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REVIEWER'S REPORT

Manuscript No.: IJAR-57892

Title: Séroprévalence de l'hépatite C chez les personnes vivant avec le VIH au Centre polyvalent Al-Nadjma de N'Djamena"

Recommendation:
Accept after minor revision

Rating	Excel.	Good	Fair	Poor
Originality		✔		
Techn. Quality			✔	
Clarity			✔	
Significance	✔			

Reviewer Name: Abdul Haseeb Mir

Detailed Reviewer's Report

The manuscript addresses a highly critical public health and epidemiological challenge within sub-Saharan Africa: the co-infection of Hepatitis C Virus (HCV) among People Living with HIV (PLWHIV). Positioned in the specific geographic and clinical context of N'Djamena, Chad, the study provides valuable localized surveillance data from the Al-Nadjma Polyvalent Center. From a clinical standpoint, the widespread implementation of highly active antiretroviral therapy (HAART) has successfully transformed HIV from a rapidly fatal illness into a manageable chronic condition, drastically extending patient lifespans. However, this demographic shift has brought non-AIDS-related complications to the forefront of critical care, with chronic liver disease emerging as a primary cause of morbidity and mortality.

When a patient is co-infected with both HIV and HCV, the dual presence of the viruses creates a highly destructive physiological environment. HIV significantly accelerates the natural history of HCV, leading to rapid progression of hepatic fibrosis, an earlier onset of decompensated cirrhosis, and a heavily elevated risk of developing hepatocellular carcinoma. Because of these severe outcomes, quantifying the local seroprevalence of this co-infection is not merely an academic exercise; it is an essential step in justifying and designing institutional screening, funding, and treatment programs. The scope of this study is therefore highly relevant to modern infectious disease management and regional health policy planning.

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On a methodological level, the authors executed a descriptive and analytical cross-sectional epidemiological study over an eleven-month window spanning from November 2023 to October 2024. The final sample size consisted of 207 patients, which serves as a statistically acceptable baseline for a localized, monocentric descriptive survey. Data collection relied on a two-pronged approach: face-to-face patient interviews conducted using a standardized questionnaire, which were subsequently validated against the objective records maintained in patient medical charts. The biological screening protocol was designed around the use of rapid diagnostic tests (RDTs) to detect the presence of anti-HCV antibodies in the blood.

An analysis of the demographic architecture of the cohort reveals a strong female predominance, with women comprising 60.87% of the total sample. Additionally, the population exhibits a high concentration of individuals aged 35 years and older, who make up 39.61% of the group. From a socio-economic perspective, the cohort is largely vulnerable, characterized by a substantial proportion of housewives (35.75%) and a matching 35.75% of participants who have no formal education or formal employment. Statistical data processing was handled appropriately using Epi Info software (version 7.2.2), with categorical variables evaluated using Chi-squared cross-tabulation and the threshold for statistical significance strictly maintained at a standard value of less than 0.05.

The primary empirical finding of this investigation is an overall HIV-HCV co-infection seroprevalence rate of 4.35%, representing 9 confirmed positive antibody cases out of the 207 individuals tested. The second major element of the authors' argument involves the structural analysis of sociodemographic risk factors associated with this viral presence. Through bivariate statistical analysis, the researchers demonstrate that the presence of co-infection is entirely independent of standard demographic indicators. No statistically significant associations were found when crossing the positive viral profiles against age, biological sex, occupational background, marital status, or formal educational attainment.

The authors use this uniform distribution of the virus across the cohort to support their core argument: because Hepatitis C does not cluster within any single demographic group, it functions as a silent, diffuse threat across the entire population of HIV patients. They conclude that targeted screening programs based on patient profiles or visible risk factors are fundamentally inadequate in this environment. Consequently, the paper makes a strong policy recommendation for the immediate implementation of universal, compulsory, and institutionalized HCV screening for every single patient upon their enrollment in HIV care networks across Chad.

Recommendations for Manuscript Improvement

Addressing the Diagnostic Limitations of Antibody-Based Rapid Tests

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The most crucial technical recommendation centers on the manuscript's methodology and how the biological results are discussed. The authors base their entire prevalence calculation on the results of rapid diagnostic tests designed to detect anti-HCV antibodies. In fields dealing with advanced immunodeficiency, such as managing PLWHIV, this diagnostic reliance introduces a significant clinical blind spot. Patients with severely depleted CD4+ T-lymphocyte counts often experience blunted humoral immune responses, which can cause false-negative results during antibody-based screenings. The authors must expand their discussion section to explicitly acknowledge this biological limitation. Furthermore, they need to clarify that detecting anti-HCV antibodies cannot distinguish between an active, replicating viral infection and a historical infection that has been spontaneously cleared or successfully cured. To ensure scientific accuracy, the authors should update their terminology throughout the paper from a general "prevalence of co-infection" to a precise "seroprevalence of anti-HCV antibodies," and they must emphasize the absolute medical necessity of following up positive rapid tests with molecular testing, such as quantitative Polymerase Chain Reaction (PCR) for HCV RNA, before initiating expensive direct-acting antiviral treatments.

Expanding the Discussion on Molecular and Cellular Synergy

To elevate the academic depth of the paper, the authors should significantly expand their introduction and discussion sections regarding the biological interactions between the two viruses. The manuscript currently states that HIV worsens the clinical outcomes of Hepatitis C, but it leaves the underlying cellular mechanisms completely unexplained. The authors should add a dedicated paragraph detailing the molecular pathways that drive this accelerated pathology. They should explain how HIV-induced CD4+ cell depletion impairs the specific T-cell responses required to control HCV replication, and how chronic systemic inflammation compromises the intestinal mucosa. Explaining how this barrier breakdown allows microbial products to leak into the portal circulation, activating hepatic stellate cells and accelerating tissue scarring, would ground the paper's epidemiological findings in clear, established biological science. This addition will strengthen the authors' policy arguments by showing that delayed screening directly exposes Chadian patients to rapid, irreversible liver damage.

Contextualizing the 4.35% Finding Against Regional African Data

The manuscript currently evaluates the observed 4.35% seroprevalence rate in relative isolation. To improve the paper's impact, the discussion section must be expanded to feature a detailed comparative analysis against wider regional data. The authors should explicitly compare their findings to historical and contemporary epidemiological surveys from neighboring Central and West African nations, such as Cameroon, Nigeria, the Central African Republic, and Niger, as well as any previous national surveys conducted within Chad itself. Discussing whether this 4.35% rate represents a stable trend, a declining

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pattern, or a concentrated urban spike within N'Djamena will provide crucial context for public health planners. It will also allow the authors to discuss how variations in regional transmission routes—such as historic medical injection practices or unsafe blood transfusions—might account for differences in co-infection rates across sub-Saharan Africa.

Standardizing Bibliographic Metadata and Integrating a Structured Data Table

A technical audit of the final bibliography reveals several formatting inconsistencies and missing pieces of citation data. Multiple entries referencing regional African studies or institutional public health reports lack essential metadata components, including volume numbers, issue designations, and complete page ranges. The authors must systematically review the reference list to ensure every source is entirely complete and formatted according to a single, standardized international medical style sheet, such as Vancouver or AMA. Additionally, to improve data transparency, the authors should insert a structured comparison table within the results section. This table should cross-tabulate all 207 patient sociodemographic profiles directly against their HCV serological status, showing the exact patient counts, percentages, and corresponding Chi-squared p-values for every variable examined. This addition will summarize the descriptive data cleanly, letting readers verify the statistical conclusions at a glance.

Editorial Recommendation

This manuscript is recommended for **publication with minor revisions**. The paper provides vital, localized epidemiological data from an under-researched geographic region, offering distinct value to the sub-Saharan public health literature. The study design is appropriate for a descriptive survey, the statistical processing is correctly applied, and the clinical conclusions logically follow from the data. Once the authors resolve the severe spacing errors within the English abstract, explicitly address the diagnostic limitations of antibody rapid tests in immunodeficient cohorts, and standardize their bibliographic metadata, this manuscript will be fully prepared and highly suited for formal publication.