



## Original Research Article

## Maternal and fetal outcome in HIV infected pregnant women-A two year study at tertiary hospital

Sunanda N<sup>1,\*</sup>, Ramna Jagruti<sup>1</sup><sup>1</sup>Dept. of Obstetric & Gynaecology, Mysore Medical College and Research Institute, Mysore, Karnataka, India

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## ABSTRACT

**Introduction:** At present scenario Acquired immunodeficiency syndrome is currently one of the worst global health concerns. HIV has a dramatic impact on the health of women and their children.

**Objective:** To find out the prevalence of HIV status among pregnant women in a tertiary care hospital to determine maternal and fetal outcome in HIV infected pregnant women.

**Materials and Methods:** A retrospective study conducted in Cheluvamba Hospital a tertiary care hospital attached to MMCRI during January 2014 to December 2016. The case records of pregnant women with HIV positive status were selected from hospital records. Follow up details of both mother and babies were obtained from ICTC Centre.

**Results:** Total deliveries during the study period were 19641. Of these the incidence of HIV Status was 80, the Incidence being 0.4%. primigravidas were found to be 43.75%. HIV seropositivity rate was more between 21 to 25years of age group, contributing to 56.25% of the total cases. CD4 count of >200 was found in 37.5% of cases, of which 25% were primigravida. Among all cases 31.25% were not put on Antiretroviral Therapy (ART). Vaginal deliveries were 83.5% and caesarean sections were 16.5%. Birth weight of >2.5 kg were seen in more than 50% of cases. Breast feeding was opted by 81.75 %. 93.8% neonates received nevirapine of the babies admitted in NICU 4 babies died (11.2%). 2 babies were found to be positive.

**Conclusion:** Adverse outcomes were associated with untreated maternal HIV infection in pregnancy. PMTCT services were utilized sub optimally by the women with low level of education. Awareness and information is important for programs designed to increase access to PMTCT services including HAART from early pregnancy.

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## 1. Introduction

AIDS was first described in 1981 and is presently one of the worst global health concerns. HIV/AIDS infection is one of the most important causes for maternal and perinatal morbidity/mortality worldwide. AIDS is caused by infection with HIV, a lentivirus in the retrovirus family. Two types of HIV have been identified, HIV-1 & HIV-2, both are capable of causing AIDS. Majority of the HIV infections are caused by HIV-1, but HIV-2 has been found to infect individuals in certain parts of Africa.<sup>1</sup> HIV has dramatic impact on the health of women and their children. The estimated HIV infection in 2015 was 35.3 million.

Among 2.3 million new cases of HIV infection, 1.6 millions were HIV related deaths.<sup>2</sup> In 2011 there were 2.1 million persons were living with HIV in India.<sup>3</sup>

Appropriate antiretroviral therapy should be given to all HIV positive pregnant women to reduce the burden of the infection. The different ART regimens available for the pregnant women with HIV infection include the use of highly active antiretroviral therapy (HAART) from early pregnancy, short course combination antiretroviral therapy (ART) in late pregnancy and single dose nevirapine in labour. Though the single dose nevirapine in labour is the most widely implemented ART regimen, HAART when started early in pregnancy has been recognised to be more efficacious with associated improvement in infant and neonatal survival.<sup>4</sup>

\* Corresponding author.

E-mail address: [sunanda.n@rediffmail.com](mailto:sunanda.n@rediffmail.com) (Sunanda N).

In the developed countries vertical transmission has been virtually eliminated mainly because of the introduction of highly active antiretroviral therapy (HAART) from early pregnancy, choice of delivery based on viral load and infant feeding counselling. Vertical transmission before 36 weeks of gestation was 20%, before delivery was 50% and during labour was 30%.<sup>4</sup> During breast feeding transmission rates may be its 30-40%<sup>5</sup> and are associated with systemic HIV burden. The strategy of UNAIDS 2011-2015 had many goals and visions; one of the m was to get to Zero New infection. The other goals for 2015 were reduction in sexual trans mission of HIV by 50%, elimination of vertical transmission of HIV and AIDS related maternal mortality reduction by 50%.<sup>3</sup>

## 2. Aims and Objectives

The aims of this study are to know the incidence of HIV positive status in pregnant women and also their outcome in terms of maternal and neonatal morbidity and mortality.

## 3. Materials and Method

This was a retrospective study carried out from the year January 2014 to December 2016. Two year study was conducted at Cheluvamba hospital, a tertiary care hospital attached to Mysore Medical College and Research Institute, Mysore, Karnataka, India. The case files of all HIV infected pregnant women were collected from the hospital record department. Statistics of age, parity, mode of delivery, on treatment (ART), neonatal outcome were obtained and analysed. All those women who were newly detected and those who came for the first time during labour and also those women who were not o n ART during the year 2014-2016, single dose of tab nevirapine 200 mg was given during labour. For those women who were already on treatment, ART was continued. In case of infants, nevirapine prophylaxis based on their birth weight was given up to 6 weeks. Infant feeding depended on the affordability of the patient, if a ffordable replacement feeding was given, if not breast feeding was advised.

A daily dose (in ml) of 10 mg in 1 ml suspension of nevirapine was given to infants born to HIV positive mothers based on their birth weight. nevirapine dosages of 0.2ml/kg/day for babies with birth weight of 2kg and 1ml/kg/day for babies with birth weight between 2-2.5kg and 1.5ml/kg/day for babies with birth weight of more than 2.5kg, were given respectively for up to 6 weeks. All women were advised exclusive breast feeding.

The data on the Maternal and infant follow up were collected from the ART centre and analysed. Dry Blood Spot (DBS) was done at specific intervals of 6 weeks, 6 months, 12 months and 18 months and Early Infant Diagnosis (EID) was collected at 6 weeks. If the early diagnosis becomes positive then whole blood testing was

done and HIV status was confirmed and initiation of paediatric ART was ensured. If early diagnosis becomes negative then the infant was followed up and confirmation of HIV status was done only at 18 months of age.

## 4. Result

Total of 19641 deliveries were conducted during our study period of which 80 mothers were detected to be HIV infected, the incidence being 0.4%.

## 5. Discussion

The incidence of 0.4% of HIV infection in pregnant mothers of our study was comparable with Ezechi et al.<sup>6</sup> Women aged between 20-25 years were 56%.Table 1the mean age being 23 years as compared again with Ezechi et al.<sup>6</sup> In our study 46.25% of them were primigravida. HIV testing was done to partner also and 12.5% of them were found to be positive. 68.75% women were on ART treatment before onset of labour, out of them 6.25% were before conception.Table 2 Premature rupture of membrane was seen around 22.5% women. According to our study preterm labour was found to more common among women 7 out of 10, who were on ART before conception as compared with Mittal M. et al.<sup>7</sup> (Table 3).

CD4 testing was done for all HIV positive pregnant women. CD4 count of >350 was found in 25% of pregnant women, while 3.75% had count of less than 100.Table 4 In comparison to our study, 87.4% of women had CD 4 count >200 as per E Azria et al<sup>8</sup> study. In our study, 3 women had CD4count less than 100, of them 2 required caesarean section and 1 delivered vaginally of the 2 delivered by caesarean section, both babies died. 1 baby which was delivered vaginally was found reactive when followed till 18 months.

18.75% of the women had a preterm delivery while 81.25% delivered at term pregnancy. Out of all the deliveries, 16.25% required caesarean section in contrast to Eazria et al.<sup>8</sup> study. Where 55% required caesarean section and 45% delivered vaginally. 50% Of neonates were weighing more than 2.5kg. 93.75% of neonates received nevirapine prophylaxis.Table 581.2% of them preferred breastfeeding.

The follow up of the babies and mothers were done in the ART centre. Data of those women and their children of the study period were collected and analyzed. During the follow up Baby's dry blood spot (DBS) was done at 6 weeks, 6months, 12 months and 18 months. 2.5% of children were turned out to be HIV positive and there was 5% mortality. 12.5% of them were lost to follow up. Confirmation of HIV status was done only at 18 months of age among which 2 babies turned out to be positive. Paediatric ART initiation was done after confirmation of HIV status.

**Table 1:** Age wise distribution

Age	Number	Percentage
<20yrs	10	12.5%
20-25yrs	45	56.25%
>25yrs	25	31.25%

**Table 2:** Based on ART status

ART status	Number	Percentage
Not on ART	25	31.5%
On ART	50	62.5%
Pre-ART	05	6.25%

**Table 3:** Complication

Type	Number	Percentage
Anaemia	12	15%
PROM	18	22.5%
Pre-eclampsia	02	25%
Preterm	10	12.5%
IUD	03	3.75%
Miscarriage	06	7.5%
Oligohydramnios	02	2.5%

**Table 4:** Based on CD4 count

CD 4 count	Number	Percentage
Not known	47	58.75%
<100	03	3.75%
200-350	10	12.5%
>350	20	25%

**Table 5:** Nevirapine prophylaxis

	Number	Percentage
Yes	75	93.75%
No	05	6.25%

**Table 6:** Based on feeding option

	Number	Percentage
Top feeding	10	12.25%
Breast feeding	65	81.125%

## 6. Conclusion

Though present sample size was small to be of statistical significance, our results suggest that better patient education will probably lead to earlier diagnosis and initiation of

therapy to prevent transmission. In patients who are on ART, education and counselling can alter the fatal and neonatal outcomes. The use of multiple drugs for PPTCT is a more efficacious ARV regimen which can reduce transmission to less than 5% if started early in pregnancy, labour and breast feeding as per the WHO.<sup>5</sup> Testing for CD4 counts, early ARV initiation and Early Infant Diagnosis is appropriate in the management of HIV positive pregnant women.<sup>1</sup>

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None.

## Conflicts of interest

The authors declare no conflicts of interest

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## Author biography

**Sunanda N** Assistant Professor

**Ramna Jagruti** Post Graduate Student

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