

Maternal and Fetal Outcomes in HIV Positive Pregnant Women in a Tertiary Care Centre

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Abstract

Background

India has the third largest population of HIV. Prevalence of HIV in India has declined which reflects the impact of scaled up HIV prevention intervention under the National AIDS Control Programme. HIV infection and its treatment can affect maternal and fetal outcome in pregnancy. The benefits of ART in decreasing mother to child transmission of HIV infection are largely undisputed. But, it may also compromise successful pregnancy and delivery resulting in adverse pregnancy outcome.

Methodology

This study is a retrospective study conducted in Coimbatore Medical College Hospital in HIV positive pregnant women delivered in this centre between June 2019 to May 2020. All pregnant HIV positive females were studied during this period. Follow up was done upto 6 months post delivery.

Results

A total of 25 women were included in the study. The mean age group of the women was between 20-30yrs. Incidence of PIH (16%), anemia(16%), PTB(12%), abortion (28%). The average weight of the babies born to HIV infected mothers were between 2-2.5 kg(45.5%), around 9% women had birth weight <2kg and only 4% of women had IUGR.

Conclusion

HAART in pregnancy women significantly improved the maternal and fetal outcomes.

Keywords: HAART, HIV, outcome

Date of Submission: 15-01-2021

Date of Acceptance: 30-01-2021

I. Introduction

India has the third largest population of HIV. India has an estimated 2.1 million people living with HIV. Prevalence of HIV in India is 0.22% in the adult population. Adult HIV prevalence in India has shown a steady decline from an estimated peak of 0.38% in 2001-2003 to 0.22% in 2017¹. The decline reflects the impact of scaled up HIV prevention intervention under the National AIDS Control Programme. Overall HIV prevalence in antenatal clinics is around 0.35%². Children account for 7% new HIV infections. More than 90% of HIV infections in children are the result of maternal to child transmission(MTCT). According to current NACO guidelines, pregnant women who are HIV positive should have immediate lifelong ART to treat HIV and improve her own health. The benefits of antiretroviral treatment (ART) in decreasing mother to child transmission of HIV infection are largely undisputed³. Although antiretroviral medications have the potential to improve health they may also result in unwanted adverse effects that may also compromise successful pregnancy and delivery resulting in adverse pregnancy outcome.

Over the last decade, treatment for the Prevention of Mother to Child Transmission of HIV has moved from AZT to the use of Highly Active Antiretroviral Therapy (HAART) with global transmission rates dropping to 1-2%⁴. WHO had recommended use of HAART to reduce risk of HIV transmission and improve survival⁵.

HIV infection itself has been associated with varying rates of adverse pregnancy outcomes such as increased spontaneous abortions, stillbirths, perinatal and infant mortality, intrauterine growth restriction, low birth weights and chorioamnionitis⁶.

Methods

This study is a retrospective study conducted in Coimbatore Medical College Hospital in HIV positive pregnant women delivered in this centre between June 2019 to May 2020. All pregnant HIV positive females were studied during this period . Follow up was done upto 6 months post delivery.

All HIV positive pregnant women were numbered , neither their name nor their address were not taken into the master chart in order to maintain the confidentiality of the patient information . Infant testing for vertical transmission was done at 6 months of birth.

Study design: Retrospective study

Study period : June 2019 to May 2020

1. DISTRIBUTION OF HIV POSITIVE MOTHER ACCORDING TO AGE AND PARITY (TABLE 1)

AGE	NUMBER	PERCENTAGE
<20 yrs	0	-
20- 30 yrs	18	72%
>30 yrs	7	28%
PARITY	NUMBER	PERCENTAGE
primi	10	40%
multi	15	60%

In our study, out of 25 women, most of the women belonged to 20-30 years(72%) and more than 30 years were 28%. 40% women were primi and 60% were multi.

2. DISTRIBUTION OF HIV POSITIVE MOTHER ACCORDING TO MARITAL STATUS AND EDUCATION (TABLE 2)

MARITAL STATUS	NUMBER	PERCENTAGE
Married	23	92%
Unmarried	2	8%
EDUCATION	NUMBER	PERCENTAGE
Illiterate	1	4%
Primary education	2	8%
Secondary education	13	52%
Higher secondary education	2	8%

Out of the 25 women, 92% were married and 8% were unmarried. The prevalence of HIV is more in women completed secondary education(52%), followed by higher education /college (28%), primary education (8%), higher secondary education (8%), illiterate (4%)

3. DISTRIBUTION OF HIV POSITIVE MOTHER ACCORDING TO HUSBAND OCCUPATION AND SERODISCORDENCY (TABLE 3)

OCCUPATION	NUMBER	PERCENTAGE
Professional	0	-
Government employee	5	20%
Skilled worker	6	24%

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Semi Skilled worker	8	32%
Unskilled worker	6	24%
SERODISCORDENCY	NUMBER	PERCENTAGE
Husband positive	14	56%
Husband -ve	8	32%
Status unknown	3	12%

HIV infection rate was more in women whose husband were semiskilled workers(32%), and unskilled workers(24%) and skilled workers (24%), followed by government employees(20%) . Women whose husband were HIV positive were affected by 56%, whereas with HIV-ve husbands, the rate was 32%

4. DISTRIBUTION OF HIV POSITIVE MOTHER ACCORDING TO TIME OF DIAGNOSIS AND ROUTE OF TRANSMISSION (TABLE 4)

TIME	NUMBER	PERCENTAGE
Pre pregnancy	20	80%
During pregnancy	5	20%
1st trimester	2	8%
2nd trimester	2	8%
3rd trimester	1	4%
ROUTE	NUMBER	PERCENTAGE
Heterosexual	20	80%
Parent to child	4	16%
Not specified	1	4%

About 80% of the women were diagnosed before pregnancy, whereas 20% were diagnosed during pregnancy , with 8%, 8% and 4% during the 1st , 2nd and 3rd trimesters respectively. Heterosexual transmission was more common (80%), parent to child transmission is 16% and other non specific routes 4%

5. OUTCOME OF HIV POSITIVE PREGNANCY (TABLE 5)

OUTCOME	NUMBER	PERCENTAGE
MTP	5	20%
Abortion	2	8%
Live birth	17	68%
LSCS	10	40%
Labour natural	7	28%
IUD	1	4%

About 68% of women had live birth, 20% had MTP, 8%had abortion and 4% had IUD

6. CHARACTERISTICS OF CD4 COUNT IN HIV POSITIVE MOTHERS (TABLE 6)

CD4 COUNT (BASELINE)	NUMBER	CD4 COUNT (CURRENT)	NUMBER	PERCENTAGE
<100	2	<100	1	4%

100-200	1	100-200	1	4%
200-500	10	200-500	8	32%
>500	12	>500	13	52%

About 52% of women had CD4 count >500, 32% had in the range of 200-500, 4% had between 100-200 and 4% had <100

7. OBSTETRIC COMPLICATIONS IN HIV POSITIVE MOTHERS (TABLE 7)

COMPLICATIONS	NUMBER	PERCENTAGE
PIH	4	16%
IUGR	1	4%
PTB	3	12%
Anemia	4	16%
GDM	1	4%
Abortion	7	28%

Abortion was the most common complication(28%), followed by anemia (16%), PIH (16%), PTB (12%), IUGR(4%), GDM (4%)

8. CHARACTERISTICS OF HIV POSITIVE BABIES (TABLE 8)

BIRTH WEIGHT	NUMBER	PERCENTAGE
<1 kg	0	-
1- 1.5 kg	0	-
1.5- 2kg	1	9%
2- 2.5 kg	5	45.5%
2.5- 3 kg	4	36.5%
> 3kg	1	9%

About 45.5% of the babies were between 2-2.5 kg, 36.5% between 2.5-3kg, 9% were between 1.5-2.5 kg and 9% >3kg

NEONATAL OUTCOME

OUTCOME	NUMBER	PERCENTAGE
Congenital malformation	nil	-
NICU admission	5	25%
Breast feeding	25	100%
Formula feeding	nil	-

About 25% of the babies needed NICU admission and all the babies were breast fed.

II. Discussion

The mean age group was between 20 and 30 years which is similar to 2011 report of the Demographic Health Survey(DHS) ⁷. Women whose husbands were semi skilled worker were commonly affected which is comparable to the findings of Bogart et al. Study who reported that finances are a great barrier to patients coming

to hospital except if really needed, consequently their status are discovered late, thereby commencing their ART late or during pregnancy⁸. Education is a fundamental tool in changing the behaviour or for mobilisation against certain diseases with education and health having a proportional relationship as per the findings of Ron and Mirowsky⁹. In our study, 52% of the women had secondary education. This confirms the findings of Bakes et al. who said formal schooling adds significant value to innate ability in the form of higher order cognitive skills crucial to decision about health¹⁰. Around 45.5% of babies born to HIV positive mothers had birth weight between 2-2.5kg while only 9% had <2kg. This is in contrast to the study by Machado and Aleumu's studies and the Townsend et al findings which suggest that prematurity and LBW were more common in babies whose mothers were on ART^{4, 11}. Incidence of PIH was 16%, anaemia 16%, PTB 12%, abortion 28% which is lower than the findings reported from Ethiopia and Africa¹²⁻¹³. Breastfeeding is a major postpartum risk of HIV transmission. Risk is 14% from mothers with established HIV infection and 29% from mothers who acquire HIV after birth¹⁴. Although breastfeeding approximately doubles the risk of mother to child transmission in resource poor countries, breastfeeding is essential for growth of infants. In our study 100% of women were breastfed. Maternal viral load CD4 count and symptomatic disease have been associated with preterm birth according to study by Ezechi et al, Stratton P et al. No such correlation could be found in the present study. A high rate of IUGR has been observed among HIV pregnancies, probably due to placental insufficiency according to Lopez M et al¹⁵. However in our study only 4% of women had IUGR and only 9% of the babies were less than 2kg. In another study from Lionel J et al¹⁶, obstetric outcomes in HIV infected women were more likely to have anemia, PIH and stillbirth. In our study, 16% women had PIH and 4% had IUD.

III. Conclusion

It is indeed ironic that HIV infection -a forerunner of death and pregnancy- the origin of new life should coexist often. It is imperative that every HIV infected pregnant woman should get access to proper care throughout her course of pregnancy and every effort should be made to ensure that her child is born free of HIV.

Antenatal care and close monitoring in pregnancy can optimise the outcome for HIV infected women and baby. 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 also lead to better fetal and infant outcomes.

The management of the pregnant women with HIV infection has evolved significantly over the years in light of advancement in drug development and a greater understanding of the prevention of perinatal HIV transmission. The risk of HIV transmission from mother to infant had declined to historically low levels with the use of combination antiretroviral medications.

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