

Unbooked Status: A Predictor of Adverse Perinatal Outcome in HIV Positive Women at a Tertiary Hospital in the South Eastern Nigeria

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ABSTRACT

Background: *The scourge of HIV infection in developing countries has continued to rise at an alarming rate. This has serious health, economic and social consequences on the society.*

Aims and Objectives: *The study was conducted to determine the effect of non-attendance of antenatal care on perinatal outcome of HIV positive pregnant women at the Imo State University Teaching Hospital (IMSUTH), Orlu.*

Methods: *A retrospective analysis of the case records of women (both booked and unbooked) who tested positive to Human Immune-deficiency Virus and the perinatal outcome at the Imo State University Teaching Hospital (IMSUTH), Orlu from 1st May 2005 to 30th April 2010 was made. The biosocial, obstetric and perinatal outcome data were extracted and analysed.*

Result: *The maternal HIV positive sero-prevalence at delivery was 6.9%. The highest sero prevalence rate of 42.4% occurred in the age group of 31-35years. Sixty-three (68.5%) of the women were para 1-4. Unbooked status significantly contributed to perinatal morbidity and mortality: 13 (92.9%) of the low birth weights, 15 (71.4%) of the still birth/IUFD, 4 (80.0%) of the birth asphyxia and 9 (81.8%) of the preterm babies. None of the women was symptomatic on presentation.*

Conclusion: *The high maternal HIV positive sero-prevalence with its associated poor perinatal outcome seen more in unbooked women in this study calls for interventions that would reduce maternal morbidity and improve perinatal outcome. The interventions that include intermittent preventive therapy for malaria, good nutrition and antiretroviral therapy must receive serious attention, which can be provided by early booking and adequate antenatal care services.*

Key Words: *Maternal HIV, unbooked status, perinatal outcome, Orlu.*

INTRODUCTION

Antenatal care (ANC) is one of the pillars of the safe motherhood initiative and involves the monitoring of pregnant women and their unborn babies in order to detect unsuspected complications¹. It provides a unique opportunity for early diagnosis and treatment of problems (anaemia, hypertensive disorders of pregnancy, infections and infestations, including human immunodeficiency virus (HIV), etc) in the mother and prevention, diagnosis and treatment of problems in the newborn².

In many developing countries, antenatal care is the only time women make contact with the health care system². ANC is thus a unique opportunity for providing tetanus vaccination, malaria prevention, prevention of mother-to-child transmission (PMTCT) of HIV, and counseling for a safe birth². Antenatal care services also provide a unique opportunity, not only for health education on childbirth and infant care, but also on family planning and other gynaecological services³.

Following the diagnosis of pregnancy, the first prenatal visit (booking visit) should occur during the first trimester. The focus of this visit, as for most antenatal care, is to identify all risk factors in the mother and the foetus. Consequently, a pregnant woman is said to have "booked" if, excluding the booking visit, she attended at least three antenatal clinic visits and received at least one dose of tetanus immunization⁴. She is also considered "booked" if, aside the booking visit, she makes a minimum of two more visits lasting not more than two weeks before delivery⁵.

Lack of, or inadequate antenatal care contributes substantially to the perinatal morbidity and mortality of the average obstetric unit and constitutes a large drain on the scarce resources of the neonatal intensive care unit^{6,7}. Antenatal care provides a unique opportunity for providing intermittent preventive therapy for malaria, immunization against tetanus. It also provide an avenue for counseling, testing for HIV and subsequent enrolment of positive women to HIV programmes. This will reduce the high burden of paediatric HIV infection.

Infection by the human immunodeficiency virus (HIV) is posing a serious challenge to humanity and has remained a global public health problem. Sub-Saharan Africa remains the region most heavily affected by HIV worldwide, accounting for over two thirds (67%) of the 33.4 million (31.1 million 35.8 million) people living with HIV worldwide and for nearly three quarters (72%) of AIDS-related deaths in 2008⁸.

Several studies from Africa have reported that HIV infected pregnant women are at increased risk of adverse pregnancy outcomes such as spontaneous abortion, stillbirths, and preterm labour⁹⁻¹¹. Few studies have evaluated correlation of pregnancy outcome of HIV positive women with respect to booking status.

Early booking provides an opportunity for HIV pregnant women to enrol in mother to child transmission prevention programmes. Thus there is a need for comparison of the perinatal outcome of booked and unbooked HIV positive pregnant women. The finding will help to make recommendations on adequate antenatal care services, especially in developing countries, where utilization of antenatal care services is still low. We thus report here, the effect of booking status on the perinatal outcome in HIV sero-positive women at the Imo State University Teaching Hospital, Orlu. This will also serve as a data base for future studies in the centre.

METHODOLOGY

A retrospective analysis of the delivery and perinatal outcome records of women who delivered at the Imo state university teaching hospital, Orlu from 1st May 2005 to 30th April 2010 was made. Imo State University Teaching Hospital is located in Orlu, in Orlu Local Government Area of Imo State. Orlu is the third largest city in Southeast Nigeria's Imo State with an estimated population of 9,636.^{12,13} The inhabitants are mainly farmers, traders and civil servants. The teaching hospital is a major referral center serving the whole of Imo State and its environs. The biosocial and obstetrics data of these patients were obtained. These included maternal age, parity, booking status and gestational age at delivery. The perinatal data obtained included the Apgar score, birth weight and birth outcome.

The maternal HIV status was assessed using the Determine HIV- 1/ 2 Rapid Test (Abbott Laboratories, Abbott Park, IL) and positive results were confirmed by the Uni-Gold Rapid Test (Trinity Biotech Co, Wicklow, Ireland) in serial algorithm. Any discordant result between the two was ratified by the use of a third kit StatPack as a tiebreaker. Determine is highly sensitive but less specific, while StatPack and UniGold are both

highly specific but less sensitive. These tests were done with maternal whole blood, serum or plasma at booking (for those that had antenatal care) and at delivery (for unbooked women).

Statistical analysis was done using chi square test at 95 percent confidence interval.

RESULTS

A total of 1,334 women delivered in the hospital within the study period and were screened for the presence of HIV-1 & 2 antibodies in their blood. Out of these, 92 (6.9%) were confirmed sero-positive to Human Immune-deficiency Virus (HIV) types 1 & 2. Fifty one (54.4%) of these patients booked for and had antenatal care in IMSUTH and received Highly Active Antiretroviral Therapy (HAART) zidovudine, lamuvudine and nevirapine and anti-malarial prophylaxis during the antenatal period. Forty one (44.6%) of them were unbooked and did not receive any HAART or anti-malaria prophylaxis.

As table 1 shows, 13 (46.4%) of the unbooked HIV sero-positive patients delivered low birth weight babies, 15 (36.6%) had intrauterine foetal death (IUFD), 4 (9.8%) had foetal birth asphyxia, while 9 (22.0%) delivered preterm. However, only one (2%) of the booked HIV sero-positive women delivered a low birth weight baby, 6 (11.8%) had IUFD, 1 (2%) had birth asphyxia and only 2 (3.9%) delivered preterm.

As shown in Table 2, the highest sero-positive rate of 39 (42.4%) occurred in the age group of 31-35years. This was followed by age range of 26-30 years which was 26 (28.3%).

The parity distribution of the women is as shown in Table 3. Sixty-three (68.5%) of the women were para 1-4. Nulliparous patients who were 20 (21.7%) followed this.

None of the women was symptomatic for Acquired Immunodeficiency Syndrome (AIDS) on presentation.

Table 1: Frequency distribution of adverse perinatal outcome in booked and unbooked women

BS	IUFD	BA	LBW	PD	Normal	Total
Booked	6 (28.6%)	1 (20.0%)	1 (7.1%)	2 (18.2%)	41 (100.0%)	51 (55.4%)
Unbooked	15 (71.4%)	4 (80.0%)	13 (92.9%)	9 (81.8%)	00 (00.0%)	41 (44.6%)
Total	21 (100%)	5 (100%)	14 (100%)	11 (100%)	41 (100%)	92 (100%)

N/B: BS-Booking Status; BA- Birth Ashyxia; LBW- Low Birth Weight;
 PD- Preterm Delivery.
 P<0.05

Table 2: Frequency distribution of age group of the women

Age Group (years)	Frequency	Percentage
≤ 20	5	5.4
21-25	7	7.6
26-30	26	28.3
31-35	39	42.4
36-40	13	14.1
>40	2	2.2
Total	92	100.0

Table 3: Parity distribution of the women

Parity	Frequency	Percentage
0	20	21.7
1- 4	63	68.5
≥ 5	9	9.8
Total	92	100.0

DISCUSSION

The HIV sero-prevalence rate at delivery in this study was 6.9%. This seroprevalence rate is higher than both the National sero-prevalence rate for Nigeria and the Imo State sero-prevalence rate of 4.6% reported in the 2008 sentinel surveillance.⁶ It is also higher than the records of 2.7%, 5.3%, 6.0% and 6.8% from Calabar,⁷ Abakaliki,⁸ Kaduna⁹ and Nnewi¹⁴ respectively. This may be due to the fact that the study was conducted in a Teaching Hospital which is a referral centre for HIV patient and as such is likely to have a higher concentration of HIV Positive women compared to the general population. However, it is lower than the 8.3% and 19.1% reported from Abuja¹⁵ and Makurdi¹⁶ respectively.

These differences in the sero-prevalence rates could also be explained by the different study and laboratory methods and different patient case-mix.¹⁵ This study included both booked and unbooked patients unlike the

other studies^{8,9,10,14} which were carried out on antenatal women at booking thereby excluding unbooked patients that still delivered in the health institutions.

Contrary to other studies,^{9,14} where the sero-positivity rate was highest in the age group of 26-30 years, the age range of 31-35 years has the highest sero-positivity rate of 42.4%. This could be explained by the increasing trend towards delaying childbearing in pursuance of academic qualifications and career satisfaction in our women. Thus, our result is still in consonance with the documentation that African women of childbearing age are particularly vulnerable to HIV infection. This observation is dangerous for the country if unchecked, since the economically and reproductive viable aspect of our population is worst hit by the HIV infection. This high rate has also led to an increase in the number of paediatric HIV infections reported due to mother to child transmission of HIV infection. Some children who are expected to take up

parenthood, socioeconomic and political role now come down with the disease, thus destabilizing the work force base and indeed the fabric of the nation.

This study also shows that adverse perinatal outcomes were significantly higher in the unbooked than the booked patients ($P < 0.05$). Thus unbooked status in this study significantly contributed to increased perinatal morbidity and mortality of HIV positive women. This finding is similar to other findings which show an increased perinatal morbidity and mortality in women who had low or non-attendance to antenatal clinic^{17,18}. This underscores the importance of adequate antenatal care services in improving perinatal outcome especially in HIV positive pregnant women.

None of the women in this study was symptomatic for Acquired Immunodeficiency Syndrome (AIDS) on presentation, this differed from reports by Ojukwu et al⁹, Ogu et al¹⁴ and Offiong et al¹⁵ who reported that 22.4%, 12.5% and 72.4% respectively of their study population were symptomatic on presentation.

In conclusion, the high maternal HIV sero-positivity with its associated poor perinatal outcome, mostly in unbooked women as shown in this study, calls for urgent actions that could reduce maternal morbidity and improve perinatal outcome such as intermittent preventive therapy for malaria, good nutrition and antiretroviral therapy. These can only be achieved with early booking and adequate antenatal care services for pregnant women.

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