



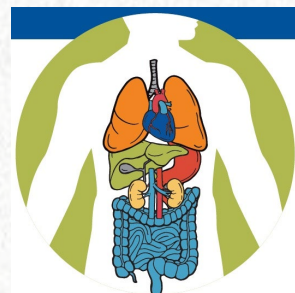
Etonogestrel contraceptive implant uptake and safety among solid organ transplant recipients

Jessica Lew BS, Jeanelle Sheeder PhD, Aaron Lazowitz MD

Department of Obstetrics and Gynecology, University of Colorado Anschutz Medical Campus, Aurora, CO, USA.

Introduction

- Reproductive-age women who are solid organ transplant recipients face significant medical risks with unintended pregnancies.
- Recommendation to avoid pregnancy for the first 12-24 months after solid organ transplantation.
- Current literature has focused entirely on safety of intrauterine devices and combined hormonal contraceptives among solid organ transplant recipients.
- No published studies to date on the most efficacious contraceptive method, the etonogestrel contraceptive implant (Nexplanon®).
- Etonogestrel implant provides at least three years of highly effective contraception (>99%) with increasing uptake, especially among adolescent and young adult populations.
- Knowledge gap on the use and risks of the etonogestrel contraceptive implant among solid organ transplant recipients.



Objective

To determine the safety of etonogestrel contraceptive implant use among reproductive-age women who are solid organ transplant recipients.

Methods

Study Population

- Patients who sought care at tertiary medical center: Children’s Hospital Colorado (CHCO) or University of Colorado Hospital (UCH)
- January 2011 to January 2019
- Reproductive age women (14-45 years)
- Underwent solid organ transplantation

Cases

- Identified **cases** based on any use of the etonogestrel contraceptive implant

Controls

- Without hormonal contraceptive use for at least 3 years after transplantation
- Matched cases to controls (1:1) based on age and transplant organ type.

Data Extraction

- Health data warehouse (Compass) pulled potential cases and controls
- Reviewed electronic health records for outcomes of interest (i.e. pregnancy, implant-related side effects, infections, adjustments in immunosuppressant therapy, graft complications)
 - Occurred during contraceptive implant use (cases)
 - Occurred within 3 years of transplantation (controls)

Results

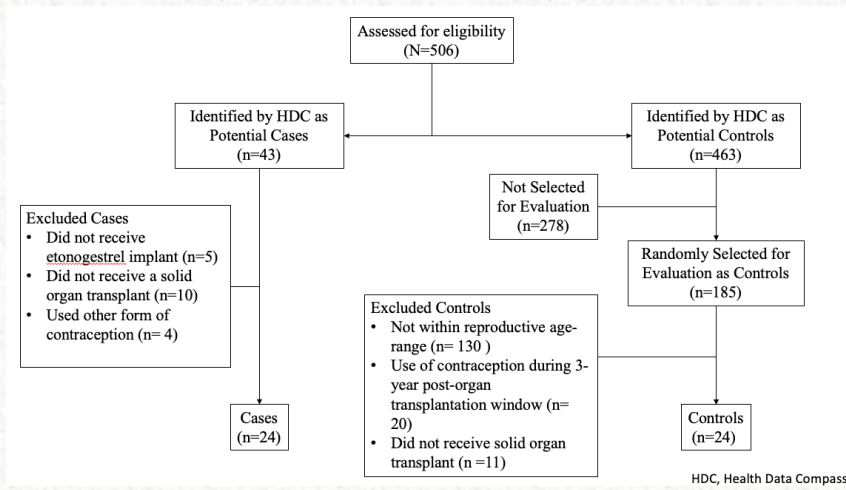


Table 3: Transplant-related outcomes for cases and controls within 3-year time window

	Cases (n=24)	Controls (n=24)	p-value*
Any pregnancies	1 (4.2) [†]	1 (4.2)	1.0
Any infections	12 (50.0)	13 (54.2)	1.0
Infection type:			
Any renal infection (e.g. pyelonephritis)	6 (25.0)	3 (12.5)	0.46
Any respiratory infection (e.g. pneumonia)	3 (12.5)	4 (16.7)	1.0
Any gastrointestinal infection (e.g. C. difficile colitis)	3 (12.5)	2 (8.3)	1.0
Any musculoskeletal infection (e.g. septic arthritis)	1 (4.2)	1 (4.2)	1.0
Any genitourinary infection (e.g. cystitis)	6 (25.0)	3 (12.5)	0.46
Any systemic infection (e.g. EBV, CMV)	4 (16.7)	6 (25.0)	0.72
Any immunosuppressant therapy change	19 (79.2)	21 (87.5)	0.70
Transplant-related complication			
Graft Failure	1 (4.2)	0 (0)	1.0
Graft Rejection	8 (33.3)	8 (33.3)	1.0
Cardiac allograft vasculopathy	0 (0)	0 (0)	NA
Repeat transplant surgery	2 (8.3)	0 (0)	0.49
Other complication [‡]	0 (0)	2 (8.3)	0.49

During the 3-year follow-up time period, one pregnancy was recorded per group. Of importance, the pregnancy that was documented for the cases occurred post-implant discontinuation.

Similar overall rates of post-transplant infection among the cases and controls (50.0% vs 54.2%, respectively). No statistically significant differences when infections were broken down by system (e.g. renal, respiratory, genitourinary).

Rates of severe transplant-related complications were low and similar between both groups, with the most prevalent complication being graft rejection (33.3% cases, 33.3% controls).

Implications

Improvement of patient counseling for solid organ transplant recipients considering use of the etonogestrel contraceptive implant as a safe and efficacious contraceptive option.

Discussion

- Among reproductive age women who received a solid organ transplant, etonogestrel implant users had no increased complications or risks when compared to age- and organ-matched controls.
- No documented implant-insertion site infections and no differences in overall infection rates.
- Contraceptive implant-related side effects among solid organ transplant recipients were relatively mild.
 - Abnormal bleeding was the most common.
- Findings overall consistent with the current CDC Medical Eligibility Criteria (Category 2; benefits generally outweigh risks)
- **Provides some reassurance to healthcare providers to continue to counsel women who are solid organ transplant recipients on the etonogestrel contraceptive implant as a safe and effective method for pregnancy prevention.**

Study Strengths:

- Inclusion of matched controls
 - Most similar published studies are case series
- Continuity of care with transplant team
 - Reliable follow-up and electronic health records

Study Limitations:

- Rare exposure (solid organ transplantation)
 - Overall small sample size
- Inability to provide perfectly matched cases and controls by organ transplant type
- Wide variability in the type, dosing, and number of immunosuppressants used in both cohorts

