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Contraceptive Implant Failures among Women on Antiretroviral Therapy in Nine Facilities in Western Kenya: Implications for Family Planning Counseling for Women Living with HIV

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Background

The pregnancy rate for implant users is less than one pregnancy per 100 women. In Kenya, an estimated 12.6% of women use implants and 6.9% of women ages 15–49 are living with HIV.

Hormonal contraceptives are metabolized by the cytochrome P450 enzyme system in the liver, which may be induced or inhibited by many types of antiretroviral therapy (ART). As such, the pharmacokinetics of hormonal contraceptives can be affected by ART.

This retrospective clinical records review aimed to determine unintentional pregnancy rates among women 15–49 years old concurrently using a contraceptive implant and ART from January 2011 to December 2015 and to describe the characteristics of concurrent ART and implant users with and without implant failures.

Methods

The clinical records of women of reproductive age with at least

3 months of concurrent use of an implant and ART were abstracted from nine health facilities in Western Kenya and analyzed.

Implant Brand Names

- ETG implants: Implanon, Nexplanon
- LNG implants: Jadelle, Levoplant

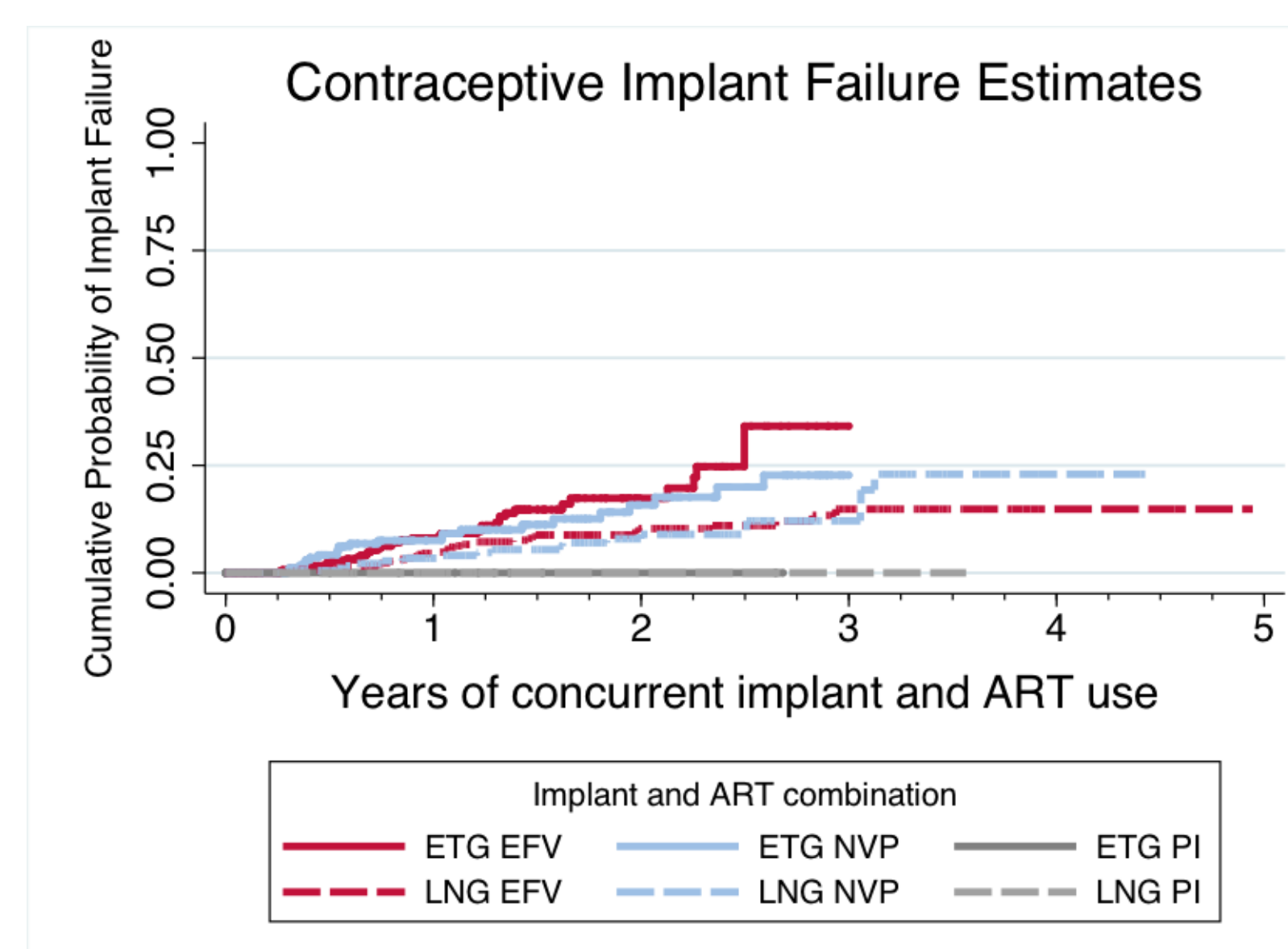
- Pregnancy incidence rates were calculated for etonogestrel (ETG) and levonorgestrel (LNG) implant users with at least 3 months of concurrent use of an ART containing efavirenz (EFV), nevirapine (NVP), or a protease inhibitor (PI).
- Poisson regression was used to find the pregnancy incidence rate ratios of pregnancy by age, CD4, BMI, ART, implant, and ART/implant combination.

Results

There were 1,190 unique coadministrations of ART and implants among 1,152 women. A woman could contribute more than one coadministration if she switched her ART or replaced her implant during the period of observation. The observations yielded 1,819 person-years of observation and 115 total pregnancies.

Variable	Pregnancy Incidence Rate	Incidence Rate Ratio	p-value
All Observations			
Overall	6.32 (5.27–7.59)		
ART Regimen			
NVP	6.41 (4.70–8.73)	Ref	
EFV	6.44 (5.13–8.07)	1.00 (0.71–1.43)	.98
PI	0	<0.01	<0.01*
Implant Type			
ETG	9.26 (7.18–11.96)	Ref	
LNG	4.74 (3.65–6.16)	0.51 (0.33–0.79)	<0.01*
Implant and ART Combination			
ETG-NVP	8.68 (5.71–13.18)	Ref	0.55
ETG-EFV	9.84 (7.25–13.81)	1.15 (0.72–1.84)	<0.01*
ETG-PI	0	<0.01	0.04*
LNG-NVP	4.85 (3.06–7.70)	0.56 (0.32–0.98)	0.02*
LNG-EFV	4.78 (3.48–6.57)	0.55 (0.34–0.89)	0.02*
LNG-PI	0	<0.01	<0.01*

*Significant at the $p < .05$ level.



- Analysis did not reveal a significant difference in the pregnancy incidence rates of NVP and EFV users. No pregnancies were recorded among women on PIs, which was statistically significant.

Results, cont'd

- The pregnancy incidence rate was almost two times greater among women using ETG implants than those using LNG implants, which was statistically significant.
- The pregnancy incidence rate decreased with age. Compared to women ages 15–24, women ages 25–34 had 39% less risk of pregnancy, though this was not statistically significant. Women ages 35–49 had 66% less risk of pregnancy; this result was statistically significant.
- No statistically significant differences were noted between women with different CD4 counts or BMIs.

Knowledge Contribution and Impact on Practice

An increase in the pregnancy incidence rate among implant users on ART may negatively impact acceptability and trust in implants as a contraceptive choice for women living with HIV. Our findings confirm earlier reports of implant failure rates among women taking EFV-based ART. To our knowledge, this study is the first to also demonstrate that NVP use was linked with higher than expected incidence of pregnancies. While surprising, the higher incidence of pregnancies is biologically plausible given the metabolic pathways for both NNRTIs and progestins.

Despite the elevated pregnancy incidence rates found by this study, it is premature to discourage women who use either type of ART from adopting implants. Alternative contraceptives, such as injectables, are associated with high rates of discontinuation, such that implants remain a viable option. Women should retain the right to make fully informed decisions about the contraceptive option that works best for them and the level of method failure risk that they deem acceptable, given that they cannot switch ART regimens based on their fertility preferences. To do so, they will need:

- Information delivered in simple yet accurate language about their choice of implant, the drug interaction, and the possibility of method failure
- Counseling provided by a skilled health worker in a context that actively promotes a client-centered culture