MODERN APPLIED MEDICAL RESEARCH (MAMR) 1(3): 11-14
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SEROPREVALENCE OF HEPATITIS B AND C VIRAL INFECTIONS AMONG PREGNANT WOMEN ATTENDING ANTENATAL CARE AT DALHATU ARAF SPECIALIST HOSPITAL LAFIA, NASARAWA STATE

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Received: **15-03-2021**
Accepted: 22-**03-2021**
Published: **25-03-2021**

Abstract: Viral hepatitis during pregnancy is associated with a higher risk of maternal complications. This virus has a high risk of vertical transmission is the major cause of death. The virus has a high risk of vertical transmission and it has been reported as the leading cause of maternal death. The prevalence of hepatitis B and C infections has been determined among pregnant women attending obstetric care at DalhatuAraf Specialist Hospital Lafia, Nasarawa State. blood samples were collected from 374 pregnant women and analyzed using Antigen Detection (HBsAg) and Anti-HCV immunochromatography. The overall prevalence of HBV and HCV infection in pregnant women was 9.4% and 4.8% respectively. The majority of pregnant women were diagnosed with multigravida patients ranging in age from 20 to 29 years with a 9.6% prevalence of HBV and 5.1% of HCV. There were no significant differences (P> 0.05) in the prevalence of hepatitis B surface antigen (HBsAg) and Anti-HCV, between age groups. The incidence of HBV infection is higher than that of HCV. These research findings place the need to include authorized and frequently tested hepatitis B and C infections as part of antenatal care services, and newborns and newborns should be routinely vaccinated against hepatitis B and C infections.

Keywords: Viral, Hepatitis, Viral, pregnant, Antenatal

Introduction

Hepatitis is an inflammation of the liver that is characterized by the presence of inflammatory cells in the tissues of the body. This may be associated with few or no symptoms, but often leads to jaundice, anorexia (poor appetite), and malaise. Hepatitis is acute when it lasts less than six months, and chronic if it lasts for longer [1]. A group of viruses known as hepatitis a virus causes most cases of hepatitis worldwide, but it can also be associated with toxic substances (alcohol, certain medications, and plants), other infections, and autoimmune diseases [2]. HIV hepatitis during pregnancy is associated with an increased risk of maternal complications and has become a leading cause of death for the baby. Hepatitis b is one of the most important and common infectious liver diseases worldwide, is caused by a small enveloped DNA virus, hepatitis b virus (HBV). Nigeria belongs to the group of countries that are endemic for HBV infection. For about 1 million deaths a year are caused by hepatitis b [3]. However, the rates of hepatitis b virus (HBV) and hepatitis c virus (HCV) are the leading causes of chronic liver disease in the world, accounting for 78% of the cases [4]. Nearly one in three people in the world, with roughly 2 billion people) is infected with HBV, and one of the twelve, (more than 520 million people live with chronic HBV infection [3]. While most of the people who have been infected with the virus are unaware of their hiv status, they face the possibility of the development of severe and fatal liver disease at some point in their life, and unknowingly passing the infection on to other people. Vertical (mother-to-child transmission of the infection usually results in fetal death during the perinatal period and was responsible for the largest share of the burden of disease in the endemic zone [3]. When it comes to pregnant women, they pose a serious threat to the health of their unborn child, but also to society as a whole.

Methodology

The study was conducted in Lafia, the capital of Nasarawa among pregnant women attending a clinic at DalhatuAraf Specialist Hospital Lafia. The province of Nasarawa, known as the "'Home of Solid Minerals", is 181.5 meters above sea level.

Study Population:

In this study, blood samples were collected from pregnant women receiving prenatal care at Dalhatu Araf Specialist Hospital, Lafia. Pregnant women live in different parts of Lafia. The history of the study population (i.e., pregnant women) was recorded in an exercise book approved by the hospital ethics review committee. Informed consent was obtained from all patients and appropriate confidentiality was

maintained throughout the study.

Sample Collection:

A total of three hundred and seventy-four (374) samples were collected from pregnant women receiving antenatal care at DalhatuAraf Specialist Hospital, Lafia. The age group included in this study was 15 - 39 years. Two milliliters (2mL) of venous blood was collected from each participant through venipuncture, dispensed into serum separator tubes, allowed to clot and centrifuge at a relative centrifugal force (RCF) of 1000-1500 revolutions per minutes (rpm) for 5minutes in order to obtain a clear supernatant serum.

Laboratory Analysis of HBV and HCV:

All samples were tested for HBV and HCV infection based on the immunochromatographic (ICT) method. Immunochromatography (SD BiolineHbsAg) is a single step designed to determine the quality of HbsAgand HCV in human serum or plasma in accordance with the manufacturer's instructions. The test cassette contains a membrane strap pre-installed with anti-HbS anti-mouse scanner in the belt region. The mouse monoclonal anti-HbS-colloidal gold conjugate and serum sample travels through the membrane to the test region (T) and forms a line that looks like anti-anti-anti-anti-anti-anti-anti-anti-anti cells antibody. For diagnostic tests, the HCV immunochromatography SD Bioline HCV test contains a membrane fiber pre-inserted with recombinant HCV that has taken an antigen in the region of the test band. Protein A-colloid gold conjugate and serum sample travel the membrane to the test site and form a visible line as a form of antigen-antibody protein A-gold forms with high sensitivity and specificity.

Statistical Analysis

The prevalence of each infection (HBV and HCV) was determined from the proportion of infected individuals in the estimated population and was expressed as a percentage. Frequency comparisons were analyzed using the Chi-square test and with a P-value greater than 0.05 considered statistically insignificant.

Ethical approval

Permission was sought from the hospital's ethics committee. Informed consent was obtained from each participant prior to the start of the study results

Seroprevalence of Hepatitis B and C among Pregnant Women.

The overall prevalence of HBV and HCV infection in pregnant women was 9.4% and 4.8% respectively, the incidence of HBV infection was higher than that of HCV. This is shown in Table 1

Table 1: Seroprevalence of Hepatitis B and C among Pregnant Women.

Hepatitis Serology	Number Tested	Positive (%)
HBsAg	374	35(9.4)
Anti- HCV	374	18(4.8)

χ^2 =1.58,df=1, P=>0.05

Seroprevalence of Hepatitis B and C among Pregnant Women Based on Age.

Age-related seroprevalence was significantly higher in pregnant women aged 20-29years than pregnant women of other age groups. Therefore, pregnant women aged 20 - 29 had 9.6% HCV and 5.1% HBV and those ≤19 had 9.2% HCV and 4.6% HBV and pregnant women aged 30 to 39 had and 9.1% HCV and 5.1% HBV. The lowest prevalence (8.1% HCV and 0% HBV) was detected in pregnant women aged 40-49 as shown in Table 2

Table 2: Seroprevalence of Hepatitis B and C among Pregnant Women Based on Age

Age	**Number tested**	**HBsAg Positive (%)**	**Anti-HCV Positive (%)**
> -19	65	6(9.2)	3(4.6)
20 – 29	198	19(9.6)	10(5.1)
30 – 39	99	9(9.1)	5(5.1)
40 – 49	12	1(8.3)	0(0)
Total	374	35(9.4)	18(4.8)

The Seroprevalence of Hepatitis B and C among pregnant women based on Family Background

The prevalence of HBV and HCV among pregnant women based on family backgrounds showed that one man had a high 9.5% HBsAg and 5.2% HCV with 211 patients tested and 20 were HBsAg and 11 were HBsAg. found HCV in good condition and polygamy with 9.2% HBsAg and 4.3% HCV with 163 tested and 15 with HBsAg positive and 7 with HCV.

Table 3: Seroprevalence of Hepatitis B and C among Pregnant Women Based.

on Family Background

Family background	Number test	HBsAg Positive (%)	Anti-HCV Positive (%)
Monogamy	211	20(9.5)	11(5.2)
Polygamy	163	15(9.2)	7(4.3)
Total	374	35(9.4)	18(4.8)

Discussion

HBV and HCV infections are both infectious diseases that can be transmitted from mothers to their newborn babies or horizontally through blood products and body fluids. Regular screening for prenatal hepatitis to prevent direct transmission

of hepatitis is a controversial issue and therefore not universal. However, hepatitis is considered an important public health problem in which there is a reliable diagnostic test. The study showed an increase of 9.4% and 4.8% of Hepatitis B and C infections respectively among pregnant participants. This also supports Nigeria's report as an area with a high prevalence of more than 8% HBV infection [3].

The prevalence of HBV infection reported in this study was higher than the 4.9% reported in Port Harcourt [5] and a 7.3% increase in pregnant women in Kano [6]. In contrast, less than 10.3% were recorded in Jos [7], 21.3% in Ibadan [8], 23.9%, and 15.1% in two studies in Jos [9]; 10]. There was also a report of 18.2% growth in pregnant women in Zaria [11], all over Nigeria.

The 4.8% increase in anti-HCV antibody in this study was found to be very small compared to studies from Enugu, Jos, and Kaduna by 14.9% [12], 5.2% and 11.9% [13] respectively. This discrepancy between the findings may be due to a lack of awareness, low socio-economic conditions, an unhealthy environment, and differences in the distribution of land across the country.

The current study found that the majority of the pregnant women fall below the 20-29 age group followed by the 30–39-year age group because this was the majority age group admitted to the hospital maternity clinic. In this study, most pregnant women were found to be patients with multiple gravida. It can be very dangerous because of their previous pregnancies, hospital transfusions and/or other surgical procedures in the past. These findings were similar to the studies of Awan et al in 2006 and Ali and Memon in 2007 [14; 15].

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The current study was conducted in Lafia where there are critical issues related to the state of development, economy, socio-economic situation, infrastructure, and existing facilities. As a result of this limitation, the immunochromatographic (ICT) process was used to detect HBV and HCV infections in study subjects because ICT-based detection is less expensive, faster, and requires fewer equipment. Several authors have reported that ICT is the best alternative to low-income countries [16; 17].

In the present study, hepatitis B and C infections among pregnant women were prevalent. The use of appropriate screening methods, especially those of childbearing age, avoiding blood transfusions and nonblood products, the use of disposable syringes, and education are all necessary to improve the health status of pregnant women and their newborn babies, and appropriate precautions are needed to control viral infections.

Conclusion

9.4% and 4.8% of educated pregnant women had sero-positive hepatitis B and C. In this study, the incidence of HBV infection was higher than that of HCV. Therefore, the need to introduce public health measures to reduce the burden of disease and transmission of diseases, including free testing and vaccination of pregnant women and their infants should be included in the maternity and postnatal hospital to prevent postpartum infection by their infected mothers.

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