

RESEARCH ARTICLE

Barriers and enablers of adherence to infant nevirapine prophylaxis against HIV 1 transmission among 6-week-old HIV exposed infants: A prospective cohort study in Northern Uganda

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Abstract

Background

Sub-optimal adherence to infant prophylaxis has been associated with mother-to-child-transmission of HIV. However, the factors associated have not been well characterised in different settings. This study describes barriers and enablers of adherence to infant prophylaxis among 6-week-old HIV exposed infants in Lira district, Northern Uganda.

Methods

This prospective cohort study was conducted from 2018–2020 at the PMTCT clinic at Lira Regional Referral Hospital and included 472 mother-infant pairs. HIV-infected pregnant women were recruited, followed up at delivery and 6 weeks postpartum. We used a structured questionnaire to obtain data on socio-demographic, reproductive-related, HIV-related characteristics and adherence. Data were analysed using Stata to estimate adjusted risk ratios using Poisson regression models to ascertain barriers and enablers of adherence to infant nevirapine prophylaxis.

Results

Barriers to infant adherence are maternal characteristics including: younger age (≤ 20 years adjusted risk ratio (ARR) = 1.55; 95% CI: 1.1–2.2), missing a viral load test during pregnancy (ARR: 1.4; 95% CI: 1.1–1.7) and not receiving nevirapine syrup for the baby after childbirth (ARR = 6.2; 95% CI: 5.1–7.6). Enablers were: having attained ≥ 14 years of schooling (ARR = 0.7; 95% CI: 0.5–0.9), taking a nevirapine-based regimen (ARR = 0.6; 95% CI: 0.4–0.9),

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Abbreviations: ARR, Adjusted risk ratio; ART, Antiretroviral therapy; CI, confidence interval; HEI, HIV exposed infant; HIV, Human Immunodeficiency Virus; LRRH, Lira Regional Referral Hospital; MTCT, Mother-to-child transmission of HIV; NVP, Nevirapine; PMTCT, Prevention of mother-to-child transmission of HIV.

long-term ART (≥ 60 months ARR = 0.75; 95% CI: 0.6–0.9), accompanied by a husband to hospital during labour and childbirth (ARR = 0.5; 95% CI: 0.4–0.7) and labour starting at night (ARR = 0.7; 95% CI: 0.6–0.8).

Conclusion and recommendations

Despite mothers receiving nevirapine syrup from the health workers for the infant, non-adherence rates still prevail at 14.8%. The health system needs to consider giving HIV infected pregnant women the nevirapine syrup before birth to avoid delays and non-adherence. There is need to pay particular attention to younger women and those who recently started ART.

Introduction

HIV-1 exposed infants (HEI) can get infected with HIV from their mothers during pregnancy, childbirth or breastfeeding. Over 90% of paediatric HIV infections are through mother-to-child transmission of HIV-1 (MTCT) [1]. However, giving antiretroviral therapy to the mother and infant prophylaxis to the infant during breastfeeding are the major interventions in the prevention of mother-to-child transmission of HIV-1 (PMTCT) [2, 3].

Since 2013, the World Health Organisation (WHO) consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection [3] advocate lifelong antiretroviral therapy (ART) regardless of immune status for pregnant and breastfeeding mothers in addition to infant prophylaxis for the baby for 6–12 weeks. A longer duration of prophylaxis is recommended for high-risk infants born to an HIV infected mother that has a viral load (VL) greater than 1000 copies/ml [2, 3]. For a high-risk infant, the mother's VL test should be done at 12 weeks postpartum and only if < 1000 copies/ml should the infant stop taking nevirapine (NVP). If the maternal VL is not suppressed by 12 weeks, the infant should continue taking NVP until the mother's VL is less than 1000 copies/ml or otherwise continue with NVP until four weeks after cessation of all breastfeeding [1]. These guidelines have been implemented in Uganda since 2012 [4].

For these interventions to yield impact in PMTCT, adequate adherence to both maternal ART and infant prophylaxis are a prerequisite [5]. Challenges in achieving optimal adherence can be programmatic, maternal- or infant-related. There are programmatic challenges with linkage of HEIs and their mothers from PMTCT to HIV care [6] and lack of clinic-based HIV counselling [7]. Maternal-related challenges include forgetfulness, poor adherence and social or cultural obligations [8]. Infant-related challenges are vomiting of the drug or the baby being sick [9]. Poor adherence to infant nevirapine prophylaxis may contribute to transmission of HIV hence identifying barriers to adherence is essential to eliminate MTCT.

Several studies have demonstrated an association between non-adherence to infant nevirapine prophylaxis and home deliveries, inadequate antenatal care, mother not receiving the nevirapine for her baby while at the hospital, misplacing of the baby's drug, lack of transport and the mother staying with in-laws [10, 11].

While there are numerous benefits of ART prophylaxis for PMTCT, there are still disparities in rates of MTCT due to differences in programme settings, systems, support requirements and context. Varying ART adherence rates in various contexts can also contribute to the disparities in MTCT rates. Most studies done on adherence to infant nevirapine prophylaxis have been qualitative and were done under previous treatment paradigms and cannot be compared to today's situation. Furthermore, different methods have been used to measure adherence to