

Prevalence of hepatitis B virus and hepatitis C virus in ante-natal patients in Gwagwalada- Abuja, Nigeria

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Abstract: A study was conducted to determine the prevalence of hepatitis B virus surface antigen (HBsAG) and hepatitis C (HCV) antibody amongst 200 pregnant women attending ante-natal clinic in Gwagwalada, Abuja using Acon ® and Labman ® test kits. The mean age was 31.5 years. Illiterate women constituted 72% of those sampled. Of the 200 blood samples tested, 19 (9.5%) and 1 (0.5%) were positive for the presence of hepatitis B and C respectively. No mixed infection of both viruses was observed in the pregnant women tested. No significant relationship was seen between HBV and HCV seropositivity and demographic factors. The implications of hepatitis virus infections of pregnant women to foetus are discussed from the epidemiological point of view. [Report and Opinion 2010;2(7):48-50]. (ISSN: 1553-9873).

Key words: *Gwagwalada, Hepatitis B, Hepatitis C*

1. Introduction

Hepatitis is the inflammation of the liver; it may be caused by exposure to certain chemicals, autoimmune diseases, or by bacterial infections but is often caused by one of several viruses (Ahmedin *et al.*, 2004; Redmond, 2008). The hepatitis virus lives in the blood and other body fluids and is transmitted from person to person through unprotected sexual intercourse with an infected person, sharing infected needles, or other sharp agents that break the skin (Redmond, 2008).

Viral hepatitis during pregnancy is associated with high risk of maternal complications, but there is a high rate of vertical transmission causing fetal and neonatal hepatitis which can have serious effects which may lead to impaired mental and physical health later in life and a leading cause in maternal mortality (Elinav *et al.*; 2006 ; Gyarmathy *et al.*, 2009) and it is also said to be the most familiar cause of jaundice in pregnancy (Hill *et al.*, 2002). Perinatal transmission of this disease occurs if the mother has had acute Hepatitis B infection during late pregnancy, in the first postpartum or if the mother is a chronic HBsAg carrier (Levy *et al.*, 1991) Hepatitis C transmission occurs predominantly around time of delivery and pregnancy (WHO, 1999). Using the background information, the epidemiology of viral hepatitis during pregnancy is essential for health planners and programme managers (Laurent *et al.*, 2001). This study was carried out to determine the

seroprevalence of HBV and HCV in pregnant women in Gwagwalada-Abuja, Nigeria. This will generate information that may be used to monitor the trend of the disease in the area.

2. Materials and methods

2.1 Study area

This study was conducted in Gwagwalada-Abuja, the Federal Capital Territory of Nigeria located on latitude 8°94'N and longitude 7°09'E. FCT is served by a lot of health care centres, out of which the University of Abuja Teaching Hospital (U.A.T.H.) and Gwagwalada Town Clinic were used as sites for this study. These hospitals were chosen because:

1. Reports showed that there was a high frequency of attendance of ante-natal patients in this hospital.
2. The effects of rural and urban areas on the prevalence of HBV and HCV had to be compared.

2.2 Study design

This study was a hospital based survey conducted in April, 2009. On every antenatal day, the pregnant women were given health talk on HIV/AIDS and hepatitis infections. They were advised on the need to know their status. The 200 pregnant women who gave informed consent for themselves were enrolled as the subjects for the study.

2.3 Collection of samples

A well designed personal data information sheet was used to gather information regarding age, occupation and ethnic group from 200 ante-natal patients. Blood sample was obtained by venipuncture and serum separated and stored at -20°C . The samples were evaluated for the presence and qualitative detection of HBV and HCV surface antigens using a rapid lateral chromatographic immunoassay kit (WHOBC- Acon Biotech, Hangzhou, China) and a rapid visual immunoassay kit (WHOBC - Labman, Hamburg, Germany). Assays were done at room temperature. The pouch was opened under room temperature because the test strips need to equilibrate with room temperature prior to testing (W.H.O.B.C., 2008). The serum was also brought out of the refrigerator for it to also equilibrate with room temperature before testing. With the arrows pointing downwards, it was immersed into the serum for 10-15 seconds. The maximum line (MAX) on the strip was observed in order to avoid exceeding the line. The strip was then placed on a non-absorbent surface. The timer was then set for fifteen (15) minutes, awaiting the red line to appear or not. Two distinct red lines, one on the control region (C) while the other on the test (T) region. The intensity of the red color on the test line varies depending on the concentration of the HBsAg and HCV in the specimen. Therefore, any shade of red in the test (T) region was considered positive. One red line on the control (C) region and no shade of red color on the test (T) region, means it is negative.

2.4 Data analysis

Data were analyzed using SPSS version 15.0 and an independent T-test method. Significance was determined at $P < 0.05$ at 95% Confidence interval.

3.0 RESULTS

The social characteristics of the studied women: educational attainment and occupation are presented on Table 1. Of the population studied ($n=200$), 72% were semi- or non- literates while 28% were educated. An inverse relationship between the educational status of the women and the seroprevalence of HBsAg and HCV was observed. Details show that women with high prevalence level of HBsAg are illiterates (76.7%) while those with some level s of education had lower prevalence (23.3%). Business women had higher prevalence than other women studied. No significant relationship between infection and the occupation of the women seen ($P < 0.05$).

TABLE 1: SOCIAL CHARACTERISTICS, HBV AND HCV SEROPOSITIVITY

Social Characteristics	No examined (n=200)	No +ve HBsAg	No +ve HCV
Education			
Semi- & non literates	144	18(20.38%)	Nil
Occupation			
Civil Servant	46	0(0%)	Nil
Housewives	40	2(5%)	Nil
Student	10	1(10%)	Nil
Business	104	16(15.38%)	1(8.3%)

The results presented in Table 2 show that HBV was positive in 19 subjects (9.5%) and negative in 181 (90.5%) while HCV serology was negative in 199 (99.5%) and positive in 1 (0.5%).

TABLE 2: SEROLOGICAL TESTS PERFORMED ON PREGNANT WOMEN IN GWAGWALADA TOWN FOR DETECTION OF HBV AND HCV.

	Anti-HCV (n=200)	HBsAg (n=200)
Negative	199 (99.5%)	181(90.50%)
Positive	1 (0.5%)	19 (9.5%)

4.0 DISCUSSION

Hepatitis B and C poses as an endemic in countries worldwide. The 9.5% shows it as an intermediate endemicity of HBV infection according to WHO criteria (World Health Organization, 1999). Uneke *et al.* (2005) classified high endemicity from HBV infection and defined it as HBsAg greater than 7% in an adult population. This also supports the WHO (1990) report for Nigeria as highly endemic area with prevalence greater than 8%. The prevalence of HBsAg found in pregnant women attending ante-natal in Gwagwalada falls within the range of reports given in other studies carried out in other parts of Nigeria, Africa and the rest of the world. In reported studies for hepatitis B carried out in some parts of Nigeria, there were higher prevalence's rates of 12.8% in Minna (Ndams *et al.*, 2008), 15.8% in Maiduguri (Baba *et al.*, 1999), 11% in Makurdi

(Mbaawuaga *et al.*, 2008). Lower reports reported include 2.19 % in Benin City (Onakewhor *et al.*, 2008), 8.3% in Zaria (Luka *et al.*, 2008) and 5.7% in Ilorin (Agbede *et al.*, 2007). In some African countries, there were high prevalence rates of 17.3% in Burkino Faso (Collenberg *et al.*, 2006). Lower reports were 5.3% in Ethiopia (Fisseha *et al.*, 2008), 6.3% in Tanzania (Mendez, 1999). In comparison to other findings from the rest of the world were 2.11% in Northern Turkey (Yavuz *et al.*; 2009), 12% in Taiwan (Lin *et al.*, 2003). These variations, noticed may be related to the peculiarities in the modes of transmission of HBsAg and HCV dictated by socio-cultural practices and environmental factors.

The 1% prevalence of HCV in the tested population was found to be low when compared to other studies carried out in Nigeria. Paul *et al.* (2007) reported a 12% in South-Western Nigeria and the 2.5% in Maiduguri (Baba *et al.*, 1999).

When compared to findings from other African countries, there were higher rates of 17-26% in Egypt (Wasley and Alter, 2000), 2.6% Côte d'Ivoire (Zuccotti, 2006). It was found to be the same as the research carried in Sudan (Rasha *et al.*; 2000). There was a lower prevalence rate of 0.01% in the United Kingdom (Wasley and Alter, 2000).

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