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Short Communication **Open Access**

Seroprevalence of hepatitis B virus infection at the Matam Communal Medical Center, Guinea-Conakry

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Abstract:

Background: Hepatitis B remains a major public health problem in sub-Saharan Africa, particularly because of its high prevalence and serious complications. The objective of this study was to determine the seroprevalence of hepatitis B in patients seen at the Medical Biology Laboratory of the Communal Medical Center (CMC) in Matam, Guinea-Conakry.
Methodology: This was a descriptive cross-sectional study conducted over a period of 6 months (January to June 2025). All patients who came for biological examination were included, and seroprevalence of hepatitis B was determined by detecting HBsAg in the serum samples of the patients using rapid immunochromatographic test (ICT) method.
Results: Of the total 186 patients included, 15 tested positive for HBsAg, giving hepatitis B seroprevalence of 8.0%. The mean age of affected patients was 39±13 years. Males were more frequently affected (60.0%), with a male to female ratio of 1.5. Housewives (53.3%) and civil servants (26.7%) were the main socio-professional categories most frequently affected.
Conclusion: The seroprevalence of 8.0% indicates that hepatitis B virus is circulating in Matam, Guinea-Conakry. This result underlines the need to step up hepatitis B screening, awareness-raising and vaccination efforts in Matam area.

Keywords: Seroprevalence; HBsAg; Immunochromatographic; Screening; Guinea-Conakry

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Séroprévalence de l'infection par le virus de l'hépatite B au Centre Médical Communal de Matam, Guinée-Conakry

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Résumé:

Contexte: L'hépatite B reste un problème majeur de santé publique en Afrique subsaharienne, notamment en raison de sa forte prévalence et de ses graves conséquences. L'objectif de cette étude était de déterminer la séroprévalence de l'hépatite B chez les patients vus au laboratoire de biologie médicale du Centre médical communal (CMC) de Matam, en Guinée-Conakry.
Méthodologie: Il s'agissait d'une étude transversale descriptive menée sur une période de 6 mois (janvier à juin 2025). Tous les patients venus pour un examen biologique ont été inclus, et la séroprévalence de l'hépatite B a été déterminée par la détection de l'HBsAg dans les échantillons sériques des patients à l'aide de la méthode du test immunochromatographique rapide (ICT).
Résultats: Sur un total de 186 patients inclus, 15 ont été testés positifs pour l'HBsAg, ce qui donne une séroprévalence de l'hépatite B de 8,0%. L'âge moyen des patients atteints était de 39±13 ans. Les hommes étaient plus fréquemment touchés (60,0%), avec un ratio homme/femme de 1,5. Les femmes au foyer (53,3%) et les fonctionnaires (26,7%) étaient les principales catégories socioprofessionnelles les plus fréquemment

touchées.
Conclusion: La séroprévalence de 8.0% indique que le virus de l'hépatite B circule à Matam, en Guinée-Conakry. Ce résultat souligne la nécessité d'intensifier les efforts de dépistage, de sensibilisation et de vaccination contre l'hépatite B dans la région de Matam.

Mots-clés: Séroprévalence; HBsAg; Immunochromatographie; Dépistage; Guinée-Conakry

Introduction:

Hepatitis B is a major viral infection in sub-Saharan Africa, where it represents a public health priority due to its high prevalence and serious complications, notably liver cirrhosis and hepatocellular carcinoma (1). Transmission of the virus is mainly maternal-fetal, sexual or blood-borne, which poses a particular challenge in regions where access to healthcare and screening tools remains limited. In addition, lack of awareness, social stigmatization and unequal access to care all contribute to delays in treatment, especially in low-and-middle-income countries. Hepatitis B is thus often described as a silent epidemic, diagnosed too late, when complications are already advanced (2).

The World Health Organization (WHO) estimates that worldwide in 2019, around 296 million people were carriers of chronic hepatitis B virus infection. Every year, 1.5 million new infections are reported, and nearly 820,000 deaths are attributed to complications of the disease, mainly cirrhosis and liver cancer. In Africa, the burden of disease is particularly high, with some 65 million people living with chronic infection, or around 5.4% of the regional population (3). In Europe, the prevalence of hepatitis B is generally below 2% in the general population, although it can reach or exceed 4-5% in certain regions of Eastern and Southern Europe, as well as in at-risk populations such as migrants, injecting drug users or incarcerated people (4).

More specifically in West Africa, a systematic review of epidemiological studies carried out in Burkina Faso between 1996 and 2017 estimated HBsAg overall prevalence at 11.21%, with variations according to group; 9.41% in the general population, 11.11% in pregnant women, 11.73% in blood donors and up to 12.61% in people living with HIV (5). In Senegal, prevalence was estimated at 8.2%, reflecting a worrying epidemiological situation despite prevention efforts (6), and in Guinea at 13%, making the country one of the most affected in the region (7). These data underline the urgent need to reinforce hepatitis B prevention, screening and treatment strategies in West Africa, notably by improving vaccination coverage, setting up targeted screening programs and expanding access to antiviral treatments.

Despite the availability of a safe and effective vaccine for several decades, hepatitis B remains a major cause of chronic infection, cirrhosis and liver cancer, particularly in sub-Saharan Africa. This situation raises questions about the effectiveness of prevention policies, vaccination coverage, screening and access to care. Such questions are; how can we explain the persistence of high hepatitis B prevalence in these countries, and what strategies could be implemented to improve prevention, diagnosis and management of this chronic viral infection? The aim of this study was to determine the prevalence of HBsAg carriage in patients seen at the medical biology laboratory of the Center Medical Communal (CMC) in Matam, Guinea-Conakry.

Materials and method:

The Medical Biology Laboratory of the Centre Medical Communal de Matam, Guinea-Conakry was the setting for this study. The study was a descriptive cross-sectional design conducted over a six-month period from January 1 to June 30, 2025. All patients presenting to the laboratory for biological examination were included and HBsAg detection was performed on serum samples collected from each patient using rapid immunochromatographic test (ICT) method.

Socio-demographic data of all patients who tested positive for HBsAg were collected using a proforma and the data were used exclusively for scientific purposes, with strict respect for patient confidentiality and anonymity.

Results:

Of the total 186 patients seen at the Medical Biology Laboratory of the Centre Medical Communal de Matam during the period of the study, 15 tested positive for HBsAg, giving a seroprevalence of 8%. The mean age of the positive patients was 39±13 years, with a range of 18-62 years (Fig 1). Gender distribution shows a predominance of males, with 9 (60%) males and 6 females (40.0%) with a male; female ratio of 1.5 (Fig 2).

The frequency distribution of affected patients by socio-professional category shows that housewives were the most frequently affected, with 8 cases (53.3%), followed by civil servants, with 4 cases (26.7%) and other workers with 3 cases (20.0%) (Table 1).

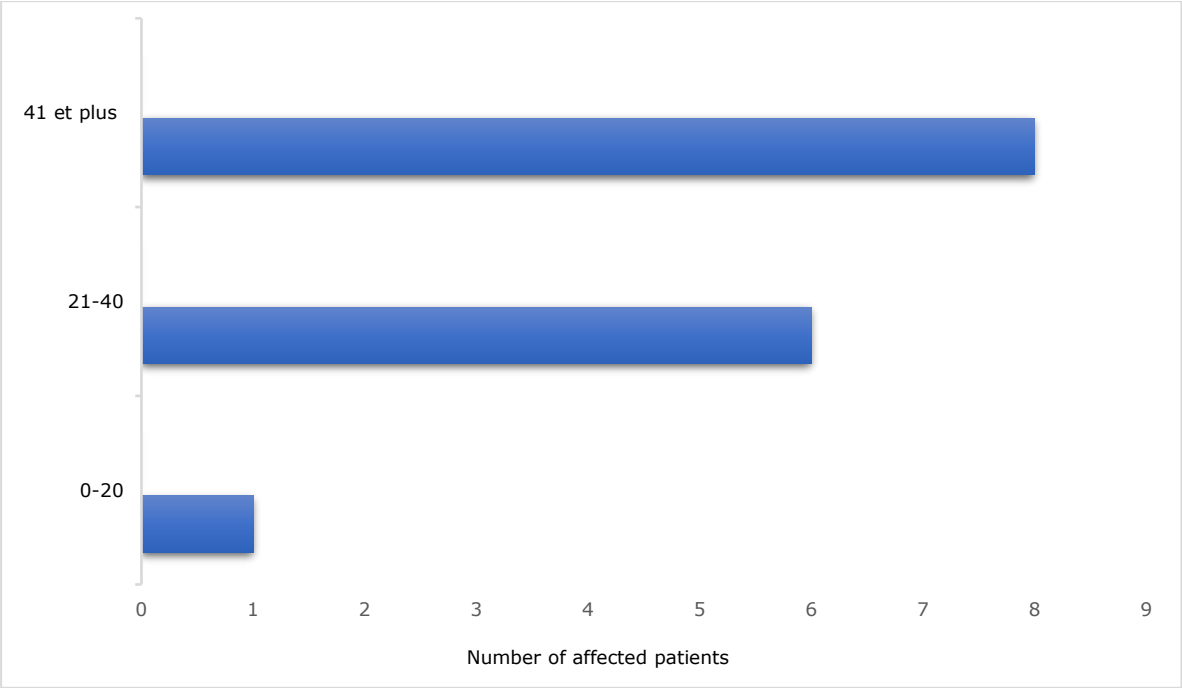

Fig 1: Frequency distribution of patients with hepatitis B virus infection by age group

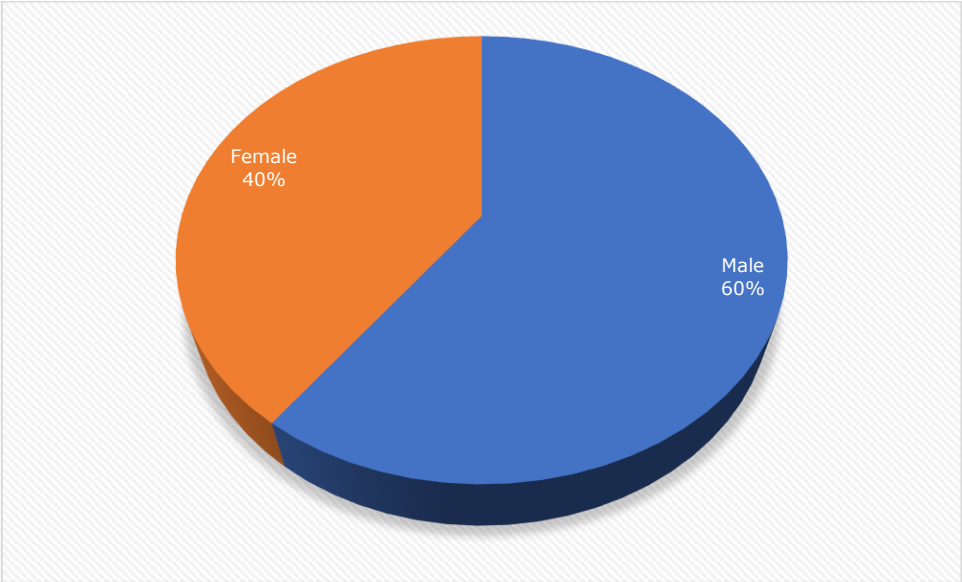

Fig 2: Frequency distribution of patients with hepatitis B virus infection by gender

Table 1: Frequency distribution of patients with hepatitis B virus infection by sociodemographic characteristics

Occupation	**Frequency**	**Percentage (%)**
House-keeping	8	53.3
Civil service	4	26.7
Other working group	3	20.0
Total	**15**	**100.0**

Discussion:

In our study, the prevalence of HBsAg among patients seen at the medical biology laboratory of the Centre Médical Communal de Matam was estimated at 8%. This rate, although moderate, indicates a significant presence and circulation of hepatitis B virus (HBV) in the population studied. To put this result into a national context, a meta-analysis including 22 studies carried out between 1996 and 2017 in Burkina Faso reported an overall prevalence of 11.2% (95% CI 11.0-11.4). Although our rate is slightly lower than this national estimate, it remains high, testifying to a sustained endemicity of HBV infection in the country (8).

For West Africa as a whole, a group of blood donor studies showed a mean prevalence of 6.9% (95% CI 5.95-7.97%), with a rate of 10.1% in West African countries. Our rate of 8% falls within this range, reflecting regional variability and the zone's intermediate-to-high situation. In a neighboring country, the Republic of Niger reported a prevalence of 5.7% among HIV-infected patients in Maradi. This difference may be explained by population selection (HIV patients vs. general population). In HIV-negative or general areas, rates are often higher (9).

The World Health Organization (WHO) classifies HBV prevalence in "high endemicity" zones at 8% (10). Our results therefore confirm that Matam is located in such a zone, justifying reinforced prevention and monitoring measures. This result may be interpreted as reflecting persistent transmission of HBV in the community, probably linked to factors such as inadequate vaccination, lack of knowledge of modes of transmission, or late recourse to healthcare structures. It is also possible that this prevalence is influenced by the specific characteristics of the population visiting the laboratory, which does not necessarily represent the general population as a whole. Furthermore, the lack of systematic screening and the stigma associated with this infection could limit the identification of asymptomatic cases, thus contributing to the underestimation of the true prevalence. This finding underscores the importance of stepping up HBV awareness, early screening and vaccination efforts, particularly in resource-limited areas such as Matam.

In our series, the mean age of patients with HBsAg infection was 39±13 years (range 18-62 years). This age profile is in line with several studies conducted in West Africa. For example, a survey conducted in Ouagadougou showed an average age of 29.7±14.7 years (range 1-78 years), with a high prevalence in the 31-40 age group (14.5%) (11). Another cross-sectional study covering 10 cities in Burkina Faso (2020-2022) reported an HBsAg prevalence of 8.8% in cohorts with a wide age range (1-97 years), underlining the importance of follow-up in active age groups (young to middle-aged adults) (12).

The gender breakdown shows a male predominance (male/female ratio of 1.5). This finding is widely confirmed by the literature. In 2017 in Ouagadougou, HBV prevalence was significantly higher in men (13.4%) than in women (7.8%; $p<0.001$). Also, in Burkina Faso, a national survey based on the DHS 2010-2011 found seroprevalence among men to be 10.5% versus 7.8% among women, a statistically significant trend ($p=0.0002$) (13). This male predominance is also found in other neighboring countries such as Senegal, where a study among military personnel shows an average age of around 39.8 years and a very high proportion of men, with seroprevalence rates of up to 16.9% in the 35-44 age bracket (14). These similarities between our data and those from the region suggest several explanatory hypotheses such as behavioral and exposure factors, biological or immune factors and access to hepatitis B screening. Because our sample size is relatively small, the findings should be interpreted with caution.

Conclusion:

This single center study carried out at the Medical Biology Laboratory of the Centre Médical Communal de Matam, enabled us to estimate the prevalence of hepatitis B at 8%, thus confirming the persistence of high level of hepatitis B virus circulation in Matam population. The infection mainly affected middle-aged adults, with a male predominance, and a marked affectation of housewives and civil servants among the socio-professional groups.

These results underline the importance of early and systematic screening, particularly among at-risk groups, as well as the need to reinforce community awareness of hepatitis B transmission modes and prevention methods. In addition, widespread vaccination, particularly of the birth dose, remains an essential strategy for reducing the incidence of infection. Complementary studies on a larger scale, including other health facilities and more detailed clinical data, would be useful to refine our understanding of the local epidemiology of the hepatitis B virus and guide public health policies adapted to the Matam context.

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Contributions of authors:

All authors contributed equally to data collection and acquisition, analysis and interpretation of results, writing and revision of the manuscript.

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Authors declare no conflicts of interest

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