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PREVALENCE OF HIV/AIDS AMONG UNDER 18 MONTHS INFANTS WHO ARE BORN FROM HIV POSITIVE MOTHERS IN GONDAR UNIVERSITY HOSPITAL, NORTH WEST ETHIOPIA

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Abstract

HIV is a virus that causes AIDS which affects the immune system of the human body thus, making the individual susceptible to different opportunistic infections and cancers. It has four major routes of transmission; transfusion of blood, unsafe sex, contaminated needles and from mother to child during pregnancy or breast feeding after delivery. The prevalence of HIV infection in infant around the world is about 600,000 newborn infected each year (>1600 new born infected each day. This study was conducted to assess the prevalence of HIV/AIDS in infants less than 18 months in Gondar University Hospital from February to June 2011. Retrospective study was conducted in Gondar University Hospital from February to June 2011. Under 18 months infants who are registered in registration book of PMTCT department were included in the study. The overall prevalence of HIV infection in less than 18 months infants who are born from HIV positive mothers is 11.2 %. The prevalence of HIV in infants who are breast fed is 20 .3 %, in those who took no infant prophylaxis is 43.7 %, in those mothers who didn't follow ART the prevalence of HIV among their infant is 20.3 % and in mothers who didn't intervene in PMTCT is 34.5 %. ART follow up of mothers, residence, marital status, infant place of birth, feeding practice of the infant, infant prophylaxis and weight of the infant have significant relationship with the prevalence of HIV in under 18 infants.

Keywords: Under 18 month's infants, HIV/AIDIS, Prophylaxis.

Introduction

Human immunodeficiency virus (HIV) is a lentvirus (a member of retrovirus family) that causes acquired immunodeficiency syndrome (AIDS).[1, 2] HIV is a condition in humans which causes progressive failure of the immune system that allows life threatening opportunistic

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infections and cancer to thrive. The four major routes of transmission are unsafe sex, contaminated needles, transfusion of contaminated blood and transmission from an infected mother to her baby. Screening of blood products for HIV has largely eliminated transmission through blood transfusions or infected blood products in the developed world.[3, 4] A disproportionate number of AIDS deaths occur in sub Saharan Africa, retarding economic growth and exacerbating the burden of poverty. The transmission of the virus from the mother to the child can occur in uterus (during pregnancy), intra-partum (at child birth), or via breast feeding. In the absence of treatment, the transmission rate up to birth between the mother and child is around 25%. However, where combination antiretroviral drug treatment and caesarean section are available, this risk can be reduced to as low as one percent.[5, 6] Postnatal mother to child transmission may be largely prevented by complete avoidance of breast feeding however this has significant associated morbidity. Exclusive breast feeding and the provision of extended antiretroviral prophylaxis to the infant are also efficacious in avoiding transmission. UNAIDS estimate that 430,000 children were infected worldwide in 2008(19% of all new infections), primarily by this route and that further 65,000 infections were averted through the provision of anti retroviral prophylaxis to HIV positive women.[7]

The increasing number of HIV/AIDS in child bearing women and their partners lead to continuous spread of AIDS epidemic in sub-Saharan Africa .Fertility rates remain high in many of the country's most severely attacked by AIDS.[8] A prominent mode of transmission of HIV in the region is from infected mother to their child during pregnancy, delivery or breast feeding accounting 15% of all new infection.[9]

Prevalence of HIV in infants who are under 18 months each year is around 600,000. HIV is a major cause of morbidity and mortality especially in infant who don't have enough immunity unlike that of adult.[8] Although HIV continues to affect infants, there is no enough available research information conducted concerning prevalence of HIV infection in less than 18 months infant from HIV positive mothers in Ethiopia. Therefore the information that will be obtained from this study will fill some gaps of lack of information and it will have public health importance.

Materials and methods

Study design, period, and area: Retrospective cross sectional study was conducted from February to June 2012. The study was conducted in prevention of mother to child transmission (PMTCT) clinic. The PMTCT clinic is found in Gondar University Hospital which acts as the referral centre for four district hospitals in the area and serves for 4 million peoples in zones and surrounding regions. Gondar is located in North West Ethiopia. It is 50 kilometres from Lake Tana and 738 km away from capital city, Addis Ababa. Infants who were born from HIV positive mothers in Gondar town and its vicinity and within the age of 45 days up to 18 months were included.

Sample size and Data collection technique

All infants (410) registered in the registration book from September 2008 to June 2012 were included in the study. After ethical clearance was gained, data was collected from February 1 to February 30, 2012 using data collection format from registration log book.

Data quality control

The chart was checked for the completeness of necessary variables before the actual data collection. The filled data collection format was cross checked daily for its completeness.

Data analysis

Data was checked and edited for completeness, entered and analyzed by SPSS version 16 statistical software package. The frequency distribution of the variables was presented using tables and words. Chi-square and its corresponding P-value were used to show the association among variables.

Ethical consideration

Ethical clearance letter was gained from School of Biomedical and Laboratory Sciences and then it was given to PMTCT clinic for setting permission and permission was gained. All the coded HIV infected and non infected infants and mothers information was kept confidentially.

Results

A total of 410 infants who were born from HIV positive mothers were registered in Gondar

University Hospital PMTCT Clinic from September 2008 to January 2012. Of these 207 (50.5%) were males and 203 (49.5%) were females. From these infants 346 (84.4%) were born in health institutions and 64 (15.6%) were born at home. Seventy one (17.3%) of the infants did not use prophylaxis, 7 (1.7%) used SDNVP, 291 (71%) used AZT and SDNVP for 7 days, 41 (10%) used AZT and SDNVP for 4 days. Seventy nine (19.3%) were breast fed, 206 (50.2%) attended complementary and formula fed, 125 (30.5%) attended mixed feeding. The prevalence of HIV/AIDS among those infants was 11.2%. Infants who were born in home are more affected by HIV (37.5%) than infants who were born in health institutions (6.4%). Out of 410 HIV positive mothers who were registered in PMTCT registration book 338 (82.4%) were living in urban and 72 (17.6%) in rural areas. Three hundred nineteen (77.8%) were married, 20 (4.9%) were single, 61 (14.9%) were divorced and 10 (2.4%) were widow. 327 (79.8%) mothers were used ART follow up service before they gave birth to their children and 83 (20.2%) did not. PMTCT intervention was given for 323 (78.8%).

Table No. 01: The association of mothers and infants risk factors with the positivity infants with HIV in Gondar university hospital, 2012.

Variable	HIV status frequency		Total	Chi-square	p- value
	Negative	Positive			
Feeding practice of infants					
Breast feeding	63	16	79		
Formula and complementary feeding	197	9	206		
Mixed feeding	104	21	125	20.086	0.001
Total	364	46	410		
Prophylaxis of infants					
No	40	31	71		
SDNVP	7	0	7		
Yes for 7 days AZT and SDNVP	279	12	291		
4 weeks AZT and SDNVP	38	3	41	91.244	0.001
Total	364	46	410		
Place of birth of infants					
Health institution	324	22	346		
At home	40	24	64	52.882	0.001
Total	364	410	410		
Residence of mothers					
Urban	304	34	338		
Rural	60	12	72	2.602	0.107
Total	364	46	410		
ART follow up of mothers					
No	62	21	83		
Yes	302	25	327	20.717	0.001
Total	364	46	410		
PMTCT intervention of mothers					
No	57	30	87		
Yes	307	16	323	60.000	0.001
Total	364	46	410		

Discussion

Our study showed that the prevalence of HIV/AIDS in infants born from HIV positive mothers is 11.2 % which is less than studies in Congo 20.6%,[10] Nigeria 16.98%[11] and Harare Zimbabwe 40.3 %[12] and higher than the in Togo is 5.9 %.[13] This difference might be because of the difference in sample size and study designs and period and the use of Prophylaxis. The prevalence of HIV is greater in males 11.6 % than in females 10.8 % but there is no statistically significant difference (p>0.005).

Infants who were born in home were more affected by HIV (37.5%) than infants who were born in health institutions (6.4%). This may be due to unsafe delivery system which may expose the child

and mother blood contact during and after delivery, may be also low educational status of traditional birth attendants on HIV infection prevention during delivery and after delivery.

In our study the prevalence of HIV is greater in infants who used breast feeding 20.3% which is higher than the study in Togo 5.9%, Zimbabwe 8.33 %. The prevalence among infants who used mixed feeding style in the present study is 16.8% which is higher than the study done Zimbabwe 8.64%, in our study the prevalence of HIV among formula and complementary fed infants was 4.4% lower than the study done in Togo 8.5%.

Prophylaxis use had also significant association with HIV prevalence. Infants who didn't take were more infected by HIV than who took prophylaxis. Prevalence of HIV was 4.1% in infants who took SDNVP and AZT for 7 days after delivery and 7.3 % in those infants who took SDNVP and AZT for 4 weeks but the prevalence was 43.7% among infants who didn't take any prophylaxis. This indicated that administering of prophylaxis for infants born from HIV positive mothers who had profound effect on HIV prevention.

HIV prevalence was 10 % in infants who are born from widow mothers. Mothers who live in urban areas are more likely to transmit HIV 16.7 % than mothers who live in rural areas 10.1 % but the association is not significant so it may be by chance. ART follow up mothers had significant association with the prevalence of HIV in infants born from positive mothers. Mothers who were following ART were less likely to transmit HIV to their children 7.6% and mothers who were not following ART were more likely to transmit HIV to their infants 25.3% which supported by a study in Romania and Nigeria.[11, 14] The prevalence of HIV in those who are followed PMTCT intervention is 4.9% which is less than in those who did not attend PMTCT intervention 34.5%. In general from this result we can say that giving health education from the route of transmission, intervention, merits of attending health services during delivery and methods of prevention for mothers can reduces spread of HIV infections to their infants.

We considered that the study design and the sample size in this study is taken as limitation. But finding of this study can be used as baseline information for further research, for management of patients, health police designers and decision makers in the area where the research was conducted particularly and also for different localities at large.

Conclusion

From the findings of this study giving birth at health institutions, complementary feeding and mixed feeding, administration of infant prophylaxis, PMTCT intervention and ART follow up significantly decreases the transmission of HIV from the mother to her infant. More should be done on the intervention of transmission of HIV from mother to her foetus prenatally and postnatal. Health education for mother's of rural and urban be given due attention.

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