

Outcome of Delivery among HIV-Positive Women that Attended the Antenatal Clinic at the University of Benin Teaching Hospital, Benin City, Nigeria

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Abstract

Background: Human immunodeficiency virus (HIV) has been reported to be associated with several adverse pregnancy outcomes. There are limited data on the extent by which HIV-positive pregnant women in this part of the world are affected. **Aim:** The aim of this study was to assess the pregnancy outcome of HIV-positive pregnant women who attended the antenatal clinic. **Materials and Methods:** A retrospective analysis of the case notes of HIV-positive women that enrolled in the prevention of mother-to-child (PMTCT) clinic from January 1, 2020, to December 31, 2020. All data collected were entered and analyzed using the IBM SPSS version 25.0 software. **Results:** A total of 1817 women attended the antenatal clinic and 127 (6.9%) were HIV positive and enrolled in the PMTCT program. Out of the 127 HIV-positive women, only 102 (85.0%) utilized the delivery service. HIV was found to be more common among women within the age group of 30–39 years. Majority 105 (82.6%) of the women were aware of their HIV status before index pregnancy and were on treatment, 62 (60.78%) of the women had a vaginal delivery, whereas 34 (33.3%) had a caesarean delivery. A total of 6 (4.7%) women had a miscarriage. There was no maternal death. Of these pregnancies, 7 (5.5%) were stillbirths, 18 (18.8%) were preterm deliveries, and 10 (11.2%) had a low birthweight. **Conclusion:** Despite antiretroviral therapy, HIV-positive pregnant women had adverse pregnancy outcomes; therefore, they should be managed with a multidisciplinary approach to ensure good maternal and fetal outcomes.

Keywords: Antiretroviral therapy, human immunodeficiency virus infection, pregnancy outcome, prevalence

INTRODUCTION

The human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome have remained a disease of public health concern in most developing countries of the world. Currently, there are about 1.4 million HIV-positive pregnant women in low- and middle-income countries and 150,000 infants infected with HIV.^[1] After South Africa, Nigeria, has the largest HIV disease burden in the world with 3.2 million people living with HIV, although the prevalence is 3.4%.^[2] HIV in pregnant women has become an increasingly important focus of HIV research due to its role in contributing to paediatric HIV cases.^[3] Pregnancies of HIV-positive women are considered high risk because they are susceptible to multiple complications such as miscarriage, preterm labor, maternal anemia, premature rupture of membrane (PROM),

intrauterine growth restriction, intrauterine fetal demise, low birth weight (LBW), stillbirth, and increase risk of perinatal transmission of HIV.^[3,4] Interventions to reduce the risk of mother-to-child transmission mainly include antiretroviral treatment (ART) for both mother and baby as well as appropriate breastfeeding practices.^[4] The World Health Organization recommended the prevention of mother-to-child (PMTCT) guideline for antiretroviral therapy

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is Option B+, which provides all HIV-positive pregnant and breastfeeding women with lifelong triple therapy regardless of CD4 count and clinical stage of disease.^[5] In 2017, it was reported that 80% of pregnant women living with HIV were receiving treatment which is a significant increase from 2010 with just over 50% were on treatment.^[6] Furthermore, HIV-positive pregnant women who received antiretroviral drugs had fewer adverse pregnancy outcomes. However, there are contradictory reports that the use of highly active ART (HAART) itself is associated with adverse pregnancy outcomes.^[7] HIV is a major concern to the achievement of Sustainable Development Goals, particularly the third goal of good health and well-being. This study aimed at assessing the outcome of delivery among HIV pregnant women who attended the antenatal clinic (ANC).

MATERIALS AND METHODS

Study design

A retrospective cross-sectional hospital-based descriptive study was carried out in the Obstetrics and Gynaecology Department of the University of Benin Teaching Hospital (UBTH) through the analysis of secondary data collected from the PMTCT clinic.

Study setting

UBTH is an 850-bedded tertiary hospital, providing specialist care to patients in the state and other surrounding areas. UBTH offers preventive, promotive, treatment, and rehabilitative services. The Obstetrics and gynaecology department is made up of four units, namely: Materno - Fetal Medicine; Gynaecology and Uro-Gynaecology; Fertility Counselling and infertility and Endocrinology. The services provided by these units include antenatal care and antenatal education program, family planning services, imaging and laboratory services, labour and delivery services, gynecological cancer treatment and management, fertility counselling clinic, and human research and reproduction plan/*in vitro* fertilization services among others.

Inclusion and exclusion criteria

All HIV-positive pregnant women who attended the PMTCT clinic in the hospital and delivered in the hospital were included in the study, whereas those who delivered but did not attend the PMTCT clinic were excluded from the study. Furthermore, those with multiple gestation were excluded from the study.

Study population

The study population included 127 HIV-positive pregnant women between the age of 18 and 49 who attended the PMTCT clinic between January 1, 2020, and December 31, 2020.

Variables

A data collection tool containing several variables was used in this study and was divided into three sections: Section A: sociodemographic details, Section B: obstetric parameters and ART option, and Section C: obstetric and fetal outcomes.

Data analysis

All data collected were checked for completeness and errors. The data were analyzed using statistical package for social sciences (SPSS) Version 25.0 Electronic Software (SPSS Inc., Chicago, IL, USA). The categorical data were presented with frequency tables and percentages. In addition, standard deviations (SDs) were calculated and the result gathered was drawn to a conclusion.

Ethical consideration

Approval for the study was provided by the ethics and research committee of the UBTH with protocol Number: ADM/E 22/A/VOL. VII/14831019. Permission was obtained from the obstetrics and gynaecology and records department to review ANC folders.

RESULTS

A total of 1817 women attended the ANC at the UBTH during the period of review, 127 were tested positive for HIV giving a prevalence rate of 6.9%. The age group of 30–39 years constituted the majority of the women. The mean age (SD) of HIV-positive women was $34.30 \pm (5.44)$ years, 117 (92.1) of the women were married and 109 (93.2%) were in a monogamous setting. Most of the women had secondary and tertiary levels of education and were of equal distribution at 46 (36.2%) each, 87 (68.5%) were self-employed, and 90 (70.9%) of the women were multiparous.

Fifty-six (44.1%) of the women booked index pregnancy in the second trimester, the average booking gestational age was 19.5 ± 8.6 , 105 (82.7%) of the women were diagnosed before index pregnancy and were in the early stage of HIV disease. Eighty-four (66.1%) were taking Tenofovir/Lamivudine/Dolutegravir (TDF/3TC/DTG), 12(9.4%) were taking Zidovudine/Lamivudine/Nevirapine (AZT/3TC/NVP), 5(3.9%) were taking Tenofovir/Lamivudine/Efavirenz (TDF/3TC/EFV) and 4(3.1%) were taking Zidovudine/Lamivudine/Lopinavir (AZT/3TC/LPV). With regard to time of ART commencement, 81 (77.14%) women were on medication before index pregnancy, 21 (20%) before 36 weeks of pregnancy, and 2 (1.9%) after 36 weeks; 105 (82.7%) were in stage 1 of HIV infection, 21 (16.5%) in stage 2, and 1 (0.8%) in stage 3.

A total of 102 utilized the delivery service of this center. In terms of obstetrical complications, 32 (25.19%) women were anaemic, seven women (5.5%) had malaria, 7 (5.5%) had PROM, 6 (4.7%) women had miscarriage, 4 (3.14%) had antepartum haemorrhage, 3 (2.3%) had pregnancy-induced hypertension, and only one person (0.8%) had tuberculosis. In terms of Intrapartum intervention, 6 (5.88%) women had an episiotomy. The mode of delivery was by spontaneous vaginal delivery in 62 (60.78%) women and caesarean delivery in 34 (33.3%) women. There was no maternal mortality, 1 (0.98%) woman had puerperal pyrexia, 1 (0.98%) had postpartum haemorrhage, and 8 (7.84%) women had a perineal laceration.

A total of 89 (70.1%) babies were born alive and 7 (5.5%) were stillbirths, 78 (81.3%) of babies were term babies, and 18 (18.8%) were preterm babies. In terms of birth weight, 79 (88.8%) were of normal birth weight and 17 (11.2%) were LBW. Fetal gender was equally distributed with 45 (50.5%) males and 44 (49.4%) females, 85 (95.5%) of the babies had a good Apgar score, whereas 4 (4.5%) of the babies had asphyxia. Only 5 (4.9%) of the babies needed neonatal intensive care unit admission.

DISCUSSION

The implementation of the PMTCT has reduced the rate of MTCT of HIV in many countries in the world, thus studies now focus on the outcome of HIV-positive women. HIV was common among women within the age group of 30–39 years. This is similar to the study done in Brazil^[8] and Ogun State, Nigeria,^[9] which revealed the highest prevalence of HIV was found within the age group of 30–39 years. This is in contrast to the study that was conducted in India that showed that HIV was common among women within the age group of 25–29 years.^[10] This could be attributable to the fact that majority of the women were primiparas, compared to ours the majority were multiparas. Majority of the women in our study had at least secondary level of education this is similar to the study in Port Harcourt,^[11] but in contrast to the study conducted in India^[10] where majority of the women had only primary level of education, the reason for that could be that the study was conducted in a rural area, whereas ours was in an urban area.

Most of the women booked during the second trimester, some booked as late as the third trimester. There are several factors that caused late booking ranging from financial factors, ignorance, problem-free pregnancy, distance from health-care facility, and already being registered at another center.^[12] As early commencement of antenatal care will help to identify high-risk pregnancies and initiate preventive health-care services such as vaccine, prophylaxis against malaria, and HIV counseling, thus ensuring better maternal and fetal outcomes.^[13]

Majority of the women knew their HIV status before index pregnancy and were on treatment, this is similar to a study conducted in Port-Harcourt,^[11] but contrary to the study conducted in China where the majority were diagnosed during their antenatal visit.^[14] This shows progress in HIV testing and more people are being informed and willing to know their HIV status and seek treatment and increasing awareness. In terms of mode of delivery, most of the women opted for vaginal delivery, whereas a few had caesarean delivery, the caesarean section rate is higher than previous studies conducted in Kano^[15] and Maiduguri,^[16] but lower than that in Philadelphia^[17] and Togo.^[18] The reason for the caesarean section rate in this study was because the women developed certain complications such as fetal distress and cephalopelvic disproportion that warranted a caesarean delivery and majority of the women were multiparous women with a history of caesarean delivery.^[19] In addition, women opted for vaginal delivery was due to

affordability and cultural views, having a caesarean section in this part of the world is frowned upon. The safety of vaginal delivery on women who are on HAARTs whose viral load is well suppressed is another reason why many embarked on vaginal delivery.

HIV is associated with several adverse pregnancy outcomes, but the mechanism of how HIV causes adverse pregnancy outcomes is not clear, previous studies show that several factors could contribute to the adverse outcomes such as the use of antiretroviral therapy, poor socioeconomic status, lack of adequate antenatal care, and nutrition. Other reasons could be that the overall immunosuppressive status, high viral load, low CD4 count, and HIV antigens may interfere with the production of steroids, hormones, and metabolites associated with child development and birth, thereby contributing to adverse pregnancy outcomes.^[20] Establishing adverse pregnancy outcomes has some limitations due to the nature of our study. First, ours was a retrospective study and thus lacked some information on some variables such as viral load and CD4 count. Second, the compliance rate of antiretroviral therapy cannot be ascertained. Furthermore, the findings of this study are of limited generalizability, as the sampling may not be representative of the general population based on secondary data.

CONCLUSION

This study concludes that despite antiretroviral therapy, HIV-positive pregnant women had adverse pregnancy outcomes, thus pregnancy with HIV is considered high risk and as such should be managed with a multidisciplinary approach to ensure good maternal and fetal outcomes.

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Conflicts of interest

There are no conflicts of interest.

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