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Original Research Article

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The outcome of exclusive breast feeding in infants born to HIV positive mothers on ART under SISU RAKSHA program, Bapuji child health institute, Davangere

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ABSTRACT

Background: Under SISU RAKSHA program (a joint initiative by SAATHII, not-for-profit organization and Bapuji child health institute, Davangere) the HIV positive pregnant mothers are enrolled, counseled and motivated during pregnancy, childbirth and breastfeeding to adhere to antiretroviral therapy (ART) and exclusive breastfeeding (EBF) to reduce mother to child transmission of HIV. Objective is to study the outcome of EBF on infants born to HIV positive mothers on ART under SISU RAKSHA program, with Outcome variables: HIV seroconversion, Growth status, Health status.

Methods: 86 infant born to HIV positive mothers who completed 18 months follow up were included in the study. A prestuctured proforma was used to collect information about ART adherence, infant feeding practice, HIV seroconversion, growth and health status.

Results: The HIV seroconversion of children on EBF among ART adherent mothers, 94.2 % (66/70) were non-reactive at 18th month follow up and 4.28% (3/70) were reactive. 92.8% (65/70) children growth were normal at 18th month follow up and 5.6% (4/70) were under weight and had recurrent infections. All these observations were statistically significant according to Fisher's exact test.

Conclusions: The rate of mother to child transmission of HIV and rate of other infections among children born to HIV positive mothers is reduced and growth is normal if the mother is adherent to EBF & ART. HIV positive mothers are regularly counseled and motivated to do so under the program. Therefore the SISU RAKSHA program is very effective program for prevention of mother to child transmission of HIV.

Keywords: Exclusive breast feeding, ART, PPTCT

INTRODUCTION

The transmission of HIV (Human Immunodeficiency Virus) from an HIV-positive mother to her child during pregnancy, labour, delivery or breastfeeding is called mother-to-child transmission. In the absence of any interventions transmission rates range from 15-45%. This rate can be reduced to levels below 5% with effective interventions during the periods of pregnancy,

labour, delivery and breastfeeding. These interventions primarily involve antiretroviral treatment for the mother and a short course of antiretroviral drugs for the baby. They also include appropriate breastfeeding practices. The immediate and long-term benefits of breastfeeding have been well known. There is clear evidence to show that HIV is transmitted through breast milk and the risk of vertical transmission by this route is estimated to be about 15% for women with established infection.²

Accordingly, in 1992, the World Health Organization (WHO) made recommendations on breastfeeding based on whether infectious diseases and malnutrition were or were not the primary causes of infant deaths among populations; in developing countries HIV-infected women were encouraged to continue breastfeeding.³

Under National AIDS control program phase II (1999-2006), objective was to bring zero transmission rates of HIV by the year 2007. Under this the pregnant women with HIV receive HAART (highly active anti retroviral therapy) during pregnancy, childbirth breastfeeding and Babies born to women with HIV receive ARV (Antiretroviral) prophylaxis i.e. Nevirapine syrup for 6 weeks after birth to reduce the risk of motherto-child transmission of HIV.4 Similarly under SISU RAKSHA program (a joint initiative by SAATHII, notfor-profit organization and Bapuji child health institute, Davangere), HIV positive pregnant mothers are enrolled, counseled and motivated during pregnancy, childbirth and breastfeeding to adhere to ART (Antiretroviral Therapy) and EBF (Exclusive Breast Feeding). Therefore there is a need to study outcome of mother and their infants enrolled under this program.

Objective

To study the outcome of EBF on infants born to HIV positive mothers on ART under SISU RAKSHA program. Outcome variables: HIV seroconversion, Growth status, Health status.

METHODS

Selection of patients

Data was derived from a hospital based, cohort study from a cohort of 86 infants born to HIV positive mother on ART. The study was conducted at Bapuji Child Health Institute, J.J.M. Medical College, Davangere, Karnataka. The hospital caters to the local population and is the referral hospital for the neighboring districts.

Study period From Jan to Dec 2014. Women attending the hospital's antenatal clinic for the first time during pregnancy were selected and given counseling on HIV infection and tested after obtaining informed consent. The acceptance rate was over 100%. The incidence of HIV infection in pregnant women was 0.002% during the study period. The pregnant women who were HIV positive were enrolled under SISU RAKSHA program and under this program were given effective and repeated counseling regarding adherence to ART and EBF.

Live born infants of HIV positive women were included into the study with maternal permission. All infants were examined within 48 h of birth and measurements taken of length, weight, and head circumference. The infants were followed up at 6 weeks, 10 weeks, 14 weeks, 6 months, 9 months, 1 year, 15 months & 18 months of age. At each

visit, a detailed clinical examination was performed and growth measurements taken.

All mothers were encouraged for exclusive breastfeeding. Method of feeding was recorded in detail and mothers were counseled to adhere to breastfeeding on every visit. Mothers were advised to give EBF up to 6 months and continue breast feeding up to 1yr along with complementary feeding.

Feeding method was defined as: exclusive breastfeeding, where the child was on breast-feeds from birth (these infants received no supplementary milk feeds) and mixed feeding, where the child who receiving both formula feeds and breast milk.

Mothers were counseled and followed up for adherence to ART. Adherence to at least 95 % of doses is necessary to maximize the long-term benefits of ART. Adherence is assessed by recall method: asking how many doses missed in last 3 days. The infants received antiretroviral therapy for 6wks after birth and cotrimoxazole syrup thereafter during the course of the study. Compliance to Nevirapine syrup and co-trimoxazole was enquired.

IAP chart on length, weight and head circumference for boys/girls from 0-36 months was used to assess the growth status of the child.

Diarrhoea, pneumonia, and otitis media were chosen as morbidity outcomes because these are the infections that breastfeeding appears to prevent in non-HIV-infected populations, and because diarrhoea and pneumonia are the common causes of morbidity and mortality in Indian infants and children. The following criteria were used to define morbidity: diarrhoea, three or more episodes of loose stool per day, present for at least 3 days; pneumonia, the presence of tachypnoea and crackles and/or radiological changes; otitis media, inflammation of the eardrum or a purulent discharge from the ear.

All infant underwent:

- 1st HIV DNA PCR at 6 weeks
- 2nd HIV DNA PCR at 6 months
- 3rd HIV DNA PCR at 1 year of age or 6 weeks after cessation of breastfeeding.
- Rapid test for antibodies was done at 18 months

Infants were regarded as infected if they were antibody positive on or before 18 months follow up. They were classified as non-infected if the antibody test was negative at 18 months of age. Those infants who were lost to follow-up before the age of 18 months and those who died before 18 months follow up, were classified as indeterminate. Infant if positive referred to ART centre.

Mothers who fail to come to follow up were reminded through telephone call initially. If they don't respond, home visits were made by PPTCT counselors. Complete professional confidentiality was maintained throughout the study period.

Unbooked deliveries, pregnant women on monotherapy, babies who fail to complete 18 months follow up for various reasons and mothers who refused to be included in the study were excluded.

Statistical methods

A prestuctured proforma was used to collect information about ART adherence, infant feeding practice, HIV seroconversion, growth and health status of the child from 86 HIV positive mothers attending PPTCT OPD. The information was compiled and analysed by applying Fisher's exact qualitative test.

RESULTS

Mean age of the mothers attending PPTCT centre was 25.1±4.6 years (Range 18-38years) and mean birth weight of baby born to HIV positive mother on ART 2.67±0.49 Kgs (Range 1-4Kgs). Most of the mothers (36%) had secondary level of education and were Home makers (81%). Majority of the mothers (40%) belonged to Class IV SES according to modified B G Prasad classification 2016 as shown in Table 1.

About 81% (70/86) of mothers were adherent to ART and EBF according to the guidelines (Figure 1). The HIV seroconversion of children on EBF among ART adherent mothers, 94.3% (66/70) were non-reactive at 18th month

Table 1: Soc	io demographic	profile of HIV	positive mothers.

Variables	Category	Frequency	Percentage
Education	Illiterate	15	17.4
	Primary	21	24.4
	Secondary	33	38.5
	Pre-university	13	15.1
	Degree	4	4.6
	Unemployed (H.W)	72	83.7
	Unskilled	9	10.5
	Semi-skilled	2	2.3
	Skilled	1	1.2
Occupation	Semi professional	2	2.3
	Professional	-	0
Socio economic status	I	3	3.5
	II	7	8.1
	III	20	23.2
	IV	35	40.7
	V	22	25.5

follow up and 4.2% (3/70) were reactive (Figure 2). The growth and health status of children who were on EBF among ART adherent mothers, 92.9% (65/70) children growth were normal at 18th month follow up and 5.7% (4/70) were under weight and had recurrent infections. All these observations were statistically significant according to Fisher's exact test.

DISCUSSION

Mother-to-child transmission (MTCT) of HIV represents the most common means by which children acquire HIV infection in over 90% children. The corner stone of reduction of transmission is an effective PPTCT programme. According to the WHO report 2009, "Towards universal access: scaling up priority HIV/AIDS interventions" in the health sector, significant progress in the area of PMTCT has been made during the past several years, but still lots to be done⁵. In India, of the estimated 1.8–2.9 million people living with HIV, 39% are

women⁶. According to UNICEF 'National programme targets' by 2012, 80% of HIV positive pregnant women will be reached by PMTCT services⁷. In our study, all the pregnant mothers reported for antenatal checkup were given pre-test counseling and screened, period prevalence of HIV positive among pregnant mothers 0.002% 2015, as against 0.27% reported by NACO in 2011⁷. All the mothers diagnosed HIV positive were enrolled under SISU RAKSHA programme, given triple drug combination antiretroviral therapy and all the infants were started on antiretroviral prophylaxis, counseled, motivated and closely followed up. As a result of this comprehensive PPTCT programme, among 86 HIV exposed babies, three infant found to be HIV positive and rate of perinatal transmission at our center was 4.2%, which is comparable with similar studies in the developed countries⁸.

Out of 86 infant on regular follow up, 70 (81%) mothers in our study were adherent to ART and EBF and all

infants were given single dose of nevirapine syrup for 6 weeks and there after cotimoxazole syrup. Study conducted by Kouanda et al and Chama et al confirms that HAART for mothers effectively reduces the risk of infant HIV infection while preserving the breastfeeding option of mothers. 9,10

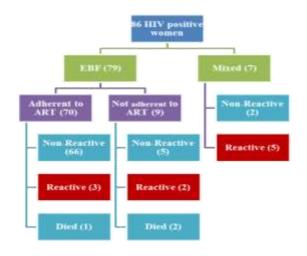


Figure 1: HIV seroconversion in infants born to HIV positive mother on ART and breastfeeding.

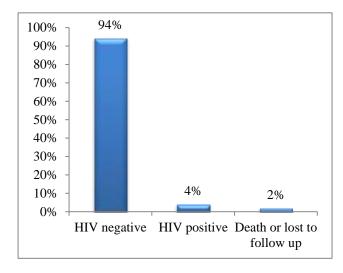


Figure 2: Percentage of HIV positive seroconversion of children born to HIV positive mother on ART at 18th month follow up.

All the babies were singletons, 82 (95.3%) born at term with an average birth weight of 2.67 ± 0.49 Kgs is comparable with similar study done by Mukhtar-Yola in Nigeria. ¹¹

With the implementation of new WHO guidelines on infant feeding practices in HIV positive mothers, mother-to-child HIV transmission risk can be reduced to 5% or lower in a breastfeeding population, from a background transmission risk of 15-45% in the absence of any interventions and with continued breastfeeding as mentioned earlier. In our study group of 91.8% opted for exclusive breastfeeding and were adherent to it and 8.2%

resorted to mixed feeding due to poor literacy and not enough motivation from family. On follow up, mothers were advised to continue infant ARV prophylaxis and switch over to complementary feeding. On follow up screening, three infants were found to be positive. Complete avoidance of breastfeeding is efficacious in preventing MTCT, but this intervention has significant associated morbidity (e.g., diarrheal morbidity if formula is prepared without clean water). In our study, The HIV seroconversion of children on EBF among ART adherent mothers, 94.3% (66/70) were non-reactive at 18th month follow up and 4.2% (3/70) were reactive. The growth and health status of children who were on EBF among ART adherent mothers, 92.9% (65/70) children growth were normal at 18th month follow up and 5.7% (4/70) were under weight and had recurrent infections. All these observations were statistically significant according to Fisher's exact test.

CONCLUSION

The rate of mother to child transmission of HIV and rate of occurrence of other infections among children born to HIV positive mothers is reduced and growth is normal if the mother is adherent to ART & EBF. Therefore the SISU RAKSHA program is very effective program for prevention of mother to child transmission of HIV.

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Ethical approval: The study was approved by the

Institutional Ethics Committee

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