



Pregnancy outcomes in HIV-positive women in Ukraine, 2000–12 (European Collaborative Study in EuroCoord): an observational cohort study

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Summary

Background Women living with HIV are potentially at increased risk of adverse pregnancy outcomes, due to a range of factors, including immunosuppression, use of combination antiretroviral therapy (ART), and injecting drug use. Rates of mother-to-child transmission of HIV in Ukraine have declined to around 2–4%, but little is known about other pregnancy outcomes in this setting. We used data from an observational prospective cohort study to assess pregnancy outcomes among HIV-positive women in Ukraine.

Methods The European Collaborative Study (ECS) in EuroCoord is a continuing cohort study, established in Ukraine in 2000. Eligible women are those with a diagnosis of HIV infection before or during pregnancy (including intrapartum) who deliver liveborn babies at seven sites. Maternal sociodemographic, HIV-related, and delivery (mother and infant) data were collected with study-specific questionnaires. We used Poisson regression models to identify factors associated with preterm delivery (before 37 weeks' gestation) and small weight for gestational age (less than the tenth percentile of weight for gestational age), based on complete cases.

Findings Between January, 2000, and July, 2012, data were collected on 8884 HIV-positive mother and liveborn infant pairs. Median maternal age was 26.5 years (IQR 23.1–30.3). 832 (11%) women had WHO stage 3 or 4 HIV and 1474 (17%) had a history of injecting drug use. 7348 (83%) had received antenatal ART. Among 7435 for whom ART type was available, 4396 (50%) had received zidovudine monotherapy and 2949 (33%) combination ART. Preterm delivery was seen in 780 (9%, 95% CI 8–9) of 8860 births overall and in 77 (9%, 7–11) of 889 babies with small size for gestational age. Factors associated with preterm delivery were history of injecting drug use (adjusted risk ratio 1.64, 95% CI 1.38–1.95), no ART (2.94, 2.43–3.57 vs zidovudine monotherapy), antenatal combination ART (1.40, 1.14–1.73 vs zidovudine monotherapy), WHO stage 4 HIV (2.42, 1.71–3.41 vs WHO stage 1), and being in the most socially deprived group (1.38, 1.11–1.71). Small size for gestational age was associated with history of injecting drug use (adjusted RR 1.39, 95% CI 1.16–1.65), most socially deprived (1.32, 1.09–1.61), no ART (1.60, 1.32–1.94 vs zidovudine monotherapy), and antenatal combination ART (1.33, 1.12–1.60 vs zidovudine monotherapy).

Interpretation Some risk factors for adverse pregnancy outcomes were directly associated with HIV and treatment and others were shared with the general antenatal population. Monitoring of pregnancy outcomes in Ukraine will be important as use of antenatal combination ART increases.

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Introduction

The HIV epidemic in eastern Europe and central Asia continues to grow, with 88% of the region's new infections occurring in the Russian Federation and Ukraine.¹ Although injecting drug use has driven the HIV epidemic in these areas, heterosexual acquisition became the main transmission route in newly diagnosed individuals in Ukraine in 2008, and of 21 631 new HIV cases diagnosed in 2013, 45% were in women.² Ukraine is a lower-middle-income country and treatment scale-up has been slow:³ around 50 000 people were receiving antiretroviral therapy (ART) by 2013,⁴ which is roughly half of the estimated total who have indications for treatment according to WHO's 2010 guidelines.¹

In the general population in Ukraine, maternal mortality is 23 per 100 000 livebirths, and the infant

mortality rate is nine per 1000 livebirths; 75% of pregnant women have at least six antenatal care visits.^{5,6} Programmes for the prevention of mother-to-child transmission of HIV started in 2001, and included universal antenatal HIV testing and repeat testing in the third trimester, short-course zidovudine, single-dose nevirapine, or both, and provision of free infant formula.^{7,8} Subsequently, zidovudine monotherapy was recommended for use from at least 28 weeks' gestation, and by 2007 the mother-to-child transmission rate had fallen to around 7%.⁷ In that year Ukraine adopted the WHO option B strategy of triple combination ART for all pregnant women, irrespective of clinical or immunological status.⁹ Current rates of mother-to-child transmission are 2–4%.^{2,9} National guidelines recommend elective caesarean delivery for HIV-positive women with a viral

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