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Rate of mother to child transmission of HIV and factors associated among HIV exposed infants in Oromia Regional State, Ethiopia: Retrospective study

Siyum Obsa[a,b], Ragea Dabsu[b], Eyasu Ejeta[b,c,*]

[a] Nekemte Regional Laboratory, Nekemte, Ethiopia
[b] Medical Laboratory Sciences Department, Wollega University, Nekemte, Ethiopia
[c] College of Health Sciences, Jimma University, Jimma, Ethiopia

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ABSTRACT

Background: Mother to Child Transmission of HIV (MTCTH) is a major public health challenge in Ethiopia. Monitoring and evaluation of the rate of HIV transmission among infants born to HIV positive mothers is the major indicator to understand the performance of a national HIV control program. However, this is not well documented in Oromia Regional State, Ethiopia.

Method: A retrospective study was conducted in 43 health facilities at three Administrative Zones of Oromia Regional State, Ethiopia from November 2014 to January 2015. Medical records of HIV-exposed infants and their mothers enrolled between June 2012 and October 2014 in the study institutions was extracted using data extraction format. Rate of MTCTH and factors associate was computed using SPSS version 20.0 software.

Result: A total of 492 HIV-exposed infants having HIV DNA/PCR test result were included in the study. The overall prevalence of HIV among HIV exposed infants was 7.70%. Infant failure to receive nevirapine (NVP) prophylaxis at birth(AOR = 18.110, 95% CI:5.177, 63.352), whose mothers received Antiretroviral Therapy (ART) treatment for less than 4 weeks (AOR = 4.196, 95% CI:1.40, 12.57), did not receive co-trimoxazole preventive therapy (AOR = 7.772, 95% CI: 2.547, 23.72), and on mixed feeding (AOR = 2.3, 95% CI: 1.167, 4.539) had an increased odds of HIV infection comparing to their counterpart among infants born to HIV infected mothers.

Conclusion: The risk of HIV infection among infants born to HIV infected mothers was high in the study area. Hence, strengthening the prevention of mother-to-child transmission (MTCT) management activities that would trace the identified factors shall be recommended to reduce risk of HIV infection among infants born to HIV infected mothers.

Introduction

Despite various efforts to create HIV free generation, > 90% of new pediatric HIV cases are acquired through MTCT.[1] Mother-to-child transmission of HIV accounts for 14% of all new HIV infections worldwide, and approximately 330,000 children are newly infected with HIV in each year; most of the infections are occurred in sub-Saharan African countries.[2]

Ethiopia is one of sub-Saharan African country that affected by HIV pandemic. The country is a top ten in the world with the highest number of HIV infections among children. Moreover, the prevalence of HIV at antenatal care clinics was 2.4%. These contributed for the presence higher number of MTCTH (17%-30%) in infants born to HIV-infected mothers in the country.[2,3]

The Global Plan to create free HIV generation by 2015 has achieved 52% of decline in the number of new infection among children and prevented > 670 000 children from acquiring HIV from 2001 to 2012.[4] This global plan has pushed the sub-Saharan Africa countries to reduce the number of new HIV infection among children below 200 000 for the first time. This achievement represents a 43% decline in the number of new HIV infections among children in these countries since 2009.[5]

Several studies have shown that child mortality increases substantially in children who are infected with HIV via their mothers.[6–9] Children infection may occur during pregnancy, labor and delivery or breastfeeding. In the absence of prevention, rates of MTCT are estimated to be increased to 25–35%.[10,11]

Cognizant of this, the government of Ethiopia has been accelerating

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* Corresponding author at: Wollega University, Department of Medical Laboratory Sciences, Nekemte, Ethiopia.
E-mail address: eyasu.ejeta@gmail.com (E. Ejeta).

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the explanation of the Prevention of Mother- To-Child Transmission (PMTCT) of HIV service by endorsing the antenatal care free of charge. However, only 24% of pregnant women living with HIV in the country have received the medication to PMCT of HIV.[12,13]

Previous studies demonstrated the risk of MTCTH in the country. However, they were either confined to a single facility or certain geographical area.[14–21] Therefore, there is a need for national data on studies involving both urban and rural segments of communities in most populous and high HIV/AIDS affected regions in the country. Hence, this study is done in selected three Administrative Zones of Oromia Regional State, Ethiopia.

Methodology

Study setting and design

A retrospective study conducted in three purposively selected Administrative Zones of Oromia Regional State, Ethiopia from November 2014 to January 2015. Oromia Region State is the largest and most populous regional state in the country. It is one of the hardest HIV/AIDS-affected regions in the country. The prevalence of HIV among adults in the region is 1%.[22]

The region has 18 Administrative Zones in the region. Off these, East Wollega, West Showa and West Wollega Administrative Zone were involved in the study **(**Fig. 1**).** These selected Administrative Zones have 10 hospitals and 33 health centers which provides PMTCT services following the national guideline.[23] This study was conducted in all of these health facilities.

Data collection procedures

Participants for this study were all HIV-exposed infants who had DNA/ PCR tested result and enrolled in all health facilities providing PMTCT services in the study area between June 2012 and October 2014. The data were extracted from PMTCT log book and, HIV exposed and DNA/ PCR tested infant charts documented using data extraction format.

The data extraction format was adapted from the national standard HIV exposed infant follow up formats and PMTCT registration log book.[16] All HIV-exposed infants and their mothers who started the PMTCT service in each of the selected health facilities during the study period were included in the study. HIV exposed infants and their mothers with incomplete data because of transfer out, lost and stopped treatment were excluded from the study. The data was collected by trained personal working on ART Units of each study institution.

The dependent variable of the study was HIV sero-status of the infant at the end of the follow-up period, 24 months (positive/negative). The independent variables include; breastfeeding practice, socio-demographic characteristics, information on Antiretroviral (ARV) prophylaxis for the mother and infant, place of delivery and the clinical characteristics of the mother and the infant.

The qualities of the data collection tool were ensured through pretesting at Shambu Hospital, and using experienced trained data collectors and supervisors. The completeness of the collected data was cross checked with data collection supervisor and investigator to avoid incomplete data.

Data management and analysis

All collected data were checked before entry to a database for its completeness. Then, the data were entered, cleared and analysis using SPSS version 20.0 statistical package for windows. Descriptive statistics were used to describe the study population in relation to relevant variables. Binary logistic analysis regression was computed to identify the associated factors with HIV infection among HIV exposed infant in initial model. A final model, multivariate logistic regression was computed by including factors found to be significant at P-value less than 0.05 in binary logistic analysis to identify independent predicators for HIV infection among HIV exposed infants. Statistical significance was evaluated at 95% levels of significance. Those variables with p-value less than 0.05 on the final model were identified as the associated factors in HIV infection among HIV exposed infants.

Ethical consideration

Ethical clearance was obtained from Wollega University ethical clearance committee. Official permission was also sought from East Wollega, West Wollega and West Showa Zonal Health Departments. The

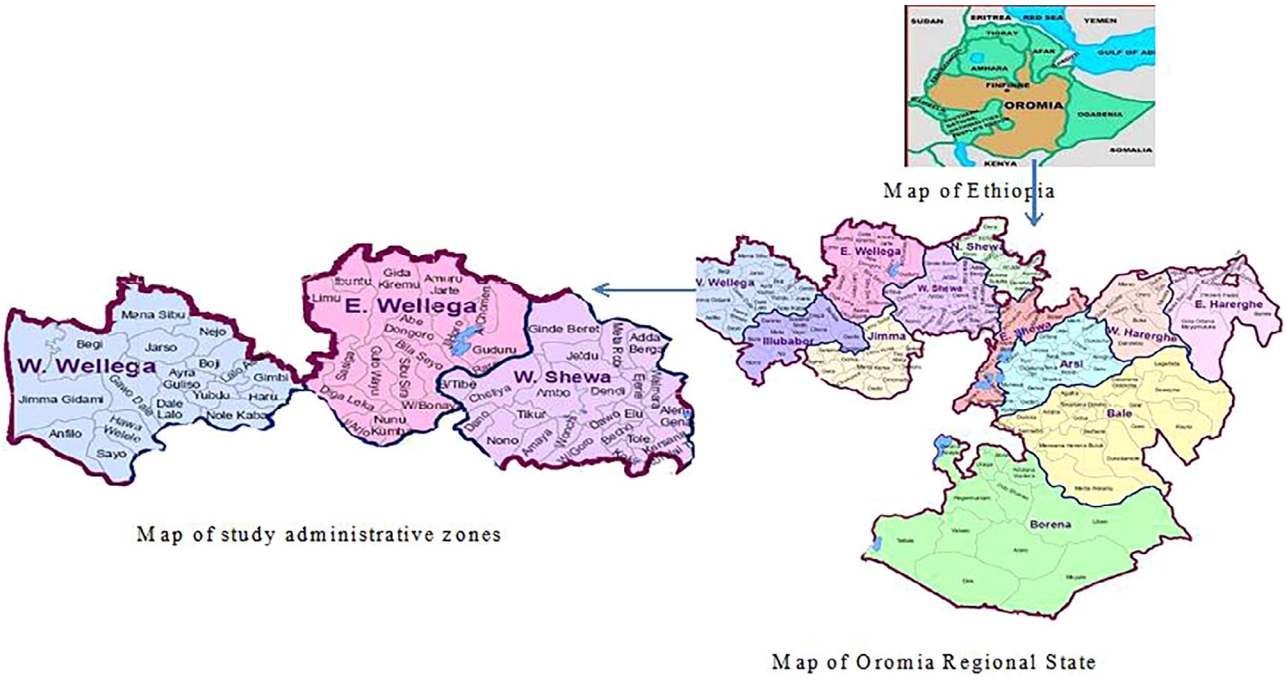

Fig. 1. Map of the study area.