EXCLUSIVE BREASTFEEDING AND REPKACEMNT FEEDING ONMORBIDITYAND MORTALITY IN HIV EXPOSED INFANTS AT ONE YEAR AGE IN TIKUR ANBESSA SPECIALIZED HOSPITAL.

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ABSTRACT

Background: *Infant feeding in the context of HIV is complex because of the major influence that feeding practices and nutrition have on child survival. The dilemma has been to balance the risk of infants being exposed to HIV through breastfeeding with the risk of death from causes other than HIV if infants are not breastfed.*

Objective: *To compare the effects of exclusive breast feeding (EBF) and exclusive replacement feeding (ERF) on morbidity and mortality in HIV exposed infants at one years of age at Tikur Anbessa Specialized Hospital from 2007 to 2010.*

Material and methods: *A retrospective cross sectional study was conducted at Tikur Anbessa Hospital ,pediatric infectious disease clinic on all infants who were exposed to HIV and having a follow up from 2007 to 2010 and 116 infants qualify the inclusion criteria. The data was collected from exposed infant follow up chart and examined for the following variables: Infant feeding option, the prevalence of malnutrition, incidence of diarrheal disease, risk of HIV transmission. The data was cleaned and compiled and analyzed using SPSS version 17.The results was expressed in description, rate and tables and then interpreted, analyzed and association was made for different dependent and independent variables.*

Result: *A total of116 HIV exposed infants were included in the study. The male to female ratio was 0.78 and the mean age of enrollment to the care was 1.8 months. The maternal PMTCT coverage was 32.7% and neonatal PMTCT coverage was 85.3%, neonatal PMTCT coverage was associated with decreased risk of HIV infection at one year. The prevalence of exclusive breast feeding (EBF) and exclusive replacement feeding (ERF) was 56% and 44% respectively. The mean diarrheal incidence was 3.54 per child per year and ERF was shown to have increased risk of diarrheal episode. Prevalence of marasmus and underweight at one year of ager was found to be 10.3% and 27.6 % respectively. The risk of HIV infection at the age of one was 12.2%.and it was not associated with the method of feeding.*

Conclusion and recommendation

As recommended by most of the studies in developing countries and WHO , our study has also shown high incidence of diarrhea in exclusively replacement feed infants and comparable cumulative HIV prevalence at one year in both options of infant feeding in the context of HIV exposure, thus It is imperative to conclude that exclusive replacement feeding is associated with high prevalence of diarrheal disease at one year . However it's the conviction if the authors that if AFASS is fulfilled the option could be given to the mother for exclusive replacement feeding.

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Introduction

According to Global Summary of the HIV/AIDS Epidemic December ,2010 (AIDS epidemic update) HIV/AIDS has created an enormous challenge to mankind since its recognition; about 32.8 million people were living with HIV, out of which about 2.5 million were children under 15 years of age. Of these children, 90% live in sub-Saharan Africa(1)

In Ethiopia the estimated number of people living with HIV (PLHIV) in 2009 was about 1.1 million Of which, 72,945 (6.6%) were children <15 years old and total AIDS Orphans are about 855,720. (Ref MOH REPORT 2009) Mother-to-child transmission is the primary mode of HIV acquisition in children accounting for about 90%of cases. Therefore, the most efficient and cost-effective way to tackle pediatric HIV globally is to reduce mother-to-child transmission (MTCT). (2)

Each year, HIV Infects an estimated 800 000 children, mainly because of transmission from mother to child during pregnancy, delivery, or breastfeeding. Most of these infections could be prevented through the use of antiretroviral drugs taken during pregnancy and delivery and the avoidance of breastfeeding. However, the use of breast milk substitutes also brings mortality risks that need to be balanced against the risk of HIV transmission. The balance of risks depends on local conditions and should be examined for each situation. For the mother who is HIV-negative or who does not know her status, breastfeeding continues to be recommended. For the mother who knows she is infected and for the health worker advising her, the risks associated with different infant feeding strategies need to be understood.(3)

It is well established that infants breast-fed by their HIV-infected mothers are at risk of acquiring HIV infection through breast milk. However, in low resource settings where the HIV epidemic predominates, breast-feeding cannot simply be replaced by breast milk substitutes since alternatives to breast milk are unavailable, unaffordable, and unsafe. As a result, breast-feeding poses a dilemma for women who live in low-resource settings and who are infected with the human immunodeficiency virus (HIV). Breast -feeding can transmit HIV but is also the source of optimal nutrition and protection against other serious infectious diseases(4).

Infant feeding option in the context of HIV infection in our setting is still controversial and the out come of this infant is not well known. This study is conducted to evaluate the out come of HIV exposed infants in two different categories(EBF and ERF) at Tikur Anbessa Specialized Hospital department of pediatrics and child health .

Methods and Material

Study area

Addis Ababa, capital and largest city of Ethiopia. It is situated in central part of Ethiopia at an altitude of about 2440 m (about 8000 ft) above sea level. Tikur Anbessa Specialized Hospital is the largest government hospital of the city and the country as a whole. It is the main teaching hospital of AAU for undergraduate and post graduate medical students. In addition to teaching, the hospital gives both inpatient and outpatient services to children referred mainly from Addis Ababa and all over the country. The Pediatric infectious disease clinic at Tikur Anbessa Hospital has been giving care for HIV exposed infants since its establishment in 2007 for a total of 494 infants. So this study will be done at PIDC at Tikur Anbessa Hospital.

Retrospective cross sectional descriptive study by chart reviewing from year 2007 to 2010.. All HIV exposed infant who have follow up at PIDC of Tikur Anbessa

Hospital in the study period.The total of 116 exposed infants were included in the study from the total 374 who qualify the inclusion snd exclusion criteria.Data was collected by trained data collector by standardized questionnaires. Each card was given a specific identity , the required information was recorded on the questionnaires.Data was cleaned, and analyzed using SPSS version 17 . The results were expressed in description, rate and tables and statistical association was made.Ethical clearance was obtained from Department Research and Publication Committee(DRPC)and the Institutional Review Board (IRB) of the college of health sciences, and all the information on the chart were confidentia

Results

A total of 116 HIV exposed infant were included in the study ,of these 51(44%) were male,65(56%) were female with male to male ratio of 0.78.The mean infant birth weight was 2646gram,with a range of 1000-4000 gram . The mean age of enrollment in the care was 1.81 months.As shown in table 1, 113 (97.4%) mothers of the HIV exposed infants were alive and 3(2.6%) mothers were dead during enrollment in to the care. Almost half 59(50.9%)of mothers of exposed infants were on HAART. Thirty eight (32.7%) of mothers were on PMTCT. The neonatal PMTCT coverage was 99(85.3%)and it is statistically associated with outcome of HIV prevalence at one year.($p<0.05$)

Infant DNA PCR tests were positive in 102(87.9%) of the exposed infants and the rest 14(12.1%) were negative for the HIV DNA PCR test. With regard to HIV antibody test 102(87.1%) were negative and the remaining 15(12.9%) were positive.

In the first six month 65(56%) were on exclusive breast feeding and the rest 51(44%) were on exclusive replacement feeding. Option of feeding after six months were categorized as continued replacement feeding, continued breast feeding with complementary feeding ,and breast feeding discontinued with supplementary feeding ,having frequency of 42.2%,14.7% ,and 43.1% respectively as shown table 2.

The mean diarrheal incidence per year were found to be 3.54 and it was statistically related with the option of feeding in the first six months indicating infants on ERF have increased incidence of diarrhea.($p<0.05$)and the mean annual clinical visit of 7.3 per child.

As shown in Figure 1 , Anthropometric assessment at the age of six month ,sixteen(13.8 %) were marasmic , 25(21.6%) were under weight and 76(65.5%) were normal according to Welcome classification. The prevalence of stunting was 16(13.8 %) based on NCHC growth curve. Nine patients (7.9%) had head circumference below -2SD. And the one year anthropometric evaluation showed prevalence of marasmus to be 12(10.3%) , Sever stunting 17(14.7%) and fourteen(12.1%) had head circumference less than-2SD. Option of feeding was not statistically associated with anthropometric findings .($p>0.05$)

The outcome regarding HIV infection status at one year were found to be positive in14(12.1%) and negative in 102(87.9%) ,and there was no statistically significant association between the EBF and ERF group having HIV positive prevalence of 8(12.3%) and 6(11.7%) respectively.($p<0.05$)

Table - 1 Distribution of variables in HIV exposed infants at Tikur Anbessa specialized hospital

Variable		frequency	Percent
Sex	male	51	44%
	Female	65	56%
Maternal living status	alive	113	97.4%
	Dead	3	2.6%
Maternal HAART status	no	59	50.9%
	HAART<1 month	1	0.9%
	HAART>1 month	56	48.3%
Maternal PMTCT	no	78	67.3%
	PMTCT <1 month	10	8.6%
	PMTCT>1 month	28	24.1%
Infant PMTCT	no	17	14.7%
	Incomplete	2	1.7%
	Complete	97	83.6%
Infant DNA PCR	negative	102	87.9%
	Positive	14	12.1%
Feeding option	EBF	65	56%
	ERF	51	44%
Infant Hiv infection	Negative	102	87.9%
	Positive	14	12.1%
Infant weight at 1 year	<60%	12	10.3%
	60-80%	32	27.6%
	>80%	72	62.1%
	Total	116	100%

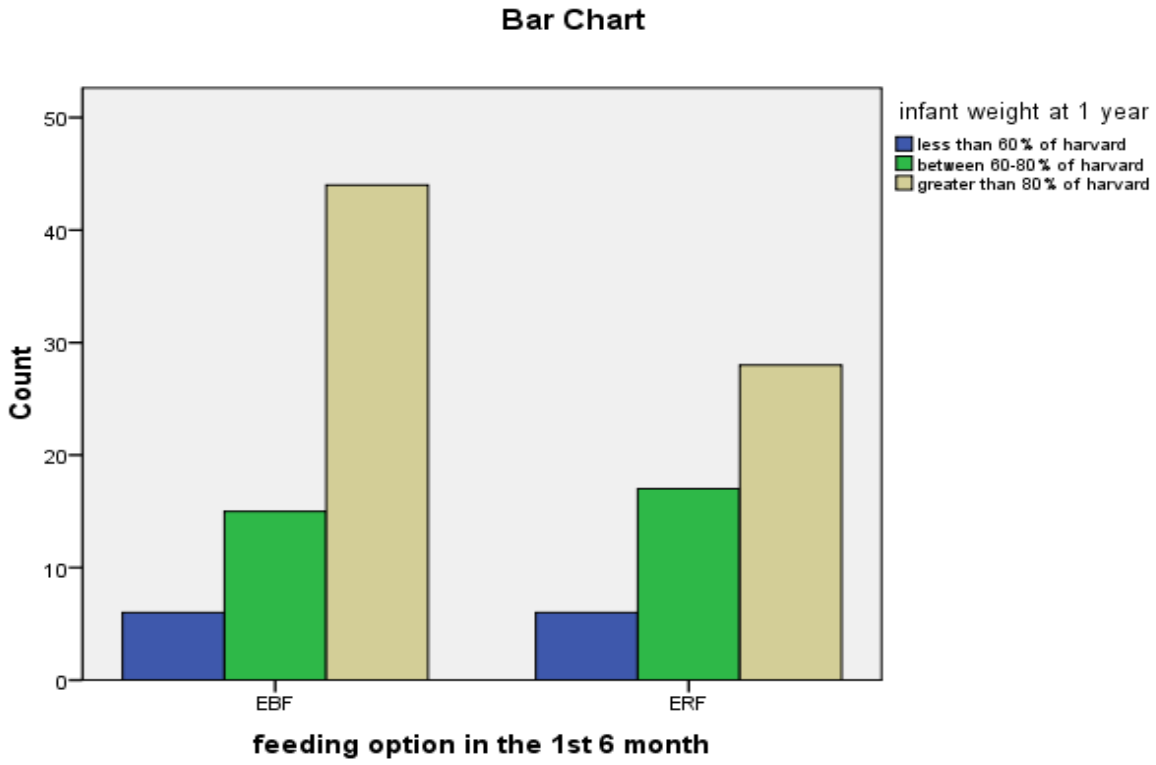
Table -2 Infant Feeding option versus weight, diarrheal disease and HIV infection in HIV exposed infants in Tikur Anbessa specialized hospital

variable	Infant feeding option		P- VALUE
	EBF	ERF	
Infant weight at 6 month			
< 60%	8(12.3%)	7(13.7%)	0.603
60-80%	12(18.4%)	13(25.4%)	
>80%	25(34.8%)	31(60.8%)	
Total	65(100%)	51(100%)	0.364
Infant weight at one year			
< 60%	6(9.2%)	6(11.7%)	
60-80%	15(23.1%)	17(33.3%)	
>80%	44(67.9%)	28(54.9%)	
Total	65(100%)	51(100%)	0.006
Diarrheal Episode in one year			
<3	9(13.8%)	3(5.9%)	
3-5	56(86.1%)	45(88.2%)	
>5	0(0%)	3(5.9%)	
Total	65(100%)	51(100%)	0.929
HIV infection at one year			
Positive	8(12.3%)	6(11.8)	
Negative	57(87.7%)	45(88.2)	
Total	56(100%)	51(100%)	

Table 3 – Distribution of Infant PMTCT versus HIV status t 1 year in Tikur Anbessa specialized hospital

Variable		HIV status at one year			p- value
		HIV negative	HIV positive	Total	
Infant PMTCT	No PMTCT	7(6.0%)	10(8.6%)	17(14.6%)	p-0.000
	PMTCT incomplete	2(1.7%)	0 (0%)	2 (1.7%)	
	PMTCT complete	93(80.2%)	4(3.4%)	97(83.7%	
	TOTAL	102(88%)	14(12 %)	116(100%)	

Figure 1 . Anthropometric patterns of HIV exposed infant at one years of age by the option of feeding in Tikur Anbessa specialized hospital



Discussion

This study was conducted to assess the morbidity and mortality out come of HIV exposed infants pertaining to their method of feeding and does not include the detailed socio demographic characteristics of the mother and infant as it was retrospective cross sectional chart review . And it is difficult to make a conclusion in certainty the morbidity and mortality outcome of exposed infants due to ERF or EBF so the findings must be viewed in line of limitations of the study.

The prevalence EBF at 6 months in the study population was 56% which was higher as compared to most developing countries (average39%) and also A study done in Conakry guinea which 15.5% and 13.3% in north Uganda with high prevalence mixed feeding (59.5%) . This difference may be due to variation in study methods and exclusion of mixed feeding option in our study and high cultural and social implication of breast feeding [9,10]

In this study the effect of EBF and ERF on the outcome of HIV exposed infant at one year were assessed.it was found that the mean diarrheal episode was 3.54 per child per year in the study population and it was associated with option of feeding and exclusive breast feeding seems to protect infants against diarrhea it was also demonstrated by other study[4,5,8,,9]
Regarding the prevalence of malnutrition at one year prevalence of marasmus & underweight was 10.3%and27.6% which was higher compared to study done at Yekatit 12 hospital which was 2.1% and9.7%this may be due to nutritional center support at Yekatit 12 hospital was strong.
In contrary to other study method of feeding There was no significant association found with regard to growth and infant feeding option at six and one year of age, mothers exposed infant probably are choosing the option of feeding after their back ground capacity and counseling by the health professional on individual basis.(probably opted ERF if they really qualify AFASS criteria.) [2,5,8]

Low PMTCT uptake observed in our study(32.7%) is higher than the previously reported in Ethiopia (less than10%) and Kenya(17%) and lower than Zimbabwe(59%).[2,10]
The cumulative HIV transmission at one year was 12.1% which was comparable in the study done at Yekatit 12 hospital (12.5%) but lower than northern Uganda with cumulative HIV transmission rate was 8% among children tested up to 18 months.[10,12]

Conclusion and recommendation

As recommended by most of the studies in developing countries and WHO , our study has also shown high incidence of diarrhea in exclusively replacement feed infants and comparable cumulative HIV prevalence at one year in both options of infant feeding in the context of HIV exposure, thus It is imperative to conclude that exclusive replacement feeding is associated with high prevalence of diarrheal disease at one year . However it's the conviction if the authors that if AFASS is fulfilled the option could be given to the mother for exclusive replacement feeding.

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