Reduced Vertical Transmission of HIV in Resource Limited Settings

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INTRODUCTION

Duo and triple antiretroviral therapy have been shown to reduce vertical transmission of HIV to under 5% in resource-limited settings, however, few studies have examined transmission in longitudinal data.

In April 2010, updated prevention of mother-to-child transmission of HIV (PMTCT) guidelines were introduced by the South African National Department of Health. The revised guidelines include starting dual zidovudine/nevirapine prophylaxis commencing from 14 weeks’ gestation or lifelong antiretroviral treatment (ART) for pregnant women with World Health Organization stage III or IV HIV disease and/or CD4 cell counts below 350 cells/µl. Nevirapine is provided to HIV-exposed infants for six weeks or until the end of breastfeeding.

This study aimed to compare vertical transmission among mother-infant pairs who accessed PMTCT services before and after implementation of the 2010 PMTCT guidelines, using cohort data from 8 routine primary health care PHC facilities in three South African provinces.

METHODS

HIV Pregnant women accessing PMTCT services were followed through the antenatal, delivery and postnatal period between June 2009-June 2011 at government facilities in Kheth’Impilo (KI).

A KI community-support services programme for pregnant women and mother-infant pairs linked to health services, comprising patient advocates (PAs), site facilitators and community co-ordinators, provides adherence and psychosocial support.

The programme encourages early antenatal booking, treatment adherence, HIV testing of household members, and HIV DNA polymerase chain reaction (PCR) tests for infants 6 weeks after birth, 6 weeks after weaning, and at 18 months of age. The facilities are located in KwaZulu-Natal, Eastern Cape and Mpumalanga provinces and have high antenatal HIV prevalences ranging between 30%-46%.

Routine longitudinal data was collected electronically at antenatal and delivery sites and pooled on a regular basis. HIV transmission in infants around 6 weeks of age was documented.

A cohort of 1147 (57.5%) mothers attended prior to and 848 (42.5%) following introduction of the new guidelines. At booking, women had a median gestational age of 22 weeks (IQR: 16.5-26.0). The median baseline CD4 cell count amongst ART-naive patients was 348 cells/µl (IQR: 234-493). A total of 1808 (90.6%) infants received 6 weeks PCR tests. Transmission declined after implementation of the new guidelines from 3.4% (95% CI: 2.6%-5.0%) to 1.5% (95% CI: 0.9%-2.9%); P=0.02. Adjusted analysis showed independently decreased transmission following new guideline implementation, adjusted relative risk (RR) = 0.44 (95% CI: 0.22-0.91).

After adjusting for ART treatment status at the time of booking, mothers with booking CD4 cell counts below 350 cells/µl had an increased risk of transmission RR=3.44 (95% CI: 1.19-9.99) compared to those with CD4 counts greater than 500 cells/µl.

DISCUSSION

The new South African PMTCT guidelines are effective, and are associated with reduced vertical HIV transmission at six weeks. Excellent PMTCT outcomes are achievable at routine cohort data should be considered in monitoring PMTCT outcomes in resource-limited settings.