ORIGINAL ARTICLE

THE OUTCOME OF PREGNANCY AMONG HIV INFECTED WOMEN

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ABSTRACT

Background: HIV remains the largest epidemic facing mankind today. The greatest burden of the disease is in sub-Saharan Africa. In the later stages of the disease, pregnancy complications have been shown to increase.

Objective: The purpose of this study is to evaluate the outcome of pregnancy among HIV infected women attending antenatal clinic at the University of Maiduguri Teaching Hospital (UMTH), Maiduguri

Method: 282 HIV positive pregnant women booking for antenatal care in the first trimester at the (UMTH) were recruited for the study. Another 282 pregnant women who were HIV negative booking for antenatal care during the same period served as controls. The study period was January 2006 to December 2007 inclusively. Information concerning the antenatal period, labour and delivery were obtained from the antenatal register, voluntary counselling and testing register, delivery register and the child follow-up register.

Results: malaria fever, anaemia and preterm delivery were significantly commoner among the symptomatic HIV infected women than the controls. Elective caesarean section rate was also higher among the HIV positive women than the controls. Macrosomic babies, birth asphyxia and stillbirth rate were not significantly different among the two groups even if the symptomatic HIV positive women were segregated. Low birth weight was commoner among the HIV infected women. The mean birth weight among HIV infected women was 2.7kg compared to 3.2kg among the controls.

Conclusion: pregnancy complications were commoner among the symptomatic HIV infected women than asymptomatic women as well as uninfected women. It is recommended that HIV positive women should complete their families early to avoid poor pregnancy outcome.

Keywords: *HIV; Pregnancy outcome; Maiduguri*

INTRODUCTION

The human immunodeficiency virus infection is the largest epidemic facing mankind today with devastating consequences especially in sub-Saharan Africa where the infection is most prevalent, accounting for about two-thirds the global disease burden and over 90% of infected children worldwide.[1, 2,3.] HIV is said to be wearing a woman's face in Africa. It is a major illness affecting women's health with over 20 million women infected worldwide and 2 million of them getting pregnant each year. [4] The proportion of women living with HIV/AIDS in sub-Saharan Africa ranges from 53% in Nigeria and Botswana to 58% in Rwanda and Niger.[1] With a population of 140 million, an annual birth of about 5.4 million and HIV seroprevalence of 4.8% among antenatal attendees, Nigeria has the second largest number of HIV infected people in Africa after south Africa.[2,5]

HIV can be transmitted vertically in-utero, during labour and delivery and through breastfeeding. Over 60% of vertical transmission occurs in labour and delivery. [2,3] In the absence of any intervention, mother-to-child transmission occurs in 25-45% of exposed babies in African populations [6,7] Pregnancy does not affect the course of HIV infection and the infection does not appear to affect the course of pregnancy. However, in advanced stage of HIV infection, pregnancy complications are increased: miscarriages, growth restriction, premature rupture of membranes, chorioamnionitis and still birth, anaemia and malaria infection are increased. [8,9,10] Factors associated with increased risk of mother-to-child transmission of HIV include high maternal viral load, low maternal CD4 count, obstetric haemorrhage, invasive procedures in pregnancy, prematurity, twin gestation and oral diseases in the newborn. [3,8]

The components of interventions to prevent mother-to-child transmission include voluntary counselling and testing to detect new infections, administration of antiretroviral drugs and modified obstetric practices including elective caesarean section. The Nigerian government launched the prevention of mother-to-child transmission of HIV programme in 2002 and the University of Teaching Hospital was one of the pioneer sites. This paper highlights some of our experiences in this programme.

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MATERIALS AND METHODS

This is a retrospective study comparing the pregnancy outcome among HIV positive pregnant women and their controls that attended antenatal clinic and delivered at the university of Maiduguri teaching hospital between January 2006 and December 2007 inclusively. The study was carried out among mothers who booked for antenatal care in the first trimester and had a minimum of 3 visits and had hospital delivery. The control group consists of HIV negative mothers matched for parity who booked within the same period. The information was obtained from the general antenatal register, VCT register and delivery register.

A study profoma was drawn which sought to identify among other things age, parity, pregnancy complications, mode of delivery and neonatal outcome. HIV positive women were then classified into symptomatic and asymptomatic group based on their pre-assessment forms. All infants of HIV positive mothers had single dose nevirapine suspension and zidovudine syrup for 6 weeks. All HIV positive mothers were placed on highly active antiretroviral therapy (HAART).

For the purpose of this study, a PCV of less than 30% is considered as anaemia. An axillary temperature of 38 degrees Celsius or more is regarded as fever and when combined with the presence of malaria parasites in a thick or thin blood smear a diagnosis of malaria fever was made. A birth weight of <2.5kg is regarded as low birth weight while a birth weight of 4kg or more is regarded as macrosomic baby. Delivery before 37 completed weeks of gestation is considered preterm delivery. An Apgar score of 6 or less at one minute is regarded as birth asphyxia.

The data was entered onto SPSS version 15 statistical package, recorded and analysed to generate simple frequency tables. Categorical variables were compared for level of significance using the chi-square at 95% confidence interval.

RESULTS

A total of 4,721 pregnant women accepted to be tested for HIV during the study period, out of which 438(9.3%) were HIV positive. As at 31st December 2007, 282(64.4%) had fulfilled the criteria for this study and they form the subjects of this study. Another 282 antenatal attendees during the same period who tested HIV negative and matched for parity served as controls. The mean age was comparable between the subjects and the control (28.3 years versus 26.3 years; p=0.5).

Table 1 shows the complications of pregnancy among the two groups of women with malaria, anaemia and preterm delivery being significantly higher among the symptomatic HIV infected women than among the asymptomatic HIV infected women as well as the HIV negative controls (p=0.0005).

Caesarean section rate was significantly higher among the HIV infected women than the controls (table 2). However, there was no significant difference in the rate of augmentation of labour in the two groups. There was no maternal death in the two groups.

The neonatal outcome among the two groups is shown in table 3. The mean birth weight of babies delivered by the HIV infected women was 2750grams as compared to 3200grams among the uninfected women. Low birth weight was significantly commoner among the symptomatic HIV infected women than among the asymptomatic as well as HIV negative women (p=0.05). The incidence of birth asphyxia was higher among the HIV infected group (p=0.025). There was no significant difference in the still birth rate among the two groups.

Table 1: Antenatal complications among the study population

Complications	Asymptomatic HIV positive	Symptomatic HIV positive	HIV negative women	P value
Malaria	12(4.3%)	34(12.1%)	8(2.8%)	<0.0005
Anaemia	14(5.0%)	31(11.0%)	12(4.3%)	<0.0005
Preterm delivery	10(3.5%)	22(7.8%)	2(0.7%)	<0.0005
PPH	0(0.0%)	11(3.9%)	8(2.8%)	0.37
Total	**36**	**98**	**30**	

Table 2: Delivery method among study population

Mode of delivery	HIV positive	HIV negative	P value
VD	238(84.4%)	260(92.2%)	<0.01
ELCS	36(12.8%)	9(3.2%)	<0.0005
EMCS	8(2.8%)	13(4.6%)	0.20
Induction of labour	16(5.7%)	18(6.4%)	0.70
Total	298*	300*	

**some had induction of labour before vaginal delivery or caesarean section*
VD=vaginal delivery; ELCS=elective caesarean section; EMCS=emergency caesarean section

Table 3: Neonatal outcome among the study population

Characteristics	Asymptomatic HIV positive	Symptomatic HIV positive	HIV negative	P value
Low birth weight	24(8.5%)	56(19.9%)	18(6.4%)	0.005
Macrosomic baby	6(2.1%)	2(0.7%)	10(3.5%)	0.02
Still birth	8(2.9%)	14(5.0%)	8(2.9%)	0.23
Birth asphyxia	6(2.1%)	14(5.0%)	5(1.8%)	0.025

Discussion

Majority of the HIV infected pregnant women were young women aged 20-34 years. These are women at the peak of their reproductive carriers. The high prevalence of HIV among young African women has been attributed to non-consensual sex, unprotected sexual intercourse, high risk behaviour of partners and the patronage of older sexual partners. [11,12,13] A good proportion of them were of low parity with 51% carrying their first pregnancies. The immune system is suppressed in pregnancy irrespective of the HIV status of the mother. [14,15] There is a decrease in immunoglobulin and complement levels and a much more significant decrease in cell mediated immunity during pregnancy. These changes in pregnancy have not been shown to accelerate the progress of HIV in pregnancy. [16,17]

In the developed world, HIV has been shown to have little or no effect on the outcome of pregnancy. [18,19] In African studies, both early and late complications of pregnancy have been shown to significantly increase in HIV infection. [20,21] This may be because African women present with advanced stages of the disease perhaps due to lack of awareness in the community. In our study, miscarriages were not seen even though only those who booked in the first trimester were recruited for this study. Miscarriages are commoner in the first trimester and unless women book early for antenatal care such cases would be missed. An American study showed a three fold increase in miscarriages in a prospective follow up of women infected with HIV. [22] Perhaps the number of women in this study was too few.

Malaria fever was found to be more frequent among HIV infected pregnant women than the uninfected controls. This is expected as the HIV infection compounds the immunosuppression of pregnancy. Malaria infection has been shown to be associated with increased rate of mother-to-child transmission of HIV. [23,24] It is therefore imperative that the intermittent prophylactic treatment for malaria in pregnancy be more aggressive. Malaria is the commonest infection in pregnancy in the tropics. [25]

Anaemia was also commoner among the HIV infected pregnant women. In addition to malaria infection and malnutrition, antiretroviral drugs may also cause anaemia in women receiving treatment with antiretroviral drugs.[25] Apart from these factors, HIV can independently cause anaemia. In our centre, all pregnant HIV infected women are placed on highly active antiretroviral therapy (HAART) for the prevention of mother-to-child transmission of the virus. It is important for HIV infected pregnant women to receive prophylactic haematinics and be regularly monitored for anaemia among other drug toxicities.

Most of the HIV infected women had vaginal delivery but the rate of caesarean section was significantly higher than among the uninfected women. This was due to the higher incidence of elective caesarean section for the prevention of vertical transmission. Elective caesarean section has been shown to reduce the rate of mother-to-child transmission of HIV irrespective of whether the mother received antiretroviral drugs or not. [26] However, this benefit becomes insignificant if the viral load falls below 1000 copies per ml. [27] It therefore follows that with the use of HAART, fewer women will require caesarean delivery.

Preterm birth and low birth weight were significantly commoner among the HIV infected women than the uninfected controls. This was more so when the symptomatic infected women were segregated and compared with the HIV negative women. However, there was no significant difference in still birth rate among the two groups. Preterm birth, low birth weight, intrauterine growth restriction has been associated with maternal HIV infection. [27,28] These complications of pregnancy are also known risk factors for vertical transmission of HIV and other adverse neonatal outcomes like birth asphyxia and neonatal sepsis.

In conclusion, the complications of pregnancy are increased in HIV infected women. Because pregnancy has a short time span, pregnancy in HIV infected women should be considered as an emergency and managed aggressively to ensure maximal viral suppression before delivery. This will improve maternal health, reduce pregnancy complications and minimize vertical transmission of the virus.

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