• Study Population

We conducted a retrospective cohort study with descriptive and analytical components over a six-year period from January 1, 2015, to December 31, 2020. The study population included all patients managed either as outpatients or inpatients in the Hepato-Gastroenterology Department of Hôpital Aristide Le Dantec during the study period (Figure 1).

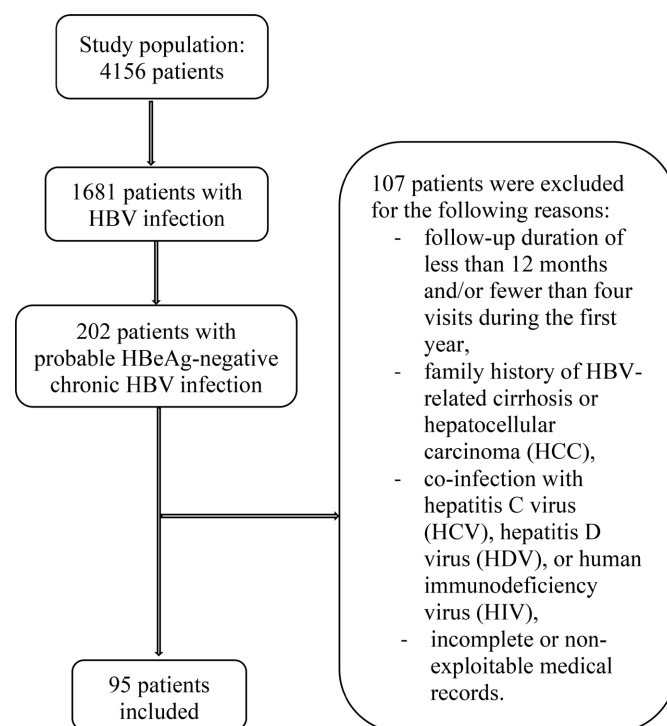


Figure 1. Flowchart of the patient selection process.

Eligible participants were adults (≥ 18 years) with confirmed chronic hepatitis B surface antigen (HBsAg) positivity and a clinical and biological profile consistent with HBeAg-negative chronic HBV infection.

- **Diagnostic Criteria**

Chronic HBV infection was defined by the persistence of HBsAg in serum for more than six months.

The HBeAg-negative chronic infection phase was identified based on the following criteria:

- o Negative HBeAg with detectable anti-HBe antibodies
- o Persistently normal transaminase levels
- o HBV DNA levels below 2000 IU/mL (with occasional fluctuations up to 20,000 IU/mL)
- o Normal liver morphology on abdominal ultrasound
- o Absence of significant fibrosis as assessed by non-invasive methods

Cytolysis was defined as an elevation of ALT and/or AST above the upper limit of normal.

Viral reactivation was defined as a significant increase in HBV DNA, associated or not with elevation of transaminases.

Elevated viral load during follow-up was defined as HBV DNA $> 20,000$ IU/mL.

The threshold of 2000 IU/mL was used to define inactive HBeAg-negative chronic infection according to EASL recommendations, whereas the 20,000 IU/mL threshold was used to identify clinically significant increases in viral replication during follow-up.

To ensure diagnostic accuracy, a minimum follow-up of one year was required with regular monitoring (approximately every three months), including liver enzymes and HBV DNA quantification.

- **Exclusion Criteria**

Patients were excluded in the following situations:

- o Family history of HBV-related cirrhosis and/or hepatocellular carcinoma
- o Co-infection with hepatitis C virus (HCV), hepatitis D virus (HDV), or human immunodeficiency virus (HIV), or presence of another chronic liver disease
- o Age below 18 years
- o Incomplete or non-interpretable medical records

Patients with a family history of HBV-related cirrhosis or hepatocellular carcinoma were excluded because these factors are independently associated with a higher risk of disease progression and could have confounded the evaluation of the natural course of inactive HBeAg-negative chronic HBV infection.

Each patient was included only once, corresponding to their first documented consultation.

- **Investigations**

Baseline biological assessment included:

- o Complete blood count

- o Liver enzymes (AST, ALT)
- o Total and direct bilirubin
- o Alkaline phosphatase (ALP)
- o Gamma-glutamyl transferase (GGT)
- o Prothrombin time
- o Serum albumin
- o Serum creatinine
- o Fasting blood glucose

HBV DNA levels were quantified using real-time polymerase chain reaction (PCR), with a lower limit of detection of 26 IU/mL.

Non-invasive evaluation of liver fibrosis relied on APRI and FIB-4 scores. Transient elastography (FibroScan) measurements, when available, were recorded and expressed in kilopascals. In selected cases, FibroTest-ActiTest was performed to further assess fibrosis stage and necroinflammatory activity.

• **Data Collection**

Data were extracted using a standardized collection form. The following variables were recorded:

- o Sociodemographic characteristics (age, sex, occupation)
- o Medical, surgical, and family history
- o Lifestyle factors (alcohol use, smoking, herbal medicine consumption)
- o Circumstances of diagnosis (screening, pregnancy, blood donation, symptomatic presentation)
- o Clinical findings (general condition, functional and physical signs)
- o Biological and virological parameters
- o Imaging findings and non-invasive fibrosis markers
- o Follow-up data, including cytolysis, viral reactivation, HBsAg seroclearance
- o Occurrence of complications (cirrhosis, hepatocellular carcinoma), and loss to follow-up

• **Statistical Analysis**

Data were entered using Microsoft Excel 2013 and analyzed with SPSS (Statistical Package for the Social Sciences), version 18.

Categorical variables were expressed as frequencies and percentages, while continuous variables were summarized using means, medians, and standard deviations.

Comparisons between groups were performed using the Pearson chi-square test or Fisher's exact test for categorical variables, and Student's t-test or analysis of variance (ANOVA) for continuous variables, as appropriate.

Factors associated with cytolysis and/or elevated viral load were explored using univariate analyses only because of the low number of events observed during follow-up. A p-value < 0.05 was considered statistically significant. Longitudinal analyses were performed using available follow-up data only. Patients lost to follow-up contributed data until their last documented visit. Missing data were not imputed because of the retrospective design and incomplete availability of some records.

• **Ethical Considerations**

The study was conducted in accordance with established principles of biomed-

ical research ethics. Patient confidentiality was strictly maintained, and no identifying data were disclosed. Given the retrospective and non-interventional design of the study using anonymized medical records, formal ethics committee approval was waived according to institutional practice. Authorization was obtained from the head of the department prior to data collection.

3. Results

Patient Characteristics

A total of 95 patients with HBeAg-negative chronic HBV infection were included, corresponding to a hospital-based proportion of 5.65% among all patients with chronic hepatitis B followed in the department during the study period.

The mean age was 35 years \pm 10 years (range: 19 - 59) with a predominance of individuals aged 30 - 39 years (38.9%) (**Table 1**). Women were more represented with 26 men (27.4%) and a male-to-female ratio of 0.38. A family history of non-complicated HBV-related liver disease was reported in 18 patients (18.9%). With regard to lifestyle factors, alcohol consumption was reported in 4 patients (4.2%), active smoking in 3 patients (3.2%), and the use of herbal medicine in 18 patients (18.9%), mainly for digestive or dermatological complaints. Identified risk factors included blood transfusion in one patient (1.1%), tattooing in one patient (1.1%), and body piercing in the majority of cases (72.6%). The mean delay between presumed exposure and diagnosis was 1.55 years (range: 0 - 16). Diagnosis was most commonly established through systematic screening (32.7%), antenatal screening (28.4%), or blood donation (17.9%). At presentation, most patients were asymptomatic (79%). When present symptoms were non-specific, mainly abdominal pain (14.7%) and dyspepsia (6.3%) (**Table 1**).

Table 1. Epidemiological and clinical characteristics of patients at baseline (n = 95).

Variables	Categories	n (%)
Age	Mean Age (Years)	35 \pm 10
	Range	19 - 59
Age Groups (Years)	<20	1 (1.1)
	20 - 29	30 (31.6)
	30 - 39	37 (38.9)
	40 - 49	17 (17.9)
	\geq 50	10 (10.5)
Sex	Male	26 (27.4)
	Female	69 (72.6)
	Sex Ratio (M/F)	0.38
Circumstances of Diagnosis	Systematic Screening	31 (32.7)
	Antenatal Screening	27 (28.4)
	Blood Donation	17 (17.9)
	Symptoms	20 (21)

Continued

Clinical Presentation	Asymptomatic Patients	75 (79)
	Symptomatic Patients	20 (21)
Clinical Symptoms	Abdominal Pain	14 (14.7)
	Dyspepsia	6 (6.3)
	Constipation	2 (2.1)
	Abdominal Bloating	2 (2.1)
	Headache	1 (1.1)

Physical examination was unremarkable in 93.7% of cases, with no signs of liver decompensation.

Baseline Paraclinical Findings

Liver enzyme levels were within normal limits in all patients, with mean ALT and AST values of 18.7 IU/L and 20.8 IU/L, respectively (**Table 2**). Mild abnormalities in cholestasis parameters were occasionally observed, including conjugated hyperbilirubinemia (20%), elevated alkaline phosphatase (10.5%), and increased gamma-glutamyl transferase (5.3%). Prothrombin time remained normal in all patients, while thrombocytopenia was noted in only 2 cases (2.1%). The mean HBV DNA level was 489 IU/mL (range: 26 - 1974) and was undetectable in 9 patients (9.5%) (**Table 2**). In all cases, viral load remained below 2000 IU/mL. Alpha-fetoprotein levels were within the normal range in the vast majority of patients, with only two cases showing mild elevation without radiological evidence of hepatocellular carcinoma.

Table 2. Biological parameters of patients at baseline (n = 95).

Biological Parameters	Results
Liver Function Tests	
ALT (IU/L)	18.7 [9-35]
AST (IU/L)	20.8 [6-37]
Total Bilirubin (mg/L)	10.9 [1.4 - 15.8]
Direct Bilirubin (mg/L)	2.7 [0.5 - 7.3]
Alkaline Phosphatase (ALP) (IU/L)	87.7 [15 - 267]
Gamma-Glutamyl Transferase (GGT) (IU/L)	21.1 [8 - 59]
Prothrombin Time (%)	92.5 [75-100]
Albumin (g/L)	41.9 [30 - 61]
Biological Abnormalities	
Conjugated Hyperbilirubinemia	19 (20%)
Elevated ALP	10 (10.5%)
Elevated GGT	5 (5.3%)
Hypoalbuminemia	1 (1.1%)

Continued

HBV Viral Load	
HBV DNA at Baseline (IU/mL)	488.9 [26 - 1974]
Undetectable HBV DNA at Baseline	9 (9.5%)
Alpha-Fetoprotein	
AFP (ng/mL)	3.99 [0.5 - 10.4]
Elevated AFP	2 (2.1%)

Non-invasive fibrosis assessment showed consistently low values. The mean APRI score was 0.22, with nearly all patients below 0.5. The mean FIB-4 score was 0.76, with only a small proportion exceeding 1.45 (**Table 3**). Transient elastography (FibroScan) performed in 43 patients showed a mean liver stiffness of 5.03 kPa, consistent with minimal or absent fibrosis (F0-F1) (**Table 3**). Similarly, FibroTest-ActiTest, available in a limited number of patients, confirmed the absence of significant fibrosis or necroinflammatory activity. Abdominal ultrasound was normal in most cases (96.8%). Incidental findings included uncomplicated gallstones (2.1%) and a simple biliary cyst (1.1%). No imaging features suggestive of cirrhosis or hepatocellular carcinoma were identified.

Table 3. Non-Invasive assessment of liver fibrosis at baseline.

Parameters	Results
FibroScan (n = 43)	
Fibrosis Stage F0 - F1	43 (100%)
Liver Stiffness (kPa)	5.03 [2.3 - 6.8]
FibroTest-ActiTest (n = 14)	
A0F0	10 (71.4%)
A0F1	4 (28.6%)
APRI Score (n = 83)	
Mean Value	0.22 [0.05 - 0.59]
<0.5	80 (96.4%)
Intermediate Range	3 (3.6%)
FIB-4 Score (n = 83)	
Mean Value	0.76 [0.22 - 2.5]
<1.45	78 (94.0%)
Intermediate Range	5 (6.0%)

Data availability differed according to the non-invasive fibrosis test performed.

Follow-Up Data

The mean duration of follow-up was 36 months (range: 12 - 82). Follow-up was irregular in 15.8% of patients, and a high rate of loss to follow-up was observed

(65.3%). During follow-up, transient elevations in transaminases were documented in 9 patients (9.5%). These episodes were attributed to herbal medicine use in two cases, viral reactivation in one case, and remained unexplained in the others. Only one case of virological reactivation was observed without an identifiable precipitating factor. HBsAg seroclearance occurred in 3 patients (3.2%), representing a favorable outcome. No cases of cirrhosis, hepatocellular carcinoma, or death were reported during the study period. Preemptive antiviral therapy was initiated in one patient receiving corticosteroid treatment. Family screening was performed in 25 patients (26.3%). Results were available in 9 cases (9.5%), leading to the identification of chronic HBsAg carriage in the spouses of 5 patients (5.3%) and in the sister of one patient (1.1%).

Factors Associated with Cytolysis and Elevated Viral Load

Comparative analysis showed that elevated gamma-glutamyl transferase levels and reduced prothrombin time were significantly associated with the occurrence of cytolysis ($p = 0.048$ and $p = 0.026$, respectively) (Table 4). No significant associations were observed with other biochemical parameters or non-invasive fibrosis markers. Regarding viral load, patients with higher HBV DNA levels showed significantly higher FIB-4 scores ($p = 0.013$) while other variables remained comparable between groups (Table 5). When combining cytolysis and elevated viral load, reduced prothrombin time was the only factor significantly associated ($p = 0.010$) (Table 6).

Table 4. Factors associated with cytolysis during follow-up.

Variables	No Cytolysis (Mean)	Cytolysis (Mean)	p-Value
Age (Years)	33.0	27.0	0.268
Male Sex, n (%)	23 (24.2)	3 (3.1)	0.203
Female Sex, n (%)	63 (66.3)	6 (6.3)	
Total Bilirubin (mg/L)	19.39 ± 103.30	6.45 ± 3.38	0.761
Direct Bilirubin (mg/L)	2.85 ± 1.97	2.32 ± 0.55	0.511
Alkaline Phosphatase (ALP) (IU/L)	88.81 ± 56.72	76.00 ± 31.25	0.621
Gamma-Glutamyl Transferase (GGT) (IU/L)	20.26 ± 10.34	29.50 ± 13.78	0.048
Prothrombin Time (%)	93.25 ± 8.00	85.86 ± 9.14	0.026
Albumin (g/L)	41.72 ± 4.49	43.40 ± 5.94	0.437
HBV DNA (IU/mL)	1048.07 ± 3396.45	1279.63 ± 1599.44	0.851
Alpha-Fetoprotein (AFP) (IU/mL)	3.17 ± 1.70	3.78 ± 2.28	0.536
FibroScan (kPa)	4.25 ± 0.35	4.40	0.788
APRI Score	0.22 ± 0.10	0.24 ± 0.06	0.593
FIB-4 Score	0.77 ± 0.44	0.73 ± 0.39	0.827

Table 5. Factors associated with high HBV DNA levels during follow-up.

Variables	HBV DNA < 20,000 IU/mL (Mean ± SD)	HBV DNA > 20,000 IU/mL (Mean ± SD)	p-Value
Male Sex, n (%)	26(100)	0(0)	0.703
Female Sex, n (%)	68(98.6)	1(1.4)	
Age (Years)	34.75 ± 9.20	58.00	0.063
Total Bilirubin (mg/L)	24.25 ± 121.47	6.20	0.884
Direct Bilirubin (mg/L)	2.83 ± 2.10	2.10	0.734
Alkaline Phosphatase (ALP) (IU/L)	89.01 ± 52.54	50.00	0.467
Gamma-Glutamyl Transferase (GGT) (IU/L)	21.23 ± 11.57	17.00	0.720
Prothrombin Time (%)	92.60 ± 8.64	82.00	0.232
Albumin (g/L)	42.19 ± 4.96	44.00	0.721
Alpha-Fetoprotein (AFP) (IU/mL)	4.15 ± 2.39	1.30	0.251
FibroScan (kPa)	5.11 ± 1.16	3.80	0.277
APRI Score	0.22 ± 0.09	0.32	0.269
FIB-4 Score	0.73 ± 0.35	1.64	0.013

Interpretation should be cautious because only one patient had HBV DNA > 20,000 IU/mL during follow-up.

Table 6. Factors associated with cytolysis and/or elevated HBV DNA during follow-up.

Variables	No Cytolysis and HBV DNA < 20,000 IU/mL	Cytolysis and/or HBV DNA > 20,000 IU/mL	p-Value
Male Sex, n (%)	15 (78.9%)	4 (21.1%)	0.321
Female Sex, n (%)	40 (87.0%)	6 (13.0%)	
Total Bilirubin (mg/L)	26.85 ± 130.05	6.41 ± 3.09	0.682
Direct Bilirubin (mg/L)	2.91 ± 2.24	2.29 ± 0.51	0.474
Alkaline Phosphatase (ALP) (IU/L)	90.77 ± 54.85	71.67 ± 29.90	0.413
Gamma-Glutamyl Transferase (GGT) (IU/L)	19.77 ± 10.71	27.71 ± 13.44	0.095
Prothrombin Time (%)	93.91 ± 8.02	85.38 ± 8.57	0.010
Albumin (g/L)	41.99 ± 4.87	43.50 ± 5.32	0.498
FibroScan (kPa)	4.96 ± 1.18	5.60 ± 0.95	0.227
Alpha-Fetoprotein (AFP) (IU/mL)	3.31 ± 1.71	3.78 ± 2.28	0.639

4. Discussion

Epidemiological Profile

In this Senegalese cohort, the hospital-based proportion of HBeAg-negative chronic HBV infection was 5.65% among all patients with chronic hepatitis B followed in the department during the study period. This result is lower than that reported in other sub-Saharan African countries, including Burkina Faso (23.2%) [7], Côte d'Ivoire (42.4%) [8], Burundi (74.2%) [9], and Sierra Leone (69.9%) [10].

This difference may be partly explained by selection bias, particularly the exclusion of incomplete medical records, but also by contextual factors such as limited access to care. In addition, the exclusion of patients with a family history of HBV-related cirrhosis or hepatocellular carcinoma may have contributed to the relatively low-risk profile observed in our cohort and may limit the generalizability of the findings. The cost of initial investigations, estimated at approximately 291,000 FCFA during the first year, remains high compared with the average income in the region. Financial barriers are widely recognized as a major determinant of delayed diagnosis and suboptimal follow-up in sub-Saharan Africa [11].

The mean age of 35 years observed in our study is consistent with previous reports from Senegal [12] and Burkina Faso [13], reflecting the predominance of young adults. This distribution is closely linked to early-life transmission, which remains the main route of infection in high-endemic settings [14]. In contrast, in low-endemic regions, HBV infection is more frequently acquired during adulthood through sexual or parenteral exposure [15].

A marked female predominance (72.6%) was observed, largely attributable to systematic antenatal screening (28.4%). This highlights the key role of prenatal care in identifying asymptomatic carriers and preventing vertical transmission [16] [17]. However, male sex remains associated with a higher risk of progression to cirrhosis and hepatocellular carcinoma, suggesting a potential protective effect of estrogens [18]-[20].

Circumstances of Diagnosis and Intrafamilial Transmission

Most cases were identified through opportunistic screening, including systematic screening (32.7%), antenatal care (28.4%), and blood donation (17.9%), consistent with findings from other African studies [7] [12].

Despite this, family screening was performed in only 26.3% of patients. Additional cases were identified among spouses (5.3%) and siblings (1.1%), indicating ongoing intrafamilial transmission. This highlights a missed opportunity for prevention.

Higher rates of intrafamilial transmission have been reported in other settings, including Türkiye (34.6%) [21] and India (63%) [22], supporting the need for systematic screening and vaccination of household contacts in endemic regions.

Limited awareness of hepatitis B among patients [23] and healthcare professionals [24] [25] may further contribute to suboptimal implementation of screening and preventive strategies.

Biological and Virological Characteristics

The biological profile observed in our cohort is consistent with HBeAg-negative chronic HBV infection characterized by low viral replication, normal transaminase levels, and preserved liver function [12] [26].

Transient cytotoxicity was observed in 9.5% of patients and was occasionally associated with the use of herbal medicine. This finding is particularly relevant in our context, where traditional remedies are widely used and may contribute to hepatotoxicity.

Viral reactivation was documented in one patient (1.1%). Although uncommon, this phenomenon has been described in both African [27] and international studies [28] [29], underscoring the need for continued monitoring even in inactive phases [5].

Morphological Findings and Fibrosis Assessment

Imaging and non-invasive fibrosis assessment consistently indicated minimal liver damage. Abdominal ultrasound was normal in most cases, and fibrosis markers (APRI, FIB-4, FibroTest) supported the absence of significant fibrosis, in agreement with previous international studies [30] [31]. Transient elastography (FibroScan) validated as a reliable non-invasive method for fibrosis assessment in chronic HBV infection [32] also demonstrated minimal liver stiffness values in our cohort.

In sub-Saharan Africa, access to FibroScan remains limited. In this setting, simple and widely available tools such as the FIB-4 score should be promoted for routine assessment [33].

Follow-Up and Prognosis

The overall prognosis appeared favorable with no cases of cirrhosis, hepatocellular carcinoma, or death recorded during follow-up, consistent with previous reports [26] [31].

However, the high rate of loss to follow-up (65%) represents a major limitation. This reflects persistent challenges in the region, including financial constraints, limited awareness, and reliance on traditional medicine [23]. In contrast, structured long-term monitoring programs in high-income countries have demonstrated improved outcomes.

HBsAg seroclearance was observed in 3.2% of patients, in agreement with reported annual rates ranging from 0.05% to 2% depending on endemicity [28] [29] [34]. Despite this favorable outcome, the risk of hepatocellular carcinoma persists, justifying continued surveillance [5].

Preemptive antiviral therapy was initiated in one patient receiving corticosteroids, highlighting the importance of anticipating HBV reactivation in the context of immunosuppression [5].

Study Limitations

This study has several limitations that should be acknowledged. First, its retrospective design exposes it to potential selection bias, particularly related to the reliance on available medical records. The high rate of loss to follow-up represents a major limitation and restricts the interpretation of long-term outcomes.

Moreover, because follow-up analyses were based only on available data, missing information and incomplete reassessment of fibrosis may have influenced the

estimation of longitudinal outcomes.

In addition, limited access to specialized investigations such as transient elastography and comprehensive virological testing may have led to an underestimation of both liver fibrosis and viral activity.

These constraints should be taken into account when interpreting the findings. Nevertheless, they do not detract from the value of this study, which provides relevant insights into the profile and management challenges of HBeAg-negative chronic HBV infection in a high-endemic setting such as Senegal.

5. Conclusions

In this Senegalese cohort, patients with HBeAg-negative chronic HBV infection exhibited a predominantly stable clinical and biological profile associated with a favorable medium-term outcome.

However, the high proportion of patients lost to follow-up and the persistence of socio-economic barriers underscore the challenges of long-term management in this setting. These findings highlight the need to strengthen structured follow-up strategies and to develop locally adapted clinical guidelines.

In this context, the use of simple, accessible, and cost-effective tools such as the FIB-4 score should be encouraged in routine practice. In parallel, reinforcing systematic antenatal screening and expanding family-based screening strategies appear essential to improve early detection and prevent transmission.

The integration of these measures into national recommendations could contribute to improving patient outcomes and support progress toward the hepatitis B elimination targets defined by the World Health Organization for 2030.

Conflicts of Interest

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

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