

# Short Communication Report

## SERO PREVALANCE OF HEPATITIS B VIRUS IN PREGNANT WOMEN ATTENDING A CLINIC IN ZARIA, NIGERIA

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Viral hepatitis is a systematic disease caused by viruses A-E that mostly involves the liver (Brooks *et al.*, 2007). Hepatitis B virus (HBV) is a DNA virus belonging to the family *Hepadna viridae* with *Hepatitis B* surface antigen (HBs Ag) being a complex antigen (ag) found on its surface (Hollinger & Dienstag, 1990; Brooks *et al.*, 2007). Infection caused by Hepatitis B virus is worldwide in distribution and is a serious public health problem causing about 2 billion infections worldwide (WHO, 1996). Transmission of this disease is commonly through blood transfusion, blood products, body fluids (Urine, semen, sweat, saliva and tears), use of contaminated needles, vertical transmission (mother-to-child through infected birth canal) and sexual contact (Brooks *et al.*, 2007). Hepatitis B is of two phases, anicteric (acute) and icteric (chronic). Neonates born of chronically infected mothers are 70-90% at risk of the infection progressing to chronic phase (Lin & Kirchner, 2004)

The prevalence rates of HBV vary according to the endemicity of the infection in a given area. Kong *et al.*, (1997) reported prevalence rate of 10.0% among pregnant women in Hong Kong, Lin *et al.*, (2003) reported 12.0% prevalence rate from Taiwan, while 17.3% was reported for Burkina Faso (Collenberg *et al.*, (2006).

In Nigeria, 11.6% prevalence rate has been reported from Maiduguri (Harry *et al.*, 1994), 4.3% from Port Harcourt (Akani *et al.*, 2005), 5.7% from Ilorin (Agbede *et al.*, 2007) and 8.3% from Zaria (Luka *et al.*, 2008). Very high prevalence rates are mostly reported from the developing nations in Asia and Africa.

Since detection of HBs Ag in serum is indicative of either acute or chronic phase of HBV infection (Hollinger & Dienstag, 1990), this investigation was carried out to detect the prevalence of HBs Ag in the sera of pregnant women attending antenatal clinic, at the main campus of Ahmadu Bello University Samaru, Zaria Nigeria with

view of establishing the seroprevalence of HBV infection among attendees of the clinic.

Three hundred (300) blood samples were collected aseptically from pregnant women attending the antenatal clinic of ABU Zaria. The serum from each woman was separated from clotted blood and was kept frozen until needed for testing. A one step Hepatitis B surface antigen (HBs Ag) test strip (a qualitative lateral flow immunoassay for detecting HBs Ag in serum) was purchased from Wondfo Biotech Co. Ltd, U. S. A. and used.

Using invitro diagnostic kit, the detection of HBs Ag was done by dipping into each serum sample a strip of the kit and allowing 10-15 sec. to react ensuring that the maximum line on the strip was not exceeded. The strip was removed and placed on clean, flat, non-absorbant surface and allowed to stand for 15 min. at room temperature after which the results were read and interpreted according to the manufacturers instructions (positive result indicated by the appearance of a coloured line in the test region and another in the control region while the negative result was indicated by the development of a coloured line only in the control region).

Of the three hundred (300) serum samples screened for HBs Ag, 40(13.3%) were positive. Those in the age group 21-25 years had the highest prevalence rate of 16(19.0%) out of attendees screened, followed by 26-30 years age group with 12 (13.6%) out of 84 while the 41-45 years age group had a zero (0%) prevalence (Table 1). There was no significant association between HBs Ag prevalence and age groups. ( $p > 0.05$ ).

months) had the highest prevalence rate of 26(18.4%) out of 138 attendees screened, followed by 3<sup>rd</sup> trimester with 10(10.00%) of 100 screened while the 1<sup>st</sup> trimester had the least prevalence of 4(9.7%) of the 62 screened (Table 2).

The prevalence rate associated with pre-disposing factors showed those who had blood transfusion having the highest HBs Ag prevalence rate of 6(20.0%) of the 30 tested, followed by the unvaccinated with 40(15.4%) of the 260 screened. The vaccinated had zero (0) prevalence (Table 3).

**TABLE 1. PREVALENCE OF HBs Ag BASED ON AGE GROUP**

Age (years)	No.		Prevalence (%)
	Screened	No +ve	
16-21	26	2	7.7
21-25	84	16	19.0
26-30	88	12	13.6
31-35	64	08	12.5
36-40	28	02	7.1
41-45	10	0	0
<b>Total</b>	<b>300</b>	<b>40</b>	<b>13.3</b>

$\chi^2 = 0.731$ , df =5, P>0.05

**TABLE 2. PREVALENCE OF HBs Ag BASED ON TRIMESTER.**

Trimester	No.		Prevalence (%)
	Screened	No +ve	
1 <sup>st</sup> (1-3 months)	62	4	9.7
2 <sup>nd</sup> (4-6 months)	138	26	18.4
3 <sup>rd</sup> (7-9 months)	100	10	10.0
<b>Total</b>	<b>300</b>	<b>40</b>	<b>13.3</b>

**TABLE 3. PREVALENCE OF HBs Ag. ASSOCIATED WITH RISK FACTOR.**

Risk Factor	No.		Prevalence (%)
	Screened	No. +ve	
<b>Sharing sharp objects</b>			
Yes	90	12	13.3
No	210	28	13.3
<b>Blood transfusion</b>			
Yes	30	6	20.0
No	270	34	12.6
<b>Vaccination</b>			
Yes	40	0	0
No	260	40	15.4
<b>Marital status</b>			
Yes	290	410	13.8
No	10	1	10.0

The results of this study has shown high prevalence rate (13.3%) of *Hepatitis B* virus infection among the study population. This is in agreement with earlier reports of 13.8%, 10.0%, 11.6% and 12.0% from Lagos, Hong Kong, Maiduguri and Taiwan respectively (Nasidi *et al.*, 1983; Harry *et al.*, 1994; Kong *et al.*, 1997; Lin *et al.*; 2003). Within Africa, our finding was slightly lower than the 17.3% reported from Burkina Faso (Collenberg *et al.*, 2006). Within Nigeria, results from this study is higher than the 4.3%, 5.7% and 8.3% reported from Port Harcourt, Ilorin and Zaria Respectively (Akani *et al.*, 2005; Agbede *et al.*, 2007; Luka *et al.*, 2008). The decrease in prevalence rates among some Nigerians could be due to anti HBV vaccination policy of the government. Detection of HBs Ag among the study population has confirmed statement that detection of HBs Ag in serum is indicative of active acute or chronic *Hepatitis B* virus infection (Hollinger & Dienstag, 1990).

On the basis of age groups, the highest prevalence rate (19.0%) was found among those 21-25 years, followed by 26-30 years with 13.6% while 41-45 years had 0.0% prevalence.

In this study, women on their second trimester of pregnancy had the highest prevalence of 18.4%, contrary to observations of Lilavati *et al.*, (2004) that the third trimester in pregnant women had the highest prevalence rate. Blood transfusion recipients had the highest prevalence rate (20.0%), indicating the significance of screening blood for HBV infection.

Generally, necessary precautionary measures should be taken to prevent HBV transmission through any of the predisposing factors. The public should be educated about the dangers of acquiring *Hepatitis B* virus infection, particularly pregnant women who can vertically transmit the infection to their neonates. The routine screening of pregnant women for HBV should include all Hepatitis viruses and other sexually transmitted infectious agents. Since non-immunization is a predisposing factor, Neonates should thus be vaccinated against viral hepatitis. The general public vaccinations be intensified and sustained.

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