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Hepatitis B And C Among Pregnant Women in Africa: A Critical Review

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ABSTRACT

Background: Viral hepatitis during pregnancy poses a significant risk of maternal difficulties and vertical transmission causing fetal and neonatal hepatitis. However, information on viral hepatitis during pregnancy is not readily available in many African nations due to their unique geography and cultural diversity.

Objectives: To understand the risk factors and epidemiology of HBV and HCV infection in African nations and to identify the distinctive risk factors contributing to the diversity in prevalence.

Materials and methods: A comprehensive electronic search were conducted to extract information from relevant studies on viral hepatitis during pregnancy across African nations.

Results: This critical review examines the prevalence and implications of Hepatitis B and C infections among pregnant women in Africa. The analysis highlights the varying epidemiological patterns across African regions, shedding light on the diversity of risk factors contributing to these infections. It underscores the importance of comprehensive screening, prevention, and intervention strategies in maternal healthcare to reduce the burden of Hepatitis B and C on both maternal and neonatal health in Africa.

Conclusion: The study of the transmission of viral hepatitis during pregnancy is of fundamental significance for health organizers and program managers. The findings of this study highlight the need for larger studies involving multiple African nations to provide reliable findings that are necessary for developing clear policies and strategies for combating the magnitude of hepatitis B and C at both national and regional levels.

Keywords: Hepatitis B virus; Hepatitis C virus; Vertical transmission; Pregnancy; the African continent

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INTRODUCTION

Hepatitis B and C are significant ilillnesses of global health concern. While hepatitis B is preventable with effective and safe immunizations that have been accessible since 1982, hepatitis C is not (1). Of the 2 billion individuals who have been infected with the hepatitis B infection (HBV) around the world, over 350 million have chronic diseases (2). More than 20 million individuals are infected every year with this infection (3). On the other hand, WHO appraisal shows that about 3% of the world populaces (200 million individuals) have so far been infected with the Hepatitis C infection and practically half of all cases become chronic carriers and are at risk of liver cirrhosis and liver malignancy (4,5).

Viral hepatitis during pregnancy is related to a high risk of maternal difficulties. There is a high pace of vertical transmission causing fetal and neonatal hepatitis which can effectively affect the child, prompting impeded mental and physical wellbeing sometime later in life (6). It is said to be an important cause of maternal mortality and the most accustomed reason for jaundice in pregnancy (7). Peri-natal transmission of this ailment happens if the mother has had an acute Hepatitis B infection during late pregnancy if the mother is a chronic HBsAg carrier (9). Conversely, hepatitis C transmission happens transcendently during pregnancy and delivery (10). Utilizing this foundation data, the study of disease transmission of viral hepatitis during pregnancy is fundamental for health care policymakers and program administrators. It is likewise imperative to think about the shortcomings of provincial investigations in African nations, where the majority of the epidemiological examinations are performed on people dependent on considering the seroprevalence of HBV and HCV among a specific group of individuals, for example, health care workers, patients going through hemodialysis or blood donors. Therefore, this review will look at the risk factors and prevalence of HBV and HCV infection and conceivable risk among pregnant women in African nations.

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METHODOLOGY

An efficient electronic pursuit of the published literature and information on the risk factors and epidemiology of HBV and HCV infection in African nations were extracted from relevant studies. The words "Hepatitis B infection", "Hepatitis C infection", "Africa"' and "pregnancy" were utilized reciprocally in MEDLINE, Pubmed, MiPc library, and Google Scholar, and in some cases additionally included names of specific nations.

Epidemiology of HBV and HCV among pregnant women in African countries

Heterogeneity in religion, culture, and practices and high HIV concern in sub-Saharan Africa are factors that may impact the study of disease transmission of HBV and HCV (11). With the end goal of improvement, we have separated Africa into five distinctive geological regions: the northern, eastern, southern, central, and western regions. The majority of the nations in the central region experience the ill effects of political clashes, dry season, and starvation, prompting huge magnitudes of inside and remotely displaced individuals, which may build the prevalence of explicitly communicated diseases. A meta-analysis of hepatitis B and C (12) among pregnant women revealed the central region has the highest HBV prevalence while the Northern region has the lowest regional prevalence (13) as shown in Table 1. On the other hand, HCV virus prevalence among pregnant women in the region was higher (4.6%) 13in the Northern African region with no available data for the southern African region (Table 2).

Hepatitis B and C among pregnant women in Eastern Africa

The eastern region of Africa involves (i) Tanzania, Kenya, Uganda, Rwanda, and Burundi, which are structure the region around the incomparable African lakes; a territory where significant clashes have occurred in the previous decade; (ii) Djibouti, Eritrea, Ethiopia, and Somalia, which are all in all known as the Horn of Africa; (iii) Mozambique and Madagascar, which are regularly viewed as a component of Southern Africa; (iv)

Malawi, Zambia, and Zimbabwe, which are likewise frequently remembered for Southern Africa; and (v) Comoros, Mauritius, and Seychelles, which are little island countries in the Indian Ocean, alongside Réunion and Mayotte, which are French abroad regions additionally in the Indian Ocean. This region is portrayed as being one of the most politically temperamental zones, where clashes tend not to stop. HBV prevalence among pregnant women in the region falls in the moderate endemic zone (13,14) as shown in figure 1.

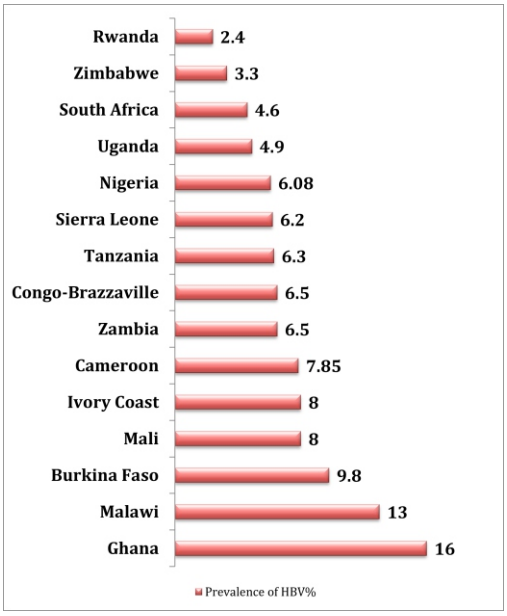


Figure 1. Prevalence in percentage of HBV among pregnant women in African countries

Studies of HCV prevalence in the eastern region of Africa have been inadequate and uncertain, with certain reports demonstrating the frequency to be in the high to medium ranging from 2-2.9% while others show it in the extremely low range (0% to 2%) (13,15,16) as shown in Figure 2, this disparity could be due to the utilization of more explicit tests and researching a solid populace in the last examination.

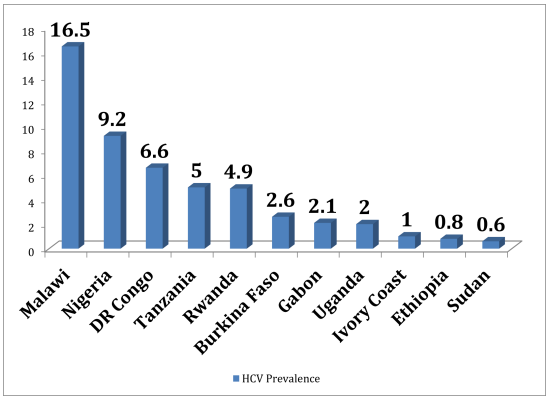


Figure 2. Prevalence in percentage of HCV among pregnant women in African countries

Hepatitis B and C among pregnant women in Southern Africa

This South African region comprises Angola, Botswana, Lesotho, Namibia, South Africa, and Swaziland. There are limited or scarce published studies on HBV in pregnancy in this region except for South Africa, which has reported a high prevalence of 4.6 % of HBV in pregnancy (17,18). However, the region lies in the zone of moderate endemicity while considering everybody with an expected prevalence somewhere in the range of 2% and 2.9% (19,20).

On the other hand, HCV prevalence has not been very much contemplated, yet approximations put the region in the middle

Table 1: Summary of the regional HBV prevalence among pregnant women in Africa

African Region	Prevalence (95% CI)	95% predictive interval	Number of studies	Number of Participants
Central	9.7(6.2-13.9)	0.4-28.4	10	12458
Western	8.3(7.1-9.5)	1.4-19.8	62	46520
Eastern	5.5(4.4-6.7)	1.4-11.9	24	24195
Southern	3.8(2.0-6.0)	0.0-13.6	7	7253
Northern	2.8(2.0-3.7)	0.5-6.6	10	14557

HBV: Hepatitis B virus; CI: Confidence Interval

Table 2: Summary of the regional HCV prevalence among pregnant women in Africa

African Region	Prevalence (95% CI)	95% predictive interval	Number of studies	Number of Participants
Central	27(1.7-4.1)	0.2-8.0	7	9367
Western	3.3(2.6-4.1)	0.6-7.8	30	18536
Eastern	2.1(1.0-3.6)	0.0-8.9	6	16202
Southern	NA	NA	0	0
Northern	4.6(2.3-7.7)	0.0-22.9	15	77119

HBV: Hepatitis B virus; CI: Confidence Interval

group as regards endemic (21). Another significant component of some portions of Africa is the high prevalence of HIV infection, particularly among pregnant women, with prevalence rates moving toward 28% (22,23). Though, the prevalence of co-infection was low (0.001%-0.1%) (24), a shortage of published information spells out the necessity for further investigations in this region.

Hepatitis B and C among pregnant women in Central Africa

The central African region is made up of Cameroon, the Central African Republic, Republic of Chad, Republic of Congo, Democratic Republic of Congo, Equatorial Guinea, Gabonese Republic, and São Tomé and Príncipe. The prevalence of HBV infection among pregnant women differs starting in one nation then onto the next and generally runs somewhere in the range of 6% and 9.5% (25,26).

The region is also viewed as one of the most HCV intensely infected parts on the planet, with prevalence rates moving toward over 13% of the general population in certain territories (27-29). Cameroon has the most noteworthy HCV prevalence (13.8%) (30), trailed by Burundi (11.3%) (31) and Gabon (9.2%) (32). The prevalence of HCV in this region has reached 4.3% among pregnant women (33-35). The vulnerability factors included were essentially contaminated blood and its components (if not properly screened), intravenous medication misuse, unsterile clinical and dental procedures (36). Notwithstanding being a zone of high prevalence for HCV, the lack of published studies could be to limited information.

Hepatitis B and C among pregnant women in Western Africa

The west African region encompasses Benin, Burkina Faso, Cape Verde, Ivory Coast, the Republic of Gambia, Republic of Ghana, Guinea-Bissau, Republic of Liberia, Mali, Niger, Federal Republic of Nigeria, Senegal, Sierra Leone, Togo, and the Canary Islands. Hepatitis B viral infection prevalence among pregnant women is high in this region ranging from 6.2% to 16% with the majority toward the upper end (37,38). On the other hand, HCV is viewed as profoundly endemic in this region, and the prevalence among pregnant women is 3% in Nigeria (39) and 2.2% in Burkina Faso (40). Various investigations categorized this region among the high endemic areas (41).

Factors associated with the transmission of HBV and HCV among pregnant women in Africa

An assortment of vulnerability factors has been discovered to be related to high prevalence rates for both HBV and HCV; nonetheless, the accentuation of these vulnerability factors changes extraordinarily starting with one nation then onto the next.

Blood and blood products

Hepatitis B virus is a blood-borne infection. The fundamental courses of HBV transmission are the sexual and parenteral courses (42). Studies from Egypt have detailed that HBV infection was discovered to be related to blood transfusion among pregnant women alongside the finding that it is additionally connected with HBV disease in patients with incessant haematological issues requiring regular blood transfusion (43,44). A few published studies reported a higher prevalence among those reliant on blood and blood components, particularly when compared with reports of a decrease in seroprevalence (45-47). Rather than the previously mentioned discoveries, investigations of HBV infection in pregnant women in Sudan, and Mauritania have failed to show any proof of blood transfusion being a risk factor for infection transmission (48,49).

Before 1992, blood transfusion was one of the significant vulnerability factors for HCV transmission, however, the risk has declined since the beginning of screening for HCV in 2001. The risk of HCV disease from one unit of transfused blood has declined to less than one for every million transfused units (50). In any case, the risk of HCV transmission through blood exists in some developing nations due to the inability to satisfactorily screen benefactors because of money related imperatives (51). Therefore, blood transfusion likely could be a risk factor among African nations, for example, Ghana and Kenya, and presumably various others, due to spending setbacks (52-54).

Cultural Factors

Female circumcision could be a source of HBV infection in women. It is a risk factor for HBV, yet this perception negates the discoveries of some different studies in African nations, for instance among pregnant Sudanese and Nigerian women (47). This incongruity may be clarified by the distinction in cleanliness and aseptic insurances concerning materials utilized in the procedures among the various African nations. Tattoos, scarification, and ancestral imprints in form of tribal marks are far and wide practices in Africa, and have been connected to HCV transmission by certain experts (55,56).

Sociodemographic Factors

Sociodemographic factors like age, level of education, and gravidity have been discovered not to be noteworthy components related to the transmission of HBV (47,57) in any case, a few reports have expressed that engaging in sexual activity at a young age has been identified as a risk factor, as evidenced by Rabiu et al. among Nigerian pregnant women (47). Other significant sociodemographic risk factors for HBV disease that can't be overlooked are the history of intravenous medication misuse, incarceration, and the history of multiple sexual partners.

Sociodemographic factors in HCV transmission have indicated extraordinary variety among studies, depending upon the risk factor itself (58). A few researchers have discovered that increasing age is a risk factor, which may be clarified by the aggregate impact curiosities, likely credited to the utilization of unsterile injection and different instruments utilized in tattoos and traditional marks (59,60), yet others have discovered no association (61). Even though explicit information on age is limited, available literature gives a few diversities in various geographical areas all through the world.59 Some researchers have discovered a relationship with low equality (62), while others have discovered no such connection.59 Another sociodemographic factor of concern is the level of education. It has been discovered that women who have gotten a secondary level of education are at higher risk (63), and an Egyptian group of researchers has discovered that a low level of maternal education is a risk factor for HCV disease in kids (64). While, being a long-time consistent sex partner of an HCV-infected individual isn't a risk factor (65), HCV sexual transmission itself in HCV needs authentication. A significant yet uncertain risk factor is intrafamilial contact has been reported (66-68). Other significant sociodemographic factors, like intravenous medication misuse and diverse sexual partners, have not been explored in Africa, presumably because of a cultural deterrent.

Mother-To-Infant Transmission Of HBV And HCV Infection In Africa

Vertical transmission from mothers to babies is affirmative in

HBV disease (69). Be that as it may, vertical transmission anticipates affirmation for HCV, even though a few surveys have established this chance (10,70). One such study identified antibodies to HCV in the umbilical cord while another considered different viral factors among two other infants born to HCV positive mothers and inferred that vertical transmission is seen among HCV infected pregnant mothers without the presence of immune compromise (71,72).

Strategies and preventive measures to control HBV and HCV infection in African

The status of HBV and HCV in pregnant women in African nations is a determining issue for all segments engaged with general wellbeing, specifically, those that are associated with health planning and strategies (14,73). There is incredible diversity among African nations concerning the prevalence of HBV and HCV and other tricky issues, which ought to be contemplated concerning the avoidance of HBV and HCV in every nation. Significant measures to be executed are to incorporate quick essential mediation methodologies and long haul counteraction plans. Such focus counteraction procedures will decrease the transmission of HBV in developing countries, especially among the high-hazard group. Risk reduction, counselling and HBV screening projects ought to be aimed at explicit populaces, as proposed by the Centers for Disease Control (74). All-inclusive and explicit infection control measures that are coordinated towards nosocomial disease and people in emergency clinics and health care institutions that are inclined to HBV and HCV infection are fundamental. Explicit counteraction projects ought to be executed by receiving better and more proficient eradication and standard cleansing practices to stop nosocomial and iatrogenic transmission of HBV and HCV to achieve the target of the World Health Organization to end hepatitis by 2030 (75).

CONCLUSION

This review infers that there are numerous holes in our insight into the prevalence of HBV and HCV in pregnant women in African nations that are holding on to be filled. The vast majority of the past studies have shown a high prevalence of both HBV and HCV, therefore more extensive studies involving multiple African nations are necessary to provide reliable findings. Lastly, it is perceptible that HBV prevalence in several African nations is on the decrease, echoing the effectiveness of HBV vaccination and the need to have an HCV vaccine.

CONFLICT OF INTEREST

Non to declare

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