Effectiveness of Contraception for HIV-Infected Women using Antiretroviral Therapy

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Background: Ensuring safe, effective contraception for women with HIV is a public health imperative. Some data has suggested that antiretroviral therapy (ART) may diminish contraceptive effectiveness, particularly for the combination of implants and NNRTIs, such as nevirapine (NVP) and efavirenz (EFV). In this study, we determined the differences in the effectiveness of different hormonal contraceptives by women’s ART use, determined by the clinical endpoint of pregnancy.

Methods: Data from 5,153 HIV-infected women participating in three longitudinal studies (Partners in Prevention HIV/Herpes Transmission Study, Couples Observation Study, and Partners PrEP Study) from seven countries in Africa between 2004-2012 were used for this analysis. All women were in monosexual couples and were not using ART at enrollment. Study visits were conducted quarterly; hormonal contraception and condoms were provided. Visits when women were using non-hormonal methods (abstinence, Jadelle, et al.) were added as significant covariates. Women were censored during each pregnancy and returned to the risk set at the first visit they were not pregnant. Multivariate Cox regression models were used, with pregnancy as a repeated outcome, to test the interaction between each contraceptive method (injectable, implant, and combination [OC], or none) and any ART use. Cox count, site, and study were included as a prior. Sexual frequency and any non-contraceptive wash as additional covariates. The analysis was then repeated, restricting ART use to NVP and EFV separately.

Table 1: Characteristics of Study Population

Table 2: Contraceptive Effectiveness, by ART Use

Results: 5,153 women contributed 9,266 person-years (median 1.8 years). Participants were young (54% under 30) and healthy (51% CD4 > 500 cells/µl) at enrollment. During follow-up, 24% of women became pregnant and 31% initiated ART. Pregnancy incidence was 14.8 per 100 person-years overall. Use of implants reduced the risk of pregnancy by more than 50% both among women on ART and not on ART. Injectables reduced pregnancy risk by ~60% and OCs reduced pregnancy by ~60%, with no statistical difference between women on ART versus women not on ART. There were approximately 1000 person-years of follow-up on NVP and 200 person-years on EFV. There was no evidence of significant effect modification when limiting the analysis to NVP or EFV. However, the estimated effectiveness of all methods was somewhat attenuated among EFV users.

Conclusions: In this large evaluation of three prospective studies, modern contraceptive methods remained highly effective in reducing pregnancy risk in HIV-infected women, including those concurrently using ART. While limited evidence from other studies suggests that some ART agents could diminish the effectiveness of contraceptive implants, these data emphasize that implantable contraception is highly effective compared to no contraception and more so than shorter-acting methods such as injectables and oral contraceptives.

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