Original Article

Fetomaternal outcome of HIV-infected pregnant women delivering at a tertiary health-care center of South Gujarat

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Abstract

Aim: The aim of this study was to document the fetomaternal outcome in HIV-infected pregnant women delivering at a tertiary health-care center of South Gujarat. **Subjects and Methods:** This study was a secondary data analysis of pregnant HIV-infected women delivering between May 2017 and April 2021 in the Department of Obstetrics and Gynecology, a tertiary health-care center of South Gujarat. **Statistical Analysis:** Secondary data analysis was performed using IBM SPSS ver. 20.0 (IBM SPSS Corp., Armonk, NY, USA). **Results:** A total of 145 HIV-infected pregnant women were delivered at our institute during the study period. Thirteen (8.97%) participants had preterm delivery. Eighty-eight (60.68%) of the 145 participants had vaginal delivery and 57 (39.32%) underwent cesarean section. One hundred and forty-three (98.62%) of our 145 participants had live births, whereas 2 (1.38%) had stillbirths. Most of the newborns, i.e., 96 (64.43%) had a birth weight of between 2 and 3 kg, and 25 (16.77%) had a birth weight of <2 kg. Out of 147 live-born babies, 36 (24.48%) babies were admitted to the neonatal intensive care unit NICU. **Conclusion:** Although the HIV positivity in our general population is <1%, it entails a slightly higher risk of preterm birth and stillbirth for the HIV-positive pregnant women. Early registration and appropriate antenatal care are necessary for optimizing the fetomaternal outcome.

Key words: Antiretroviral therapy, HIV, pregnancy

Introduction

Globally, HIV/AIDS infection has become a factor of major health concern among pregnant women. India is home to the third-largest number of people living with HIV (PLHIV) in the world. Globally, there were 1.3 million (1.0–1.6 million) pregnant women with HIV in 2021, of which an estimated 81% (63%–97%) received antiretroviral drugs to prevent mother-to-child transmission.[1] Nationally, there were an estimated 300.61 lakh PLHIV in 2020–2021. Nationally, there were an estimated 20.52 thousand pregnant women who would require antiretroviral therapy (ART) to prevent mother-to-child transmission of HIV.[2] Several studies have reported that HIV-infected pregnant women are at an increased risk of adverse pregnancy outcomes such as spontaneous abortion, stillbirths and preterm labor, low birth weight (LBW), and intrauterine growth retardation.[3-5] As per the new guidelines released by the WHO, further adopted by the National AIDS Control Programme (NACO) in 2017, all HIV-infected patients, including pregnant women are to be started on WHO B+ regimen irrespective of CD4 count and continued for life.

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Subjects and Methods

This study was a secondary data analysis of pregnant HIV-infected women delivering between May 2017 and April 2021 after line listing in the Department of Obstetrics and Gynecology, tertiary health-care center of South Gujarat.

Inclusion criteria

Mamta Clinic records of all HIV seropositive pregnant women delivering at labor room of the tertiary health-care center of South Gujarat between May 2017 and April 2021 (48 months).

Exclusion criteria

1. Incomplete Mamta Clinic records
2. Seropositive pregnant women registered at Mamta clinic who are lost to follow-up.

Results

A total of 145 HIV-infected pregnant women were delivered at our center during the study period.

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Despite widespread promotion of integrated counseling and testing services, 66 (45.51%) of our participants knew their serostatus before conception, whereas 79 (54.49%) were diagnosed during the current pregnancy, of which 7 were diagnosed intrapartum.

Emphasis is placed on early antenatal registration in the first trimester for screening of pregnant women, initiation of ART, and regular antenatal checkups to optimize fetomaternal outcome. Only 11 (7.58%) of our participants registered in the first trimester, 71 (48.96%) in the second trimester, 44 (31.03%) in the third trimester, whereas 19 (12.41%) came directly in labor.

Sixty-seven (46.20%) of our participants had CD4 counts >500, 64 (44.13%) had counts between 250 and 500, whereas 14 (9.65%) had CD4 counts of <250 at the time of current pregnancy. Sixty-six (45%) participants were on ART at the time of their first visit with us. Out of these 66 participants on ART, majority (57.57%) had CD4 counts of more than 500, which was seen in 36.17% of participants who were not on ART. The differences observed were statistically significant ($P < 0.05$).

The pregnancy outcome of our 145 participants was analyzed with respect to the data of HIV seronegative women delivering in the same period.

Of the 147 liveborns, 137 babies were administered syrup nevirapine, and 10 babies were given zidovudine syrup within 72 h of birth as per NACO guidelines.

Majority (88.8%) of our participants opted for exclusive breastfeeding, irrespective of the age group of mother, and timing of knowledge about HIV status and occupational status [Table 1].

Discussion

Studies on HIV infection and pregnancy outcomes until today have been unable to clearly suggest a relation between maternal HIV infection.Common adverse pregnancy outcomes, particularly the risk of premature delivery and of growth retardation and organizations including WHO, have highlighted the importance of early diagnosis of HIV infection.Early antenatal registration and early initiation of anti-retroviral medication irrespective of clinical stage of HIV infection.

Although many of our participants (45.51%) were aware of their HIV-infected status at the time of antenatal registration and were on ART, they presented in the third trimester and even during labor for the first time for obstetric care (43.4%), suggesting the need to focus on creating awareness for early antenatal registration among HIV-infected women in the reproductive age group registered in ART centers. This is in contrast to a study by Deka *et al*.,[6] who reported early antenatal registration of 81% among their HIV-infected women, probably because we cater to lower and lower-middle socioeconomic status patients and also to migrants. Seven of our participants (4.8%) were diagnosed during labor, increasing the risk of maternal-to-child transmission.

We also noted higher CD4 counts among registered HIV-infected women on ART as compared to those who were not on ART at the time of conception. Efforts need to be made to create awareness to come forward for counseling and testing at our integrated counseling and testing centers for early identification of HIV-infected status.

In our study, 13 (8.97%) participants had preterm delivery (PTD). The rate of PTD in the HIV-uninfected women in our institute during the study period was 3.2%, whereas in HIV-infected women was 8.97%. Brocklehurst and French and Xiao PL reported that LBW and PTD were associated with maternal HIV infection.[6,7] Habib and Dalteveit have also shown an association between maternal HIV status and preterm labor.[8] Preterm deliveries were 1.8% in a study by Prameela *et al*., 4% by Malik *et al*., 13.1% by Ezechi *et al*., 19% by Yudin *et al*., and 25% by Dwivedi *et al*.[9-12] Studies done by Merwe *et al*. and Kim *et al*. have documented that women with CD4 cell counts <350 cells/μL had an increased risk of having LBW compared to women with higher CD4 cell counts.[13,14]

Our participants had a higher cesarean section (CS) rate (39%) as compared to that of HIV-uninfected women in our hospital (32%). One hundred and forty-three (98.62%) of our 145 participants had live births, whereas 2 (1.38%) had stillbirths. In India, studies done by Gautam *et al*., and Prameela *et al*. found stillbirth rate to be comparatively less 3.1% and 3.9%, respectively.[9,15]

Our CS rate was intermediate compared to other Indian studies because we gave the choice of route of delivery

Table 1: Pregnancy outcome of our participants

Variable	Number of participants	Percentage result in participants	Percentage in seronegative women	*P*
Gestational age at delivery (weeks) (*n*=145)				
34–37	13	8.97	6.8	>0.05
≥37 or more	132	91.03		
Mode of delivery (*n*=145)				
Vaginal birth	88	60.68	32	>0.05
CS	57	39.32		
Status of baby (*n*=149) (4 twin deliveries)				
Alive	147	98.62	2	>0.05
Stillbirth	2	1.38		
Weight of the baby (kg) (*n*=149)				
<2.5	52	34.89	18.0	<0.05
≥2.5	97	65.11		
NICU admission at birth (*n*=147)				
Yes	36	24.48	2.64	<0.05
No	111	75.52		

NICU=Neonatal intensive care unit; CS=Cesarean section

to the participant, whereas in Irene's study all participants underwent CS, and in a study by Patil *et al*. CS was performed only if obstetrically indicated.[16]

In a study done by Dwivedi *et al*., and Yadav *et al*., most of the women delivered vaginally (65%), as lower segment cesarean section in HIV seropositive patients was done for obstetric indication only.[12,17] The rate of transmission was marginally less than normal labor. In a study done by Azria *et al*., 55% of women delivered by CS while in studies by Gautam and Shah, Prameela *et al*., and Ezechi *et al*., 70.8%, 73.7% and 53.1% women delivered by vaginal route, respectively.[9,11,15,18]

About 35.86% (52 of 145) of newborns of our study participants had a birth weight of <2.5 kg, whereas the corresponding figure in the general population was 18.0% (the National Family Health Survey-5) ($P < 0.01$), indicating that HIV+ ve status is a significant risk factor for LBW.

Out of 147 liveborn babies, 36 (24.48%) babies were admitted to the neonatal intensive care unit (NICU) for various reasons such as prematurity, LBW, congenital anomaly, and meconium aspiration. This was significantly higher than NICU admission in our institute during that period in HIV noninfected participants, which was 2.64%.

We had a lower PTD rate and higher perinatal mortality rate as compared to those reported by Patil *et al*.[16]

Our preterm birth rate was similar to a study done by Trivedi *et al*.,[19,20] whereas the incidence of LBW babies was relatively higher in our study.

Conclusion

Although the HIV positivity in our general population is <1%, it entails a slightly higher risk of preterm birth, stillbirth, and LBW for the HIV positive pregnant women. It also highlights that most women come for late registration during the antenatal period, and subsequent delay in starting ART, thus need for awareness about early antenatal registration, regular follow-up, early initiation of ART, and linking with the nearest ART center. The prevalence of adolescent pregnancy and vertical transmission of disease among young females, high points the importance of safe sex practices, strengthening testing services, and identification of high-risk groups for screening.

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Conflicts of interest

There are no conflicts of interest.

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