

## Efficacy of TLE Regimen in Prevention of Mother to Child Transmission of HIV

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### Abstract:

**Aim:** To Evaluate the efficacy of TLE regimen in prevention of mother to child transmission of HIV. **Method:** All women who tested positive for HIV and delivered between August 2013 to May 2015 were included in the study and was started on TLE regimen (Tenofovir 300mg, Lamuvidine 300mg, Efavirenz 600mg) at the earliest AN visit, and continued thereafter lifelong. The baby was started on syrup Nevirapine 2mg/Kg for 6 weeks of life and 12 weeks if the mother was started on ART later than 12 weeks of gestation. The infants were tested for HIV with PCR at 6 weeks, 6 months, 12 months and 18 months. **Results:** Of the 91 live births, 6 infants died in the neonatal period. Of the 74 babies followed up 5 tested positive for HIV and 69 were negative. The transmission rate of HIV was 6.7% and the efficacy of TLE regimen was 93.2%. **Conclusion:** The risk of transmission of HIV from mother to child had declined with the use of combination ART and the emergence of drug resistance was reduced.

**Keywords:** ART, PPTCT, TLE regimen, Nevirapine

### I. Introduction

India has an estimated HIV prevalence of 0.26% in adults and 6.54% in children less than 15 years [1]. Mother to child transmission remains the second commonest mode of transmission of HIV. Women account for around one million out of 2.5 million estimated number of people living with HIV. The seroprevalence of HIV in pregnant women attending public hospital were reported to be 0.5-3.3% in this country [2]. The rising prevalence of HIV among pregnant women in India is of concern, Perinatal transmission accounts for about 4% of total HIV infection in India [3]. Early testing of Antenatal mother, administration of antiretroviral therapy, institutional delivery, follow up and administration of ART to the infant and contraception are critical for prevention of mother to child transmission of HIV.

### II. Methods

Women who delivered at Government Coimbatore Medical College hospital between August 2013- May 2015 and tested positive for HIV were included in the study. All patients were counseled and started on TLE regimen (Tenofovir 300 mg, lamuvidine 300mg, Efavirenz 600mg) on registration at the AN clinic and continued throughout pregnancy, postpartum and lifelong thereafter. Infant was given syrup nevirapine 2mg/kg and continued for 6 weeks if the mother was started on ART within 12 weeks of gestation. If the ART was started more than 12 weeks of gestation nevirapine continued upto 12 weeks of life. LSCS was done for obstetric indications. Mother counseled advised on choice of alternative feeds and breast feeds. Infants were tested with PCR for HIV at 6 weeks, 6 months, 12 months and 18 months of life.

### III. Results

The total deliveries occurred in the period between August 2013 and May 2015 was 11,635. Of those women who tested positive for HIV and delivered during the same period was 91. The incidence of HIV in pregnant mothers was 0.7%. The spouse of patients were counseled and tested for HIV. Of which 66 (72.5%) tested positive, 18 (19.7%) were negative, 7 (7.6%) were not tested.

The youngest women tested positive for HIV was aged 17 years and eldest was 38 years. The mean age of the study group was 24.9 years with majority belonging to the age group between 21 to 25 years. The average weight of infants delivered was 2.4 kg. Of the 91 delivered, 51 (56%) was by LSCS and 40 (43.9%) by vaginal delivery. Of the 91 live births, six babies died in the neonatal period. Three were due to Low birth weight and RDS, 2 were due to ADD, in one the cause was not known. Since these women hailed from various districts, and shifted to their native places 11 babies lost follow up. Out of the 74 infants followed, 5 tested positive for HIV and 69 tested negative at the end of 18 months. Of the 5 positive infants, 2 tested positive at 6 weeks, 2 at 6 months and 1 at one year of age. 69 babies were found to be negative.

#### IV. Discussion

Mother to child transmission of HIV can occur in antenatal especially in the later part of pregnancy, intrapartum and postpartum. The prevalence of HIV in antenatal women has been used to monitor trends in the general population and to predict the seroprevalence in young children [4]. The pregnant women should be offered universal screening because appropriate interventions with early initiation of ART can reduce mother to child transmission (MTCT). Intrapartum events are important in governing MTCT since this is the period where the risk is highest.

The use of combination ART avoids the problem of low efficacy and emergence of higher rates of viral resistance associated with the use of single dose nevirapine [5]. Highly active antiretroviral therapy (HAART) has reduced the vertical transmission rates to around 1- 2 % [3]. Combination ART are well tolerated except few GI side effects, hyperglycemia, elevated transaminases.

Our study had an efficacy of 93.7% in prevention of vertical transmission of HIV since the administration of TLE regimen to the AN mother was started in early pregnancy and continued postpartum along with syrup nevirapine to the baby. The transmission rate of HIV in our study was 6.4%. The HAART therapy has reduced the MTCT to 1.2% [7]. There is a risk of LBW infant and preterm birth, IUGR with combination ART. The mean weight of infants in our study group was 2.4kg.

Breastfeeding is an important route of HIV transmission from mother to child which accounts for up to 20% but where safe feeding alternatives are not available, finding ways to avoid transmission through breast feeding remains an issue of critical importance [6]. Of the 91 infants 67 were breast fed and 7 were on alternative feeds. Of the 5 infants tested positive 3 were on alternative feeds and 2 on breast feeds. Triple drug ART throughout pregnancy and syrup nevirapine for the infant postpartum makes breast feeding safe and feasible in a low resource-limited setting.

#### Tables

**Table 1.** Distribution of HIV positive mother according to age

Range of age in years	No of mothers
>20	6
21 – 25	53
26 – 30	21
31-35	9
>35	2

**Table 2.** Rate of transmission of HIV and Efficacy of multidrug ART:

No of infants followed up	No of infants tested positive	No of infants tested negative	Perinatal transmission	Efficacy of Multidrug ART
74	5	69	6.7%	93.2%

**Table 3.** Cause of Neonatal Death

Cause of death	Number
Acute diarrheal disease	2
LBW/Preterm/RDS	3
unknown	1

**Table 4.** Characteristics of HIV positive babies

Infant	Mode of delivery	Feeding practices	Spouse status	GA at start of ART in weeks
1	Vaginal	alternative	Reactive	12
2	Vaginal	alternative	Non reactive	24
3	Vaginal	Breast feeding	Not tested	18
4	LSCS	Breast feeding	Reactive	11
5	LSCS	alternative	Reactive	12

**Table 5.** Mode of delivery of followed up infants

Mode of delivery	Non reactive infants		Reactive infant	
	Number	%	Number	%
LSCS	49	66.2	2	4.08
Vaginal	37	50	3	8.1

#### V. Conclusion

### **Conclusion**

It is indeed ironical 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 women 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.

In spite of possible increased risk of preterm birth and Low birth weight babies, combination ART in pregnant women clearly shows clear benefits for maternal health and reduction in perinatal transmission. The tide of emerging drug resistance is reduced with combination ART compared to single dose nevirapine. The management of the pregnant woman with HIV infection has evolved significantly over the past years in light of advancements 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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