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SYSTEMIC REVIEW AND META-ANALYSIS OF HIV POSITIVE MOTHER AND HIV STATUS OF HER BABIES FOLLOW UP TO 18 MONTHS OF AGE.

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KEYWORDS :

INTRODUCTION

- Human Immunodeficiency Virus (HIV) causes an incurable infection that leads to a terminal disease called Acquired Immunodeficiency Syndrome (AIDS). It is a disorder of immune system in which body's normal defense against infection break down leaving it vulnerable to threatening infection .
- India has the third largest HIV epidemic in the world.
- In 2021, it was estimated that 2.3million people were living with HIV in India ,which equates to a prevalence of 0.2%.(1)
- Prenatal infection has resulted in large number of children being born with HIV infection. Mother to Child Transmission (MTCT) is by far the most significant route of transmission of HIV infection in children below the age of 15 years. This transmission is known to occur during pregnancy, delivery and breast feeding period. In the absence of any intervention, transmission rates range from 15%- 45%. This rate can be reduced to below 2% with effective interventions during the periods of pregnancy, labor, delivery and breastfeeding
- According to current NACO guidelines pregnant women who are found HIV positive, should have immediate and lifelong ART to treat HIV and improve her own health, maximally suppress maternal viral load prior to conception to decrease the risk of perinatal transmission and of HIV transmission to an uninfected partner(2).
- Delays in accessing antenatal care and low levels of education are the most significant patient risk factors associated with PPTCT.
- At our hospital in PPTCT centre , it is a routine to have voluntary HIV testing in all pregnant females at the first hospital visit. We planned to study the feto maternal outcome of HIV antenatal mother & effectiveness of Anti Retroviral therapy in PPTCT.
- The HIV exposed infant are categorized as low risk or high risk and Their ARV prophylaxis options are as follows:

Low risk infants:	Option for ARV:
Infant born to mother with suppressed viral load (<1000 copies/ml) done any time after 32 weeks of pregnancy up to delivery.	1.Syrup Nevirapine OR 2.Syrup Zidovudine (in situation where Nevirapine will not be effective): Infant born to a mother infected with confirmed HIV-2 or HIV-1 and HIV-2 combined infection. Infant born to a mother who had received single dose of Nevirapine during earlier pregnancy/ delivery Infant born to a mother who is on a PI based regimen due to treatment failure Duration of ARV prophylaxis: from birth till 6 weeks of age

High risk infants:	Option for dual ARV prophylaxis:
Infants born to HIV positive mother not on AR Maternal viral load not done after 32 weeks of pregnancy till delivery Maternal viral load not supressed after 32 weeks of pregnancy till delivery Mother newly identified as HIV positive within 6 weeks of delivery	Syrup Nevirapine + syrup zidovudine Duration of dual ARV prophylaxis: In case of exclusive replacement feeding (ERF) – from birth till 6 weeks of age In case of exclusive breast feeding (EBF) – from birth till 12 weeks of age

AIMS AND OBJECTIVE

AIMS:

To study the Fetomaternal outcome of HIV positive Mother and To determine HIV status of new born delivered to HIV positive Antenatal Patient.

OBJECTIVES:

To know the effective interventions in HIV positive antenatal patient in PPTCT. (prevention of parent to child transmission)

MATERIALS & METHOD

- This is a retrospective observational study analyzing the cases (n=49) of HIV positive antenatal patients in Government medical college ,Bhavnagar from august 2020 to april 2022 .
- From these cases details regarding age, parity, education, CD4 Count, Anti Retroviral therapy duration, outcome of pregnancy, mode of delivery, co-morbidity, baby HIV Status follow up were collected.
- After delivery, Infant blood DNA PCR done at 6week, 6 month, 12 month & 18 month.
- Data was collected from case paper & from data register of ICTC(Integrated counselling & testing centre).
- Feto-maternal outcome was noted in all HIV positive antenatal women.
- Mothers and babies were managed according to NACO guide lines.

RESULTS

The total number of antenatal registration from May 2017 to September 2019 at Sir T Hospital, Bhavnagar were 9842, out of which 49 were HIV positive The prevalence of HIV infection was 0.49%.

Total no. of Antenatal Registration	No.	Prevalence(%)
9842	49	0.49

Age

- Most of cases were between 20- 30 years, which is the most sexually active age group.

- Prevalence of HIV infection in this target group can be reduced by providing information, education and effective behavior change communication.

AGE(YEARS)	No.(n=63)	Percentage(%)
<20	1	2.04%
20-30	38	77.55%
>30	10	20.40%

Parity

Out of 49 HIV positive antenatal women, 19(38.77%) were primigravida, 16(32.65%) were second gravida, and 14 (28.57%) were gravida three or more. Hence in present study majority of HIV positive antenatal women were primigravida. With increasing gravidity number of HIV positive women were less. This might be due to various family planning measures adopted by the females which are offered under government programme .

GRAVIDA	NO.	PERCENTAGE(%)
G1	19	38.77
G2	16	32.65
G3 or more	14	28.57

Education:

Out of 49 HIV positive antenatal women, In present study, prevalence of HIV infection is lowest among women having higher secondary education. It indicates that, if the level of education increases, there will be more awareness regarding HIV and its route of spread and thereby less chances of getting infection.

EDUCATION	NO.	PERCENTAGE(%)
Illiterate	11	22.4
Primary	18	36.7
Secondary	19	38.7
Higher Secondary	1	2.04

Occupation

Out of 49 HIV positive antenatal women, majority 38 (77.5%) were housewife, and only 11(22.4%) was Working.

Duration of ART & risk of tranmission

Out of 49 HIV positive antenatal women 41 women ,taken ART for more than 12 week, and 4 women take ART for less than 6 week.

MEAN DURATION OF ART	NO. OF CASES	NO. OF POSITIVE BABIES	NO. OF NEGATIVE BABIES
<6 week	4	2	2
<6 to 12 week	4	1	3
>12 week	41	0	41

Cd4 COUNT

Out of 49 HIV positive antenatal women, most of the patient 45 had good CD4 count >350 and 4 had CD4 count <350,here it shows that neonates are at greater risk of infection born to mother with low CD4 count.

Cd4 COUNT (ul)	NO. OF PREGNANT FEMALE	NO. OF POSITIVE CHILDREN	NO. OF NEGATIVE CHILDREN
<350	4	02	02
>350	45	01	44

Mode Of Delivery

LSCS was performed in 11(22.44%) women and Vaginal delivery occurred in 38(77.55%) women. In present study, more vaginal deliveries occurred. LSCS was performed for obstetric indications only.

MODE OF DELIVERY	NO. OF CASES (n=49)	PERCENT AGE(%)	NO. OF POSITIVE BABIES	NO. OF NEGATIVE BABIES
NVD	38	77.55	03	35
LSCS	11	22.44	00	11

Co-morbidity In Hiv Positive Antenatal Women

Out of 49 HIV positive women, 20 women had co-morbidity in form of anemia, preeclampsia, diabetes, 28%, 8% and 4% respectively. All women were managed accordingly.

CO-MORBIDITY	NO.	PERCENTAGE(%)
Anaemia	14	28.57
Preeclampsia	4	8.16
Diabetes	2	4.08

Details Of Baby	No.	Percentage(%)
PRETERM/FULLTERM		
FULLTERM	44	89.79
PRETERM	5	10.20
LIVE/SB/EXPIRED		
LIVE	44	89.79
SB	3	6.12
EXPIRED	2	4.08
BABY WEIGHT		
1-2.5	24	48.97
>2.5	20	40.81

Out of 49 delivered babies, 44(89.79%) were full term babies and 5(10.20%) were preterm babies.

In present study, out of 49 delivered babies 44(89.79%) were live, 3(6.12%) was still birth and 2(4.08%) died within one week.

Out of 49 delivered babies, majority were 24(48.97%) weighing 2.5kg or less, whereas 20(40.81%) were weighing more than 2.5 kg. Hence, majority of babies were of low birth weight (LBW). Out of 24 babies who were LBW, 10 were preterm and 14 were full term.

Feeding Practise

Out of 44 Live birth of HIV Positive antenatal women, majority, 35 choose for exclusive beast feeding & 9 patient choose exclusive top feeding , in my study it shows that ERF affects the outcome of neonate twice compared to EBF. They are counselled not to use mixed feeding.

FEEDING PRACTISE	NO. OF CHILDREN	NO. OF POSITIVE CHILDREN	NO. OF NEGATIVE CHILDREN
Exclusive breast feeding	35	1	34
Exclusive top feeding	9	2	7

FOLLOW UP	NO.(n=44)	PERCENTAGE(%)
Up to 6 Weeks	12	27.27
Up to 6 Month	6	12.24
Up to 12 Month	5	11.36
UP to 18 Month	20	45.45
Lost Follow up	1	2.04

Out of 44 live babies follow up testing were done with dry blood spot (DBS) at 6 weeks, 6 month, 12 month and 18 month. Out of 44 babies, in 20(45.45%) babies complete follow up of 18 month was done.

In 5(11.36%),6(12.24%), 12(27.27%) babies follow up of 12 month, 6 month, 6 week has been completed respectively. Out of 44 live babies 3 were found reactive. Follow up testings of remaining babies is ongoing.

Follow up lost in 1(2.04%) babies .

DISCUSSION

The incidence of PPTCT in our study is 0.49 percent. In the absence of any intervention transmission rate of PPTCT range from 15-45%(3).

There were 49 HIV positive antenatal women, most of them were between 20-30 years and had primary school education.

HAART for mothers effectively reduces the risk of infant HIV infection.(4) The effectiveness in preventing PPTCT is related to suppressed viral loads.(5) This would require ART for at least 6 months duration. In present study we found that when standard triple ART regimen (Tenofovir, Lamivudine, Dolutegravir) is given for at least 3 month before delivery chances of mother to child transmission is 0.49% as compared to when standard ART is started late in pregnancy. But it also increase the risk of preterm delivery and low birth weight and still born .

In present study,35 children were on exclusive breast feeding & 9 children were on exclusive top feeding, on EBF 1 child and on ETF 2 childs were became HIV positive.

Exclusive breast feeding has a low rate of transmission because HIV is not secreted in breast milk. Transmission is because of local anatomical abnormalities or mixed feeding.

In present study, mode of delivery does affect the neonatal outcome. Vaginally delivered child became reactive. According to NACO, Caesarean sections are not recommended for prevention of mother-to-child transmission, particularly where women are taking ART for their own health, C-section should be performed for obstetric indications only.

A high rate of IUGR has been observed among HIV pregnancies, probably due to placental insufficiency and can cause IUGR. (6)

CONCLUSION

Prevalence of HIV infection is more among young age group, which can be reduced by providing information, education and behaviour change communication.

Early detection of HIV through antenatal testing would result in decrease in pediatric HIV infection and AIDS. Appropriate antenatal screening, intervention and preventive strategies during pregnancy, delivery and breast feeding will bring down mother to child transmission rate below 2%.

present sample size was small to be of statistical significance.

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