



Original Research Article

## Human Immunodeficiency Virus (HIV) and Hepatitis B Infections among Pregnant Women in Ekiti, South-West Nigeria

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Received: 24/12/2014

Revised: 16/01/2015

Accepted: 23/01/2015

### ABSTRACT

Human Immunodeficiency Virus (HIV) and hepatitis B (HBV) infections are the most common infections among pregnant women and are of global concern to the public health. This study was therefore carried out to know the prevalence of HIV and HBV infections among pregnant women in Ekiti, South-West, Nigeria. Pregnant women who attended ante-natal clinic at Ekiti State University Teaching Hospital, Ado-Ekiti, between January to November, 2014 were recruited into this study after obtaining their consent. 4ml of blood was aseptically collected from each subject into plain bottles. Each blood sample was allowed to stand for one hour at room temperature (25°) for clotting and clot retraction to take place. It was spun and sera separated into plain khan tubes labeled appropriately and the sera were screened for the presence of antibody to HIV and HBV using One-Stage Rapid Test kit (Determine, Uni-gold and Stat-pak with serial algorithm used for HIV and DiaSpot Diagnostics for HBV) and they were later confirmed using enzyme linked immuno sorbent assay (ELISA) (Stat Fax Awareness, England). Out of the 1433 pregnant women recruited, 74(5.16%) were positive to HIV and 52(3.63%) positive to HBV while 10(0.70%) are co-infected with HIV and HBV with highest prevalence in the age group 31-40 years. This study showed high prevalence of both HIV and HBV infections with HIV higher than HBV. It is therefore advisable to always screen pregnant women for these infections at their first visit to ante-natal clinic so as to be able to give adequate management to those having the infections in order to prevent mother to child transmission of these infections.

**Keywords:** prevalence, HIV, HBV, pregnant women

### INTRODUCTION

It has been reported that sexually transmitted infections (STIs) and HIV/AIDS are widespread in developing countries and that they constitute a major public health in sub-Saharan Africa. <sup>[1,2]</sup> More than two-thirds of the world's HIV infections is accounted for by the epidemic HIV/AIDS in sub-Saharan Africa, and is commonly referred to

as a one-Africa epidemic. Sub-Saharan Africa is by far the most affected region of the world with more than two-thirds of global HIV infections. About 29 million people were estimated to be living with HIV infection in this region in year 2002, with nearly 9% of adults between 15 and 49 years old infected. <sup>[3]</sup> An estimation of about 120,000 to 160,000 women in the

United States has been infected with HIV, and about 6,000 to 7,000 of women infected with HIV give birth annually. Since the beginning of the HIV/AIDS epidemic, approximately 15,000 children in the United States have been infected with HIV and 3,000 children have died. About 90 percent of those were infected with the virus during pregnancy or birth. [4,5]

Hepatitis B is a viral infection of the liver, caused by the hepatitis B virus (HBV). Infection with this virus can cause scarring of the liver, liver failure, liver cancer, fever, abdominal pain, tiredness, jaundice and sometimes result to death while some with this infection never get sick. [6,7] Viral hepatitis during pregnancy is associated with high risk of maternal complications. There is a high rate of vertical transmission causing fetal and neonatal hepatitis which can have serious effects on the neonate, leading to impaired mental and physical health later in life. A leading cause in maternal mortality is also said to be the most familiar cause of jaundice in pregnancy and neonatal jaundice. Chronic hepatitis B infection is estimated to occur in about 350 million people worldwide and is commoner between the ages of 25-44 years. [8,9]

This research work was carried out to know the prevalence of Human Immunodeficiency Virus (HIV) and hepatitis B infections, as well as co-infection of the two among the pregnant women in Ekiti, South-West, Nigeria because there has been no documented report on this topic in the selected area.

## **MATERIALS AND METHODS**

### ***Study Area and Subjects***

Pregnant women who attended antenatal clinic at Ekiti State University Teaching Hospital, Ado-Ekiti, between

January to November, 2014 were recruited into this study after obtaining their consent. Ethical approval was obtained for this study from ethical and research committee. The teaching hospital is located in Ado-Ekiti (in Ado Local Government Area Headquarter) which is the capital city of Ekiti State, situated in the tropical rain forest belt of Southwest of Nigeria and is about 450km from Abuja (the capital city of Nigeria).

### ***Methodology***

4ml of blood was aseptically collected from each subject into plain bottles. Each blood sample was allowed to stand for one hour at room temperature (25°) for clotting and clot retraction to take place. It was spun and sera separated into plain khan tubes labeled appropriately and the sera were screened for the presence of antibody to HIV and HBV using One-Stage Rapid Test kit (Determine, Uni-gold and Stat-pak with serial algorithm which is the adopted method for HIV screening in Nigeria, DiaSpot Diagnostics for HBV) and they were later confirmed using enzyme linked immuno sorbent assay (ELISA) (Stat Fax Awareness, England). The manufacturer's instructions were strictly adhered to.

## **RESULTS**

The results of this study are presented in the table below.

Out of the One Thousand Four Hundred and Thirty-Three women recruited for this study, Seventy-Four were positive to HIV giving 5.16%, Fifty-Two positive to HBV amounting to 3.63% while Ten were positive to both HIV and HBV infections giving rise to 0.70% of the total number screened with the highest prevalence in age group 31-40 years as shown in the (table 1) below.

**Figure 1: Prevalence of HIV and HBV co-infection in different age groups among pregnant women in Ekiti.**

Age Grp (years)	No.Exam.	HIVPos.	%HIVPos	HBVPos.	%HBVPos.	Co-infection	%Co-infection
21-30	480	20	4.17	15	3.13	03	0.63
31-40	740	42	5.68	30	4.05	06	0.81
41-50	213	12	5.63	07	3.29	01	0.47
Total	1433	74	5.16	52	3.63	10	0.70

## DISCUSSION

It has been reported that approximately 350-400 million people worldwide are living with chronic stage of the hepatitis B virus (HBV) infection and about 1 million people die of HBV-related disease each year. Globally, the prevalence of hepatitis B virus infection ranges from 0.1% to 20% [10,11] and the wide range is largely due to differences in age at the time of infection. After acute HBV infection, the risk of developing chronic infection varies indirectly with age: 90% for perinatal infection, 25–35% for infection at age 1–5 years and less than 10% for adults. [10] About 45% of the world population live in highly endemic HBV areas (about 8% or more of the population are hepatitis B surface antigen (HBsAg) positive), 43% live in areas with intermediate-endemicity (2–7% HBsAg-positive) and 12% live in areas with low-endemicity (0.6-2% HBsAg-positive). According to WHO European Region, the HBsAg sero-prevalence ranges from 0.3 - 12% with up to 3.5 million people as carriers. Areas with high endemic rate are central Asia and parts of Eastern Europe. Intermediately endemic areas include eastern and southern Europe and the Russian Federation, while northern and Western Europe are low endemic areas. [11] Throughout the world, the unequal social status of women places them at higher risk for contracting HIV. Access to information about HIV prevention, the ability to negotiate safe sexual encounters and access to treatment for HIV/AIDS once infected are

the factors that make women to be at a disadvantage. As a result of those inequities and the dynamics of the epidemic, the proportion of women among people living with HIV/AIDS has been reported to be rising in many regions. [12]

The results of this study showed higher prevalence of HIV infection (5.16%) than that of the HBV infection (3.63%) among pregnant women in Ekiti which indicates that HIV infection is more common among the pregnant women than HBV infection as against the earlier reports by [13-16] who reported the prevalence of HBV infection to be higher than that of HIV infection in different parts of the world.

The prevalence of HBV infection varies based on the endemicity of the infection in a particular area. The prevalence of HBV infection was found to be 3.63% in this study which is lesser than the prevalence in other regions as reported by some researchers [17-19] who reported 17.3%, 12.0% and 8.2% respectively in different locations of the world. Researchers have also reported prevalence of this infection from different parts of Nigeria; Maiduguri, [20] Port Harcourt, [21] Ilorin [22] and Zaria [23] and they all have higher prevalence than the one in this study. The prevalence of HBV infection in this study is similar to the report of [24] but against the reports of. [25,26]

The prevalence of HIV infection according to this study is considerably high compared to the reports of [27,28] who reported 2.9% and 3.9% respectively while it is lower than the prevalence reported by.

[29-31] The sero-prevalence of the HIV/HBV co-infection in this study is shown to be 0.70% which correlates with the report of [32] The prevalence of co-infection in this study is lesser than that reported by [14] but higher than that of. [15]

## CONCLUSION

It is shown in this study that the prevalence of HIV infection is higher than that of HBV with 0.70% co-infection, even though the prevalence of the two infections can be considered high in the study area. Therefore, screening of pregnant women for these infections on their first visit to antenatal clinic should be encouraged so that adequate advice, proper medication, management/cares can be given to those positive to any of the infections in order to prevent mother to child transmission of the infection (PMTCT) and avoidable complications during pregnancy.

## ACKNOWLEDGEMENT

All glory to God for the successful completion of this research work. Our profound gratitude also goes to the individuals who contributed in one way or the other to the success of this research, we appreciate you all.

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How to cite this article: Akinbolaji TJ, Adeosun CO, Agbaje A et. al. Human immunodeficiency virus (HIV) and hepatitis B infections among pregnant women in Ekiti, south-west Nigeria. Int J Health Sci Res. 2015; 5(2):151-156.

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