International Journal of Reproduction, Contraception, Obstetrics and Gynecology
Gautam S et al. Int J Reprod Contracept Obstet Gynecol. 2016 Aug;5(8):2587-2591
www.ijrcog.org

pISSN 2320-1770 | eISSN 2320-1789

DOI: http://dx.doi.org/10.18203/2320-1770.ijrcog20162626

Research Article

Study of perinatal outcome in human immunodeficiency virus positive women

Shiva Gautam*, Tushar Shah

Department of Obstetrics and Gynaecology, B.J. Medical College Civil Hospital, Ahmedabad, Gujarat, India

Received: 08 January 2016
Revised: 25 June 2016
Accepted: 04 July 2016

***Correspondence:**
Dr. Shiva Gautam,
E-mail: gautam.shiva08@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: HIV remained a major public health problem in developing countries like India. Young adults especially women of reproductive age group are mainly affected. HIV is caused by human immune deficiency virus which decreases host immunity and leads to opportunistic infections. The aim of this study is to know the perinatal outcome of HIV positive women and the complications occurring in perinatal period leading to mortality.
Methods: It is a retrospective study done for 2 years from September 2013 to September 2015. Data was collected from PPTCT centre civil hospital Ahmedabad retrospectively from records only. Identity of patients was not disclosed.
Results: Among total 65 patients who were followed up 82.53% new-born were healthy and 10.99%were having morbidity factors. Causes of morbidity were low birth weight, IUGR, septicemia, jaundice etc. Hypoxemic ischemic encephalopathy is the most common cause of neonatal mortality and septicemia being second.
Conclusions: Maximum new-born were healthy. Hypoxic ischemic encephalopathy is the leading cause of neonatal death. Because of newer WHO guidelines of starting ART to all antenatal women, improved PPTCT counseling and better NICU facility neonatal outcome has improved.

Keywords: HIV, NICU, WHO, Immune

INTRODUCTION

HIV infection remained a major public health problem in developing countries. There are 2.5 million people living with HIV in India.[1]

Young adults especially women of reproductive age group and children are mainly affected.[1]

The NACO Technical estimate report estimated that out of 27 million annual pregnancies in India, 34675 occur in HIV positive women.[2]

HIV is caused by human immune deficiency virus (retro virus), which attacks the T helper cells (CD4 cells) and decreased immunity leading to opportunistic infections. Two types of virus have been identified among them type 1 is more virulent and infectious.[3]

Mode of transmission is through

- Blood, semen
- Shared needles
- Unprotected sexual intercourse and
- Through HIV positive mother to the offspring antenataly, intrapartum and postpartum through breastfeeding.[4]

Effect of HIV on pregnancy

- Spontaneous abortion
- Opportunistic infections; tuberculosis, pneumonia, urinary tract inections, herpes zoster.[5]
- Preterm labour
- Premature rupture of membranes
- Abruptio placenta
- IUGR

Maternal risk factors

- Viral load
- Degree of immunosuppression
- Presence of infectious disease
- Vitamin A deficiency and poor nutritional status

Diagnosis

Detection of HIV antibodies in serum/plasma is the mainstay of HIV diagnosis.

- ELISA, RIA, simple and rapid tests are available.
- Newer recommendations by CDC recommends HIV antigen (viral p24 core antigen) and HIV nucleic acid(HIV RNA,DNA PCR)testing with antibody testing to improve the efficacy.[6]

Anti-retro viral therapy

As per recent guidelines by WHO (2013) NACO has decided to provide lifelong ART for all pregnant and breast feeding women. From January 2014 all pregnant women living with HIV receive a triple drug ART regimen.

Tenofovir (TDF 300 mg)+lamivudine (3TC, 300 mg)+efavirenz (EFV600 mg).[2]

For new-born the guidelines are

- If weight >2.5 kg, 1.5 ml nevirapine syrup is given daily till 6 weeks whether exclusively breastfed or exclusively replacement fed.
- If weight is between 2 to 2.5 kg dose is 1ml and for <2 kg weight syrup dose is 0.2 ml/kg.
- When replacement feeding is acceptable, affordable, sustainable and safe HIV infected mother should avoid breast feeding, if not then exclusive breastfeeding for 4-6 months. mixed feeding should not be given and weaning should be abrupt.[7]

The objective of this study was to study the perinatal outcome in HIV positive women and to study the presence of infection in new-born. And to study the complications in perinatal period which lead to mortality?

METHODS

- This is a retrospective study done from august 2013 to September 2015 in civil hospital B.J. Medical College Ahmedabad.
- HIV positive women taking visits in antenatal pod or outside and delivered in study time are included.
- The identity of women was not disclosed.
- Total 106 women were delivered among them 27 cases were lost to follow up and of 14 cases results of DNA PCR done at 6weeks is awaited.
- So total 65 cases were followed up falling under study time.
- The test used for detection of HIV status of new-born was DNA PCR done at 6weeks which is a preliminary testing.
- All new-born were given nevirapine syrup for 6weeks.
- All mothers were counselled regarding exclusive breastfeeding.
- CD4 count is done in all HIV positive antenatal women attending antenatal pod.
- After the newer guidelines of WHO regarding ART for HIV positive antenatal women, in our institute ART in the form of (TLE) was started in all antenatal women irrespective of CD4 count.

RESULTS

Table 1: Perinatal outcome.

Perinatal outcome	No. of patients
Total deliveries	65
Still births	02
Total live birth	63
Neonatal deaths	09
Total live birth followed	52

Among 65 deliveries, 82.53% (52) were healthy and followed up and neonatal deaths accounts for 14.28%.

Table 2: Outcome according to birth weight.

Birth weight	No. of patients
Full term	58
Pre term	3
Small for gestational age	2
Total	**63**

Maximum 92.06% were full term and appropriate for gestational age.

13.04% neonates expired among caesarean deliveries and the percentage among normal deliveries is 15.78%. Caesarean section in our institute in HIV positive women are done for obstetric indications (not electively).

Table 3: Distribution of cases according to mode of delivery.

Mode of delivery	No. of patients	Neonatal deaths
Normal vaginal delivery	46	06
Caesarean delivery	19	03
Total	**65**	**09**

Table 4: Distribution of cases according to duration of NICU admission.

Duration of NICU admission	No. of patients	Percentage
2 Days	46	88.46
2-5 Days	05	9.61
>5 Days	01	1.92
Total	**52**	

Table 5: Distribution of cases according to cause of perinatal morbidity.

Cause of morbidity	No. of newborns
Low birth weight	
IUGR	1
Sepsis	1
Hypoxic ischemic encephalopathy	1
Jaundice	1
Birth asphyxia	2
Total	**6**

Table 6: Treatment given in NICU.

Disease entity	Treatment given
Hypoxic ischemic encephalopathy	Inj. gardinal, inj. eptoin, higher antibiotics, inj calcium gluconate, inj. IV fluids.
Sepsis	Higher antibiotics (inj. piperacillin tezobactam)
Jaundice	Phototherapy
IUGR and birth asphyxia	Kept nil by mouth and feeding started gradually.

Table 7: Cause of perinatal mortality.

Cause	No. of patients	Percentage
Hypoxic ischemic encephalopathy	4	36.36
Early onset septicemia	2	18.18
Late onset septicemia	2	18.18
Pyogenic meningitis	1	09.09
Severe birth asphyxia	1	09.09
HIV positivity	1	09.09
Total	**11**	

Most common cause of mortality is hypoxic ischemic encephalopathy. Second leading cause is septicaemia.

Table 8: Distribution of cases according to result of DNA PCR done at 6 weeks.

Results of DNA - PCR	No. of patients
Positive	1
Negative	51
Total live	**52**

Table 9: Relation of neonatal mortality with antenatal CD4 cell count.

Maternal CD 4 cell count	No. of antenatal women	No. of neonatal death	Percentage
<200	10	4	40
>200	55	7	12.72

Among those women who have CD4 cell count <200, 40% neonates expired and those with >200 CD4 cell count 12.72% neonates expired.

Table 10: Distribution of neonatal deaths with respect to patient's antenatal visits in civil hospital.

Institutes in which visits were taken	No. of neonatal deaths
In civil hospital	2
In outside health centre	3
Diagnosed in emergency	4
Total neonatal deaths	**9**

Above table shows that maximum neonatal deaths occurred when the women diagnosed at the time of labour and was not any treatment.

DISCUSSION

Total 65 cases were delivered and among them 82.53% (52) were live and followed up, 14.27% (9) were expired in early neonatal period and 2 were still birth suggesting that maximum new-borns were healthy. Among 63 live births, 92.06% were full term and appropriate for gestational age and rest 7.94% were preterm and small for gestational age. If we study the effect of mode of delivery on the perinatal mortality significant difference was not found among vaginal delivery and caesarean delivery as in our institute caesarean section in HIV positive women is done for obstetric indication.

Total 52 live birth (excluding still birth and early neonatal deaths) 88.46% (no =46) were healthy and kept in NICU for1-2 days for observation and for nevirapine syrup. 9.61% (no=5) were kept for 3-5 days and 1.93% (no=1) kept in NICU for more than 5 days.

Those new-borns who were admitted for more than 2 days in NICU 50% were low birth weight and among them the causes of morbidity were IUGR, sepsis and hypoxic ischemic encephalopathy each constituting 33.33%. Rest 50% new-borns were appropriate for gestational age and among them most common cause of morbidity was birth asphyxia 33.34% and rest was due to jaundice16.66%.

Those neonates who were diagnosed with hypoxic ischemic encephalopathy and presented with seizure injection cardinal and eptoin with higher antibiotics and calcium glucometer was given, for septicaemia higher antibiotics given and for jaundice photo therapy was effectively started.

Hypoxic ischemic encephalopathy is the most common cause of mortality accounting 36.36% neonatal deaths. Second most common cause is early and late onset septicaemia leading to cardiorespiratory failure. Other significant contributors to mortality were pyogenic meningitis and severe birth asphyxia (each accounting 09.09%). HIV positivity in new-born leads to mortality in one case.

As per the newer WHO guidelines implemented from 2013 for initiation of ART in all antenatal women CD4 cell count has improved leading to decreased neonatal mortality.

DNA-PCR done at 6 weeks was positive for only one new-born predicting the benefits of early initiation of ART antenatal and nevirapine syrup to all newborns up to 6 weeks and better NICU facility.

In this study maximum neonatal deaths occurred in those cases where the women didn't take any antenatal visit and presented first time during labour.

CONCLUSION

- Hypoxic ischemic encephalopathy emerges as the leading cause of mortality and morbidity. Infant may manifests motor abnormalities, cognitive dysfunction and developmental delay. Risk increases with high viral load and early age at infection of mother.
- Better counseling provided by PPTCT Centre and ICTC centre in our hospital and initiation of ART irrespective of CD4 count and continuing lifelong are the backbone of improved perinatal outcome.
- Early initiation of nevirapine syrup and continuing up to 6 weeks by proper counselling of the mother and better NICU facility have led to the outcome that maximum new-born were healthy and full term.
- On the basis of 6 weeks DNA PCR only one case diagnosed positive predicting good perinatal outcome.

ACKNOWLEDGEMENTS

Authors would like to thanks to his post graduate guide Dr. T. M. Shah sir for his valuable guidance and time for making this study successful. Authors also want to thanks our PPTCT centre that has cooperated with me and for sharing the records and knowledge.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

REFERENCES

1. Ezechi OC, Gab Okafor CV, Oladele DA, Kalejaiye OO, Oke BO, Ohowodo HO, et al. Pregnancy, obstetric and neonatal outcomes in HIV positive Nigerian women. Afr J Reprod Health. 2013;17(3):160-8.
2. Prevalance of HIV infection in antenatal women according to NACO technical estimate report Available at http://www.naco.gov.in/NACO/National_AIDS_Control_Program/Services_for_Prevention/PPTCT/.
3. Sexually transmitted diseases; Cunnighams FG, Levono KJ, Bloom SL, Hauth JC, Rouse DJ, Spong CY eds, Williams's obstetrics 23rd edition McGraw Hill; 2010:1246-1247.
4. Sexually transmitted diseases; Cunnighams FG, Levono KJ, Bloom SL, Hauth JC, Rouse DJ, Spong CY, Williams's obstetrics 23rd edition McGraw Hill; 2010:1248.
5. HIV in pregnancy. Available at www.unaids.org/sites/default/files.
6. Centre for disease control and prevention and association of public health laboratories. Laboratory testing for the diagnosis of HIV infection: updated recommendations, 2014. Available at http://stacks.cdc.gov/new/cdc/23447.
7. Guidelines for breastfeeding in HIV positive women Available at http://www.who.int/bulletin/volumes/88/1/10-030110/en/.

Cite this article as: Gautam S, Shah T. Study of perinatal outcome in human immunodeficiency virus positive women. Int J Reprod Contracept Obstet Gynecol 2016;5:2587-91.