Research Article **ISSN 2639-9334**

Gastroenterology, Hepatology & Digestive Disorders

Quality of Follow-up of Chronic Hepatitis B Patients in Two Confessional Hospitals in Ouagadougou (Burkina Faso): Retrospective Cohort Study from 2009 to 2022

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Received: 25 Sep 2026; **Accepted:** 01 Nov 2026; **Published:** 11 Nov 2026

Citation: Guingané Alice Nanelin, Motoula Latou Peres Mardochée, Zoure Nogogna, et al. Quality of Follow-up of Chronic Hepatitis B Patients in Two Confessional Hospitals in Ouagadougou (Burkina Faso): Retrospective Cohort Study from 2009 to 2022. Gastroint Hepatol Dig Dis. 2026; 9(4): 1-8.

ABSTRACT

Introduction: *Chronic hepatitis B is a major public health problem in Burkina Faso, where the prevalence of HBs antigen is estimated at 9.1% in the general population [3]. Long and costly clinical and biological monitoring is often the responsibility of patients and must therefore be thorough to prevent complications such as cirrhosis and hepatocellular carcinoma (HCC), but also to avoid unnecessary expenses that could lead to patients dropping out of follow-up. This study aimed to evaluate the quality of care for patients with chronic hepatitis B in two faith-based referral hospitals in Ouagadougou.*

Methods: *A retrospective cohort study was conducted from January 1, 2009, to April 24, 2022, at Schiphra Protestant Hospital and Saint Camille Hospital (HOSCO). All patients aged at least 18 years, carriers of HBs antigen for more than 6 months, were included through exhaustive recruitment. Patient follow-up was carried out through semi-annual visits. A descriptive analysis allowed us to outline the biochemical and virological responses, as well as the progression of fibrosis in these patients, along with the occurrence of evolving complications. Eligibility for antiviral treatment was assessed using an APRI score > 2, the 2025 European Association for the Study of the Liver (EASL) guidelines, and the 2024 WHO recommendations to highlight the existing differences. The quality of follow-up was evaluated over a two-year period covering 5 visits (Day 0, Month 6, Month 12, Month 18, Month 24) and was based on the regularity of check-ups, patient eligibility for treatment according to the 2024 WHO guidelines, and retention in care.*

Results*: In total, 355 patients were included with an average age of 33.6 ± 10.4 years; the M/F sex ratio was 1.3, and the average follow-up duration was 29.4 months. Patients who had at least 3 visits out of the 5 planned over 24 months were considered to have regular follow-up and represented 25.6% of the patients. While transaminases and ultrasound were performed in 100% of cases at inclusion, the rates of testing for HBV DNA (86%), blood count (47%), creatinine (38.6%), alpha-fetoprotein (28.7%), and albumin (4.7%) remained insufficient. Eligibility for treatment varied considerably: 3.7% according to APRI > 2, 29.3% according to EASL 2025, and 39.2% according to WHO 2024. Overall, 173 patients (48.7%) were treated with ténofovir disoproxil fumarate (TDF). Complete virologic response increased from 46.2% at 12 months to 63.1% at 24 months. Fibrosis regression was observed in 51.1% of treated patients. At the end of the follow-up, we found 4.8% of the patients with cirrhosis and 3.1% with primary liver cancers (PLC).*

Conclusion: *The quality of chronic hepatitis B follow-up in these two faith-based facilities was good for 42% of our patients. Using only the APRI score leads to major under-treatment. Adopting the EASL 2025 or WHO 2024 recommendations is essential to optimize care and prevent progressive complications.*

Keywords
Chronic hepatitis B, Quality of follow-up, Therapeutic eligibility, APRI, EASL 2025, WHO 2024, Tenofovir, Burkina Faso.

Introduction
Chronic hepatitis B virus (HBV) infection is a global public health problem, with about 350 million chronic HBsAg carriers and more than one million annual deaths due to cirrhosis and hepatocellular carcinoma (HCC) [1]. Sub-Saharan Africa has the world's highest prevalence, with rates exceeding 8% in the general population [2]. In Burkina Faso, the national prevalence of HBsAg is estimated at 9.1% in the general population [3], placing the country in areas of high endemicity.

The optimal management of chronic hepatitis B is based on a rigorous half-yearly or annual clinical, biological and virological monitoring. Indeed, national and international recommendations recommend regular assessments including HBV DNA, transaminases (ALT), serological markers (HBeAg, anti-Hbe Ac), non-invasive evaluation of liver fibrosis (FibroScan®, APRI score) and monitoring renal function especially in case of initiation of TDF treatment [1,4]. This follow-up is essential to determine the eligibility for antiviral treatment, assess the therapeutic response and detect complications early.

In countries with limited resources, the implementation of these recommendations is facing well-documented obstacles: high cost of examinations, geographical unavailability of certain examinations due to a lack of technical facilities, patient financial constraints and follow-up irregularities. Several national studies have highlighted these difficulties in Burkinabe hospital structures [5,6]. Yanogo et al. showed that only 18.1% of screened patients had regular follow-up at 18 months [7]. Data on denominational institutions, which play an increasing role in the provision of specialized care in Ouagadougou (10-20%), remain scarce.

The main objective of this study was to assess the quality of care for patients with chronic hepatitis B in two confessional reference hospitals in Ouagadougou: Hôpital Protestant Schiphra (founded in 1953) and Hôpital Saint Camille (founded in 1966), over a period of 13 years (2009–2022). As a secondary objective, we conducted a comparison of the criteria for initiation of treatment according to the APRI score, the recommendations of EASL 2025, and those of WHO 2024.

Patients and Methods
Type and period of the study and scope
This was a retrospective cohort study conducted from January 1, 2009 to April 24, 2022, in the hepato-gastroenterology departments of Hôpital Protestant Schiphra (district of Nongr-Massom) and Hôpital Saint Camille de Ouagadougou (district of Bogodogo)., two confessional institutions with a reference hospital status in Ouagadougou, Burkina Faso.

Study population and eligibility criteria
The study population consisted of all chronic hepatitis B patients followed in these centers during the study period, recruited exhaustively. Were included all patients aged 18 years and older, chronic carriers of HBV (HBsAg positive for more than 6 months), whose clinical record was eligible for analysis. Excluded were patients with insufficient data for analysis.

Data collection
The data were collected retrospectively from the paper-based clinical records of both institutions, using a standardized collection form entered on Google Forms by a dedicated investigator in each facility, and then exported to Microsoft® Excel®. The variables collected included sociodemographic data (age, sex, occupation, residence, marital status), personal and family history, clinical parameters (symptoms, BMI, duration and regularity of follow-up) and all initial and follow-up paraclinical assessments (HBV DNA, transaminases, HBeAg, HCV/HIV serology, CBC, serum creatinine, alpha-fetoprotein [AFP], GGT, albumin, bilirubin, FibroScan®, APRI score, abdominal ultrasound), as well as therapeutic and progressive data.

Operational definitions
Follow-up was considered regular if the patient attended at least 3 of the 5 scheduled visits over 24 months (at day 0, and months 6, 12, 18, and 24). The virological response was defined as complete if the viral load became undetectable (HBV DNA < 20 IU/mL); partial if the reduction was at least 1 log10 with detectable residual viremia and inadequate in the absence of a decrease or in the event of an increase. Functional cure corresponded to the sustained clearance of HBs Ag (two negative measurements 6 months apart) associated with undetectable HBV DNA with or without the appearance of anti-HBs antibodies. The APRI score was calculated using the formula: (AST/upper limit of normal × 100)/platelets (×10 9/L). The GFR was estimated according to the modified simplified MDRD formula; chronic renal failure was defined as a GFR below 60 mL/min/1.73 m 2.

Assessment of eligibility for antiviral treatment
Eligibility for antiviral treatment was assessed according to three benchmarks: (1) the APRI score > 2, a criterion historically used in Sub-Saharan Africa; (2) the EASL 2025 recommendations, incorporating HBV DNA, HBeAg status, transaminases, and the fibrosis stage evaluated by FibroScan®; (3) the new WHO recommendations 2024 [1], which lower the APRI threshold to 0.5 and broaden the criteria for eligibility for treatment by adding the existence of comorbidities (steatosis, HIV/HCV co-infections, family history of cirrhosis or HCC).

Quality Score

The quality of follow-up was evaluated over a two-year period comprising 5 visits (Day 0, month 6, month12, month18, month 24) and was based on the following criteria: regularity of examinations, patient eligibility for treatment according to 2024 WHO recommendations, and retention in care. For the regularity of examinations (ultrasound, transaminases, Fibroscan, viral DNA), a score of 1 was assigned to patients who underwent each of these four examinations at least 3 times over the 2-year period, otherwise a score of zero (0) was given. For treatment eligibility, a score of 1 was assigned both to patients eligible for treatment according to WHO 2024 guidelines who were effectively treated, and to ineligible patients who were not treated; in all other situations; the score was Zero (0). For retention in care, a score of 1 was assigned to patients who attended at least 3 of the 5 scheduled visits; otherwise, the score was zero (0). The final score for each patient ranged from 0 to 3, allowing the definition of three levels of quality: poor quality (scores of 0 and 1), intermediate quality (score of 2) and good quality (score of 3).

Statistical analysis

The data were analyzed using IBM SPSS Statistics® version 25. Quantitative variables were expressed as a mean ± standard deviation or median (range); qualitative variables were expressed as counts and percentages. Comparisons between groups (treated vs untreated patients) were made using the Chi-square test or the Fisher's exact test for qualitative variables. The significance threshold was set at $p > 0.05$.

Ethical considerations

The Health Research Ethics Committee (CERS) in Burkina Faso authorized the conduct of this study via Resolution No. 2024-08-252.

The study was conducted in accordance with the principles of the Declaration of Helsinki.

Results

Socio-demographic characteristics

A total of 355 patients were included over the 13-year period, with an average annual recruitment of 27 patients (ranging from 1 in 2009 to 67 in 2017). The mean age was 33.6 ± 10.4 years (range: 18–69 years), with a predominance of the 20–30 age bracket (38.6%). Male patients accounted for 56.9% of the population (n = 202), yielding a sex ratio of 1.3. Almost all patients lived in urban areas (97.2 per cent). Civil servants in the public sector were the most represented socio-professional category (37.2%), followed by workers in the private sector (20%) and students (18%). Married patients accounted for 58.6%.

History and clinical presentation

Regular alcohol consumption was reported in 31.5% of patients; Hepatic steatosis in 12.1% and hypertension in 1.7%. A family history of PFC or cirrhosis was found in 3.6% of patients. The vast majority (97.7%) were asymptomatic at the time of diagnosis. Among the symptomatic patients, the clinical presentations included isolated jaundice (1.4%) and jaundice associated with ascites (0.9%).

Regularity of monitoring

The average follow-up duration was 29.4 ± 20.7 months (extremes: 1–143 months). Only 25.6% of patients (n = 91) had regular follow-up (at least 3 of the 5 expected visits over 24 months). The duration of follow-up was between 1 and 3 years in 41.7% of patients, between 3 and 5 years in 24.5%, between 5 and 10 years in 5.9% and greater than 10 years in 0.6%.

Completeness of the initial paraclinical assessment

Transaminases (AST and ALT) and abdominal ultrasound had 100% completion rates at baseline. HBeAg was available in 99.4% of cases, FibroScan® in 86.5%, and HBV DNA in 55.5% of cases. Several assessments essential for therapeutic decision and follow-up on treatment showed insufficient rates: HIV serology (51.8%), serum creatinine (38.6%), AFP (28.7%). No liver biopsy (PBH) was performed in the cohort (Table 1).

Table 1: Initial paraclinical assessment completion rate (N = 355) .

Initial balance sheet (at baseline M0)	Number of patients who completed (n)	Implementation rate (%)
ALAT	355	100
ASAT	355	100
Ultrasound	355	100
Ag HBe	353	99,4
HCV serology	343	96,6
FibroScan®	307	86,5
viral DNA	197	55,5
HIV serology	184	51,8
Blood count	167	47
Serum creatinine	137	38,6
Alpha fetoprotein	102	28,7
GGT (Gamma-glutamyl transferase)	58	16,3
Bilirubin	35	9,9
Albumin	17	4,7
Biopsy of the liver (PBH)	0	0

Biological, virological, ultrasound and FibroScan® data at baseline

At baseline, 88.4% of patients (312/353) were Hbe Ag negative. The HBV DNA viral load was lower than 2,000 IU/mL in 59.4% (117/197), between 2,000 and 100,000 IU/mL in 23.4% (46/197), and higher than 100,000 IU/mL in 17.2% (34/197). The average ALT value was 43.8 ± 118.7 IU/L; ALT was normal (> 40 IU/L) in 76.9% of cases.

At the initial ultrasound, 81.7% (290/355) came back with a normal-looking liver and 18.3% (65/355) had various types of dysmorphia. Hepatic steatosis, hepatomegaly and heterogeneous liver were found in 12.7%, 5.6% and 1.7% of cases, respectively

Of the 307 patients who had an initial FibroScan, 61.2% were at the F0-F1 stage (Figure 1).

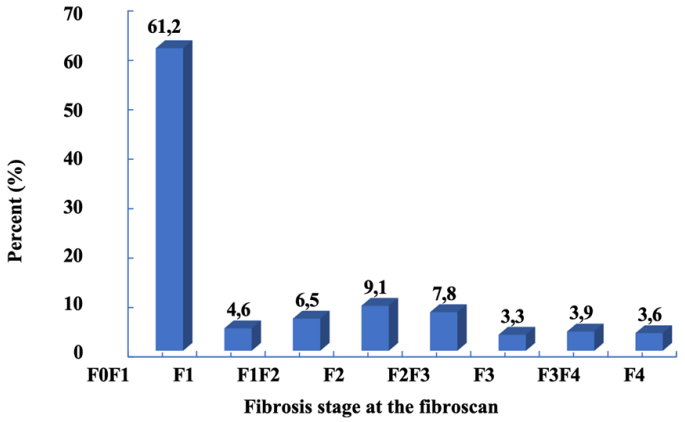


Figure 1: Overall distribution of patients by baseline fibrosis level (N=307).

Regarding co-infections, it concerned 2.8 patients (10/357) distributed as follows: 7 patients, 1.9% with HCV, 2 (0.6%) with HIV and 1 case (0.3%) of infection with all three viruses (HBV+HCV+HIV). We did not have data on testing for the hepatitis D virus.

Eligibility for antiviral treatment according to the standards

Eligibility for treatment varied significantly depending on the reference frame used (Table 2). According to the APRI criterion only > 2, we report 3.7% of eligible patients (n = 13). The application of EASL 2025 recommendations increased this rate to 29.3% (n = 104) and WHO 2024 recommendations to 39.2% (n = 139). Effectively, 48.7% of patients (n = 173) were put on antiviral treatment with TDF.

Table 2: Eligibility for antiviral treatment according to the different benchmarks (N = 355).

Repository	Eligible n (%)	Ineligible n (%)	N total
APRI > 2	13 (3,7)	342 (96,3)	355
EASL 2025	104 (29,3)	251 (70,7)	355
WHO 2024	139 (39,2)	216 (60,8)	355
Effective Processing (TDF)	**173 (48,7)**	**182 (51,3)**	**355**

Results of treatment and evolution

Biochemical response. In the 173 patients treated with TDF, the proportion of normal ALT increased from 66.5% at baseline to 75.8% at 6 months, then to 81.8% at 12 months of follow-up.

Virological response (Table 3). At 12 months, complete virological response (undetectable HBV DNA) was achieved in 46.2% of the treated patients (49/106), while at 24 months, complete virological response increased to 63.1% (53/84) as shown in Table 3.

Seroconversion

At 12 months, HBeAg seroconversion was observed in 9 of the 41 patients who were initially HBeAg-positive (21.9%). HBs seroconversion was 1 case out of 31 available results (3.2%).

Table 3: Virological response to TDF in treated patients.

Virological response	12 months n/N (%)	24 months n/N (%)
Complete (HBV DNA undetectable)	49/106 (46,2)	53/84 (63,1)
Partial (reduction ≥ 1 log 1 0)	36/106 (34,0)	29/84 (34,5)
Inadequate	21/106 (19,8)	2/84 (2,4)

Evolution of fibrosis

Among the 132 patients who performed a control FibroScan®, regression of fibrosis was observed in 37.9% of all patients, and more frequently in treated patients (51.1%, 46/90) than in untreated patients (9.5%, 4/42). Fibrosis was stationary in 78.6% of untreated patients.

Evolution of renal function

In patients treated with available serum creatinine (n = 119), the mean GFR was 100.9 mL/min/1.73 m2 at baseline. At the end of follow-up (n = 72 evaluable patients), it was 93.3 mL/min/1.73 m 2. The proportion of patients with a GFR below 60 mL/min/1.73 m2 increased from 2.5% to 6.9% (n = 5 patients), indicating a slight decline in renal function under TDF therapy.

Evolving complications at the end of follow-up

At the end of the follow-up, 91.8% of patients maintained the diagnosis of chronic hepatitis B without any documented major complication. Cirrhosis was diagnosed in 17 patients (4.8%) and primary liver carcinoma (PFC, mainly HCC) in 11 patients (3.1%). Only one patient (0.3%) achieved functional cure by confirmed HBs seroconversion.

Quality of follow-up score by criteria

Of the 355 patients, those who received a score of 1 were 149 (42%) for the regularity of examinations and 321 (90.4%) for selection to treatment, and 172 (48.5%) for retention in care. The final follow-up quality score was good for 42% of patients (Figure 2).

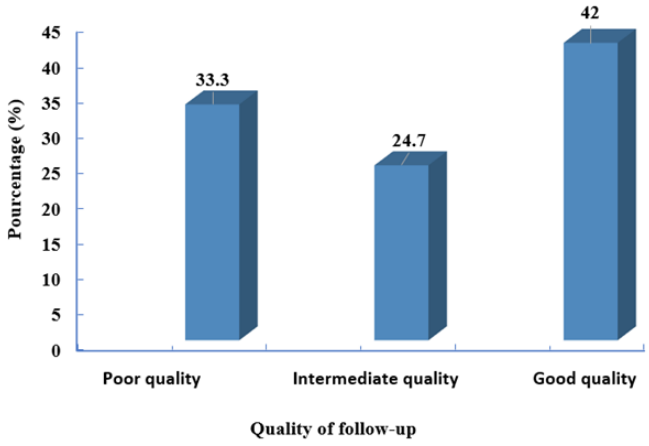


Figure 2: Distribution of patients according to the level of quality of follow-up (N=355).

Discussion

Epidemiological profile

The average age of 33.6 years among patients in our cohort is comparable to African data: Kpossou et al. in Benin reported 33.5 years [8], Mejdoub et al. in Tunisia 35.6 years [9] and Abesig et al. in Ghana reported a peak prevalence between 20 and 40 years [10]. This profile of young adults is the consequence of an essentially perinatal or early intra-familial transmission, with a delayed serological discovery in adulthood [11]. Male predominance (56.9%; sex-ratio 1.3) is consistent with the Burkinabe and African literature [12-15], in connection with more frequent risk behaviors among men (frequent alcohol consumption with exposure to community risk factors).

The high representation of civil servants (37.2%) and urban residents (97.2%) reflects the profile of patients accessing these private confessional structures located in the city of Ouagadougou. Since the follow-up examinations are paid for by the patients themselves, this implies a minimum financial capacity for cover the costs of consultations and examinations. This recruitment bias is similar to that observed by Yanogo et al. [16] and limits the generalizability of the results to rural and disadvantaged populations. Similarly, Zayet et al. in Tunisia reported a comparable predominance of civil servants [17].

Regularity of monitoring: A Persistent insufficiency

The regular follow-up rate of 25.6% observed in our study is higher than the 18.1% reported by Yanogo et al. [17] and the 22.4% reported by Boire et al. in Mali [18], however it is much lower than European data (68.3% in France according to Vignier et al. [19]. This intermediate position is explained by the favorable socioeconomic profile of our study population (composed predominantly of urban civil servants). Giles-Vernick et al. demonstrated that even in this relatively favorable context in Burkina Faso, the barriers to follow-up remain multiple, particularly given its long-term nature: financial constraints, the asymptomatic nature of the disease (97.7% of patients without symptoms), demotivating cultural beliefs and insufficient caregiver-patient communication [20]. SOS Hépatites France has confirmed that even in their context, outside of systems with near-universal coverage, discontinuity in follow-up remains frequent [21].

Completeness of paraclinical assessments

The excellent completion rates for baseline assessments (transaminases, ultrasound: 100%) favorably distinguish these denominational structures. However, key assessments for therapeutic decision-making and the early monitoring of complications remained underperformed: HBV DNA (55.5%), AFP (28.7%), which is essential for HCC screening; albumin (4.7%), a marker of liver synthesis function, serum creatinine (38.6%) required for the assessment of GFR assessment before and during TDF therapy [22,23], etc. These shortcomings worsened over time, reflecting cumulative barriers likely related to financial difficulties, and the prolonged nature of care requiring therapeutic education and patient follow-up systems, as well as the exhaustion patients experience due to the repetition of examinations.

Inadequacy of the APRI as the sole eligibility criterion: a major therapeutic issue

The comparative analysis of eligibility benchmarks is the main original contribution of this study. The exclusive use of the APRI > 1 score allowed identifying only 3.7% of patients as candidates for antiviral treatment, compared to 29.3% according to EASL 2025 and 39.2% according to WHO 2024. This massive under-eligibility is consistent with the African data: Lemoine et al. showed that in Gambia and Senegal, less than 5% of patients met the APRI criteria alone compared to more than 20% with other frameworks [24]; Traore et al. in Bobo-Dioulasso reported 25.2% eligible with EASL recommendations compared to 0.63% with a single criterion [6]. Spearman et al. have highlighted this important mismatch between simple non-invasive scores and international recommendations in sub-Saharan Africa [25].

This discrepancy is explained by the intrinsic limitations of the APRI, which was initially validated for hepatitis C [20]. It includes only ASAT and platelets, without taking into account viral replication levels, HBeAg status or fibrosis evaluated by elastography. In the African context, where HBV infection often progresses with normal transaminases for years, Desalegn et al. showed that the sensitivity of APRI for detecting significant fibrosis does not exceed 10–45% [26]. The gradual abandonment of the APRI alone in favor of multiparametric criteria is therefore scientifically justified. WHO 2024 proposes a pragmatic approach adapted to resource-limited countries, integrating simple clinical criteria (family history, comorbidities, co-infections) [1]. The adoption of updated frameworks is essential for practitioners who need to reassess their patients in routine practice to detect those who become eligible for treatment.

Effectiveness of TDF and impact on public health

The complete virological response progressing from 46.2% at 12 months to 63.1% at 24 months in our study. Other studies in Africa found variable results. Sombié et al. in Burkina Faso (40.3% at 12 months) [5], Bobilwindé et al. in Ouagadougou (89.7% at 16 months under TDF) [27], Diallo et al. in Senegal (85% at 30 months) [28], Calvin et al. (61%) [29] and Camila et al. (62.3%) [30] in higher-income settings.

These differences are explained by the irregularity of monitoring observed in our context. The normalization of transaminases (81.8% at 12 months) and the regression of fibrosis in 51.1% of treated patients—a rate comparable to those reported by Marcellin et al. after 240 weeks of TDF [31] and Ridruejo et al. (51%) [32] —confirm the effectiveness of TDF in long-term hepatic fibrogenesis. The natural history of chronic hepatitis B without treatment, characterized by a slow but inexorable progression of fibrosis, justifies the early initiation of treatment in eligible patients [33].

The expansion of treatment criteria for chronic hepatitis B by the World Health Organization (WHO)—formalized in the recent 2024 guidelines update updates—is based on a public health strategy aimed at accelerating the elimination of viral hepatitis as

a public health threat by 2030 [1]. These ambitious objectives seek to shift from a restrictive—where only advanced cases are eligible for treatment —to a more inclusive and proactive approach. The ultimate goal is to treat 50% of people living with chronic hepatitis B, reduce transmission and prevent the severe complications that overwhelm healthcare systems.

However, the feasibility of this expansion remains a critical question within the African context, particularly amidst shrinking global health funding. In a resource-constrained environment, every individual receiving lifelong unnecessary treatment represents a financial loss for an already underfunded health system. Furthermore, domestic health financing in Burkina Faso remains below international benchmarks. Although the Abuja Declaration stipulates that 15% of the national budgets of African countries should be allocated to health, Burkina Faso allocated only 11,79% to its national budget to health financing in 2025. The decline in international development assistance consequently poses a major challenge to sustaining the fight against these infections.

Progressive complications

The increase in the proportion of patients with a GFR lower than 60 mL/min/1.73 m2 (from 2.5% to 6.9% under TDF) is lower than the data from Balima et al. in Burkina Faso (13%) [34] and Séhonou et al. in Benin (38%) [35], but confirms the potential renal nephrotoxicity of TDF reported by Jung et al. [36] and Koklu et al. [37]. Switching to tenofovir alafenamide (TAF), which has an improved renal tolerance profile [38], should be considered in patients with pre-existing renal impairment or risk factors. The association between HBV and chronic kidney disease has also been well documented in large cohorts [22]. In the African context, the role of phytotherapy in the occurrence of these kidney disorders also deserves to be documented.

The rates of cirrhosis (4.8%) and HCC (3.1%) observed at the end of follow-up are consistent with African data. Ntagirabiri et al. in Burundi reported 5-year cumulative incidence of HCC of 3.7% and 8.8% in patients with minimal and advanced fibrosis, respectively. These proportions underscore that, even in facilities equipped with a relatively advanced technical platform (with Fibroscan available for 86.5% of patients), severe complications occur in approximately 8% of monitored patients. This justfies strengthening early screening strategies and initiating treatment for eligible individuals according to updated guidelines. Spearman et al. emphasized that achieving the 2030 elimination goals in sub-saharan Africa requires the urgent adoption of expanded therapeutic criteria.

Quality of patient follow-up

Our study of patient follow-up over 13 years in two confessional reference hospitals in Ouagadougou reveals an overall insufficient quality of follow-up, with only 25.6% of patients receiving regular follow-up and clearly insufficient completion rates for essential assessments (serum creatinine, AFP, albumin).

Limitations of the study

Retrospectiveness exposes to information biases (missing data for certain health assessments) and selection biases (unusable records, population with the financial means to attend these health facilities). Compliance with treatment could not be assessed. The study population, mainly composed of urban civil servants, limits generalization to rural and precarious populations. The absence of PBH prevents histological validation of the fibrosis stages determined by FibroScan®. Finally, the comparison of eligibility benchmarks was carried out across the inclusion, without taking into account the dynamic evolution of virological status during the follow-up. Despite these limitations, this study provides original data by constituting the first comparison of the three frameworks (APRI, EASL 2025, WHO 2024) in a confessional structure in Burkina Faso over a period of 13 years.

Conclusion

The major contribution of our study lies in demonstrating the inadequacy of the APRI score > 2 as the sole criterion for therapeutic eligibility: its exclusive use would lead to treating only 3.7% of patients, compared to 29.3% according to EASL 2025 and 39.2% according to WHO 2024. The adoption of up-to-date standards is essential to identify patients exposed to silent fibrosis and prevent progressive complications.

TDF shows satisfactory efficacy with a 63.1% complete virological response at 24 months and the regression of fibrosis in more than half of the treated patients, but regular renal monitoring is imperative. Reducing the costs of para-clinical examinations, effectively operationalizing the Universal Health Insurance Plan (RAMU), and implementing local retention strategies in care are priority levers to achieve the 2030 hepatitis B elimination targets in our context.

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