



OPEN ACCESS

EDITED AND REVIEWED BY
Gasim Ibrahim Gasim,
Gauteng Department of Health, South Africa

*CORRESPONDENCE
George Uchenna Eleje
✉ georgel21@yahoo.com

RECEIVED 02 December 2024

ACCEPTED 05 August 2025

PUBLISHED 22 August 2025

CITATION

Eleje GU, Onubogu CU, Igbodike EP and Firdous SM (2025) Editorial: HIV/HBV and/or HCV infections and hepatotoxicity in pregnant and non-pregnant women.
Front. Reprod. Health 7:1538380.
doi: 10.3389/frph.2025.1538380

COPYRIGHT

© 2025 Eleje, Onubogu, Igbodike and Firdous. This is an open-access article distributed under the terms of the [Creative Commons Attribution License \(CC BY\)](#). The use, distribution or reproduction in other forums is permitted, provided the original author(s) and the copyright owner(s) are credited and that the original publication in this journal is cited, in accordance with accepted academic practice. No use, distribution or reproduction is permitted which does not comply with these terms.

Editorial: HIV/HBV and/or HCV infections and hepatotoxicity in pregnant and non-pregnant women

George Uchenna Eleje^{1,2*}, Chinyere Ukamaka Onubogu^{3,4},
Emeka Philip Igbodike⁵ and Sayeed Mohammed Firdous⁶

¹Effective Care Research Unit, Department of Obstetrics and Gynaecology, Nnamdi Azikiwe University, Awka, Nigeria, ²Department of Obstetrics and Gynaecology, Nnamdi Azikiwe University Teaching Hospital, Nnewi, Anambra State, Nigeria, ³Department of Paediatrics, Nnamdi Azikiwe University, Awka, Nigeria, ⁴Department of Paediatrics, Nnamdi Azikiwe University Teaching Hospital, Nnewi, Anambra State, Nigeria, ⁵Department of Obstetrics and Gynecology, Kelina Hospital, Lagos, Nigeria, ⁶Department of Pharmacology, Calcutta Institute of Pharmaceutical Technology & AHS, Howarah, West Bengal, India

KEYWORDS

co-infections, vaccination coverage, antiviral treatments, mother-to-child transmission (MTCT), HBsAg-positive

Editorial on the Research Topic

HIV/HBV and/or HCV infections and hepatotoxicity in pregnant and non-pregnant women

Introduction

Viral infections such as human immunodeficiency virus (HIV), hepatitis B virus (HBV), and hepatitis C virus (HCV) remain major public health concerns globally, especially among women of reproductive age (1). Pregnancy introduces unique immunological and physiological changes that may influence the course of these infections, their management, and associated complications, including hepatotoxicity (1–3). This editorial unifies key findings from multiple studies to highlight how these infections intersect with maternal and non-maternal health outcomes, spanning pregnancy complications, treatment challenges, and innovative testing strategies in low-resource settings. The all-encompassing goal is to provide an interconnected understanding of how these infections impact women's health and identify gaps for future research and policy interventions.

The need for integrated focus on HIV, HBV, and HCV in women

While previous studies have individually examined HIV, HBV, or HCV (4–6), few studies address their overlapping burden or combined implications for hepatotoxicity, especially across pregnant and non-pregnant populations (7–10). The four studies in

this research topic illustrated in [Table 1](#), collectively demonstrate that viral co-infections and associated liver complications require integrated screening, prevention, and treatment approaches. In all, they reinforce the necessity of linking maternal health interventions with broader women's health strategies.

Hepatitis B virus and pregnancy complications

The study by [Weng et al.](#) investigates how hepatitis B surface antigen (HBsAg) carriage affects pregnancy outcomes. This retrospective cohort study in Shenzhen, China, shows that HBsAg-positive women have lower risks of some complications, such as pregnancy-induced hypertension (PIH) and hyperthyroidism, but face higher risks of intrahepatic cholestasis of pregnancy (ICP) and delivering low birth weight infants. These findings emphasise the complex interplay between HBV and maternal health, highlighting the importance of risk-stratified prenatal care and ongoing screening.

HIV management in informal health centers

[Onambele et al.](#)'s study examines the low uptake and retention of antiretroviral therapy (ART) among pregnant women living with HIV in informal health centers (IHCs) in Cameroon. Despite growing access to HIV screening, only 34% of women initiated ART, and retention after three months was 65.5%. This

reinforces systemic gaps in continuity of care, pointing to the urgent need for policy interventions, enhanced counseling, and strengthened linkages between informal and formal healthcare settings.

Integrating HIV, syphilis, HBV, and malaria testing in Kenya

[Ochwoto et al.](#) evaluated a four-test antenatal care (ANC) panel in Kenya, covering HIV, syphilis, HBV, and malaria. Their findings reveal how integrated testing significantly improved detection rates and streamlined service delivery, reducing healthcare worker burden while enhancing cost-effectiveness. This model demonstrates potential scalability for low- and middle-income countries seeking comprehensive maternal infection screening.

Pegylated interferon treatment for hepatitis B in postpartum women

Lastly, [Zhong et al.](#)'s exploratory study highlights pegylated interferon alpha-2b (Peg-IFN) as a promising treatment for postpartum women with chronic HBV infection. The treatment achieved a 51.06% HBsAg loss rate and 40.43% HBsAg seroconversion rate after 48 weeks, with no serious adverse events. These results suggest that postpartum women may particularly benefit from Peg-IFN therapy due to immune reconstitution after pregnancy, offering a viable pathway toward functional cure.

TABLE 1 Summary of key findings from research studies on HIV, HBV, and HCV infections and hepatotoxicity in women.

Study	Population/setting	Focus/study topic	Key findings/results	Implications for maternal & women's health
Weng et al. (China)	Pregnant women with HBV (HBsAg carriers)	Impact of HBV on pregnancy outcomes	<ul style="list-style-type: none"> - Persistent cervical shortening linked to higher risk of spontaneous preterm birth (HR = 2.00). - Lower risk of pregnancy-induced hypertension (PIH) and hyperthyroidism but higher risk of intrahepatic cholestasis of pregnancy (ICP). - Lower birth weight in HBsAg carrier group (aOR = 1.12). 	Necessitates targeted prenatal care and routine HBV screening during pregnancy to mitigate complications.
Onambele et al. (Cameroon)	Pregnant women living with HIV in informal health centers	ART uptake and retention	<ul style="list-style-type: none"> - Only 34% initiated ART; median time to initiation was 7 days post-diagnosis. - 65.5% retained in care after 3 months. - Lack of self-efficacy strongly correlated with non-retention (aHR = 5.57). - Reasons for non-retention: fear of stigma, poor reception at referral centers. 	Highlights gaps in continuity of care and emphasises need for policy reforms, improved counseling, and community-based support systems.
Ochwoto et al. (Kenya)	Antenatal care attendees	Integrated HIV, syphilis, HBV, and malaria testing panel	<ul style="list-style-type: none"> - Only 8.3% underwent all four tests; HIV positivity rate was highest (13.8%). - Introduction of integrated panel improved data management (91.7%) and reduced workload by 50%. - 4.5% tested positive for HBV. 	Supports adoption of integrated testing panels to enhance maternal infection detection, reduce healthcare workload, and improve cost-effectiveness in low-resource settings.
Zhong et al. (China)	Postpartum women with chronic HBV infection	Pegylated interferon (Peg-IFN) therapy effectiveness	<ul style="list-style-type: none"> - Peg-IFN treatment resulted in 29.79% HBsAg loss at week 24 and 51.06% at week 48. - Seroconversion rate was 40.43%. - Higher proportion achieved undetectable HBV DNA at week 48 (95.24% vs. 71.43%). - Lower baseline HBsAg levels and postpartum flare predicted better outcomes (OR = 4.320). 	Peg-IFN therapy appears safe and effective, offering a potential functional cure for chronic HBV in postpartum women and may be integrated into postpartum care strategies.

ART, antiretroviral therapy.

Conclusion

Together, these studies provide a comprehensive view of how HIV, HBV, and HCV infections intersect with hepatotoxicity and maternal outcomes in diverse settings. The unifying theme is the urgent need for integrated care approaches, of combining screening, prevention, and treatment, to address the complex burden of these infections across both pregnant and non-pregnant women. Strengthening health systems, bridging gaps between informal and formal care, and implementing cost-effective, mountable interventions are critical to improving outcomes and reducing disparities in low-resource settings. Future research must also explore long-term effects of maternal infections on both mothers and infants to inform sustained global health strategies.

Table 1 shows the summary of key findings from research studies.

The table summarises the main results related to HBV on pregnancy outcomes, ART uptake and retention in Cameroon, integrated testing in Kenya, and Peg-IFN treatment for HBV in postpartum women.

Author contributions

GE: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Resources, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing. CO: Data curation, Formal analysis, Investigation, Methodology, Project administration, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing. EI: Formal analysis, Investigation, Methodology, Project administration, Software, Supervision,

Validation, Visualization, Writing – original draft, Writing – review & editing. SF: Data curation, Formal analysis, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Generative AI statement

The authors declare that no Generative AI was used in the creation of this manuscript.

Any alternative text (alt text) provided alongside figures in this article has been generated by Frontiers with the support of artificial intelligence and reasonable efforts have been made to ensure accuracy, including review by the authors wherever possible. If you identify any issues, please contact us.

Publisher's note

All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers. Any product that may be evaluated in this article, or claim that may be made by its manufacturer, is not guaranteed or endorsed by the publisher.

References

- Eleje GU, Loto OM, Usman HA, Onubogu CU, Fiebai PO, Akaba GO, et al. A systematic review and meta-analysis of the prevalence of triplex infections (combined human immunodeficiency virus, hepatitis B virus, and hepatitis C virus) among pregnant women in Nigeria. *Obstet Gynecol Int.* (2023) 2023:3551297. doi: 10.1155/2023/3551297
- Ugwu EO, Eleje GU, Ugwu AO, Nwagha UI, Ikechebelu JI, Umeh UA, et al. Antivirals for prevention of hepatitis B virus mother-to-child transmission in human immunodeficiency virus positive pregnant women co-infected with hepatitis B virus. *Cochrane Database Syst Rev.* (2023) 6(6):CD013653. doi: 10.1002/14651858.CD013653.pub2
- Eleje GU, Onubogu CU, Fiebai PO, Mbachu II, Akaba GO, Loto OM, et al. Mother-to-child transmission of human immunodeficiency virus, hepatitis B virus and hepatitis C virus among pregnant women with single, dual or triplex infections of human immunodeficiency virus, hepatitis B virus and hepatitis C virus in Nigeria: a systematic review and meta-analysis. *SAGE Open Med.* (2022) 10:20503121221095411. doi: 10.1177/20503121221095411
- Eleje GU, Akaba GO, Mbachu II, Rabiu A, Loto OM, Usman HA, et al. Pregnant women's hepatitis B vaccination coverage in Nigeria: a national pilot cross-sectional study. *Ther Adv Vaccines Immunother.* (2021) 9:25151355211032595. doi: 10.1177/25151355211032595
- Eleje GU, Rabiu A, Mbachu II, Akaba GO, Loto OM, Usman HA, et al. Awareness and prevalence of hepatitis C virus infection among pregnant women in Nigeria: a national pilot cross-sectional study. *Womens Health (Lond).* (2021) 17:17455065211031718. doi: 10.1177/17455065211031718
- Chukwuanukwu RC, Eleje GU, Menkiti FE, Ikpeze GC, Mbachu CN, Obiegbo NP, et al. Intermittent preventive treatment, malaria, HIV, hepatitis and pregnancy outcomes in Nigerian women: a cross-sectional study in two healthcare facilities. *BMC Pregnancy Childbirth.* (2025) 25(1):809. doi: 10.1186/s12884-025-07943-z
- Eleje GU, Mbachu II, Ogwaluonye UC, Kalu SO, Onubogu CU, Nweje SI, et al. Prevalence, seroconversion and mother-to-child transmission of dual and triplex infections of HIV, hepatitis B and C viruses among pregnant women in Nigeria: study protocol. *Reprod Health.* (2020) 17(1):144. doi: 10.1186/s12978-020-00995-8
- Eke AC, Eleje GU, Eke UA, Xia Y, Liu J. Hepatitis B immunoglobulin during pregnancy for prevention of mother-to-child transmission of hepatitis B virus. *Cochrane Database Syst Rev.* (2017) 2(2):CD008545. doi: 10.1002/14651858.CD008545.pub2
- Eleje GU, Usman HA, Onubogu CU, Fiebai PO, Akaba GO, Rabiu A, et al. Seroprevalence, seroconversion, and mother-to-child transmission of dual and triplex infections of HIV, HBV, and HCV among Nigerian obstetric population: a national multicentre prospective cohort study. *Antivir Ther.* (2025) 30(2):13596535251333259. doi: 10.1177/13596535251333259
- Tesfaye S, Abebaw T, Bizuallem E, Mehabe D, Alelign A. Seroprevalence of hepatitis B and C and HIV infections and associated risk factors among pregnant women attending antenatal care unit at simada hospital, south gondar zone, northwest Ethiopia. *Biomed Res Int.* (2025) 2025:6895237. doi: 10.1155/bmri/6895237