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Case report

Use of the levonorgestrel 52-mg intrauterine system in adolescent and young adult solid organ transplant recipients: a case series ☆

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Abstract

This case series reports on the safety and efficacy of the levonorgestrel 52-mg intrauterine system in adolescent and young adult solid organ transplant recipients. All patients used the device for contraception, with no documented cases of disseminated pelvic infection or unplanned pregnancy.

Keywords: Adolescent; Levonorgestrel-releasing intrauterine system; Solid organ transplant; Intrauterine device

1. Introduction

Women of reproductive age who have received solid organ transplants are at risk for unplanned pregnancy. Fertility may return as quickly as 1 month after transplantation [1]. Pregnancy, although not absolutely contraindicated, carries greater risk than the general population, including increased risk for Cesarean delivery, gestational diabetes, preeclampsia and preterm delivery [2,3].

Following organ transplantation, approximately one half of women who receive a liver [4] or kidney [5,6] transplant resume regular menstruation. In addition, sexual dysfunction and loss of libido often resolve [4,7]. As quality of life improves, sexual activity may resume posttransplant, necessitating effective and safe contraception for both adolescent and adult transplant recipients. It therefore becomes critical that physicians have contraceptive options that are safe and effective, with high adherence rates.

In December 2009, the American College of Obstetricians and Gynecologists released a committee opinion recommending the use of long-acting reversible contraceptive methods as first line for adolescents and young adults, based on effectiveness, satisfaction and continuation rates [8]. This position has been further supported by the American Academy of Pediatrics and the Society of Obstetricians and Gynecologists of Canada [9,10]. Despite these endorsements, the Center for Disease Control (CDC) remains one of the only organizations to specifically address the safety of the intrauterine device (IUD) in solid organ transplant recipients. The 2016 CDC Medical Eligibility Criteria support the use of the levonorgestrel 52-mg intrauterine system (LNG 52-mg IUS) in uncomplicated transplant patients [11]. However, the American Society of Transplantation (AST) consensus statement from 2005 conflicts with this recommendation. Specifically, the AST recommends against the use of the intrauterine contraceptive device (IUD), stating that immunosuppressive agents decrease the effectiveness of IUDs and immunocompromised subjects using such devices have an increased risk of infection [12]. Outdated guidelines such as the 2005 AST consensus statement have the potential to decrease provider recommendation and patient acceptance of this method of contraception.

To date, there are no published series on adolescents and young adults with solid organ transplants and the LNG 52-mg IUS. We present a case series of six adolescent and young adult transplant recipients from two institutions. Institutional review board approval was obtained prior to collecting our data.

☆ Conflicts of interest: none.

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2. Cases

We performed a retrospective chart review to identify female solid organ transplant recipients, ages 9–22 who received an LNG 52-mg IUS at one of two locations: The Adolescent Medicine and Gynecology Clinics at Children's Hospital Colorado or the Pediatric and Adolescent Gynecology Clinic at The Hospital for Sick Children in Toronto, Canada. Age limits for care at the institutions are 24 and 18, respectively. We searched charts from January 2004, when electronic records became available, through December 2015. We identified all patients with international classification of diseases, 9th edition (ICD-9) codes for both solid organ transplantation and concurrent use of levonorgestrel medication, which revealed 12 patient charts. We then performed direct chart review and found that 6 of the 12 patients used the LNG 52-mg IUS. From the six identified charts, we extracted age, year of transplantation, type of organ transplanted, current and past immunosuppressant use, indication for LNG 52-mg IUS insertion, duration of use, discontinuation, and complications, including pelvic infection. A description of selected data for each patient appears in Table 1. The main outcome measure was discontinuation of the LNG 52-mg IUS due to pelvic infection.

2.1. Case 1

A 17-year-old female with a history of liver transplant at the age of 9 due to liver failure from biliary atresia presented for a contraception consultation. She denied sexual activity, and the LNG 52-mg IUS was inserted without screening for genital tract infection. She was followed for 8 months with gynecology without developing any complications and was then lost to follow-up when she transferred care to an adult facility.

2.2. Case 2

A 17-year-old female presented for contraception counseling, reporting a history of small bowel transplant at the age of 3 for gastroschisis complicated by gut volvulus. She decided to proceed with the LNG 52-mg IUS, and routine testing for *Neisseria gonorrhea* and *Chlaymdia trachomatis* cervicitis were negative at insertion. During her annual exams over the next 2 years, repeat sexual transmitted infection (STI) testing was negative. After 32 months of use, she underwent removal of the LNG 52-mg IUS for persistent irregular spotting.

2.3. Case 3

An 18-year-old female with a history of renal transplant at the age of 17 due to chronic renal failure from polycystic kidney disease presented requesting contraception. She reported using condoms intermittently and desired a more effective method of birth control. Routine testing for *N. gonorrhea* and *C. trachomatis* cervicitis were negative, and the LNG 52-mg IUS was inserted without complication. She then presented to the emergency department 3 months later, complaining of increasing vaginal discharge. The patient did not show evidence of pelvic inflammatory disease, but final testing was positive for endocervical *C. trachomatis*. The patient was treated with outpatient oral antibiotics and the LNG 52-mg IUS remained in situ. She then represented to clinic 3 months later, after a change in sexual partners, and all STI testing was negative. The patient underwent uncomplicated removal of the LNG 52-mg IUS after 21 months of use because of her concerns about future fertility. She subsequently conceived an unplanned pregnancy 2 months after removal, resulting in spontaneous abortion at 5 weeks gestation. She continued to decline contraception at follow-up visits.

2.4. Case 4

A 17-year-old female with a history of cardiac transplant at 9-months-old secondary to pulmonary atresia with an intact ventricular septum presented for contraception consultation and opted for an LNG 52-mg IUS. The patient had previously tested negative for *N. gonorrhea* and *C. trachomatis* 1 month prior and elected to proceed with IUS placement on the day of consultation. She continued care for 1 month without any IUS-related complications after which she transferred care to an adult facility.

Table 1
Indication for insertion, duration of use, infection and pregnancy outcomes and immunosuppressants used in solid organ transplant recipients using the LNG 52-mg IUS

Case	Age at insertion	Year of transplant	Organ	Indication	Year of insertion	Duration of follow-up (months)	PID*	Pregnancy	Immunosuppressants prescribed
1	17	1998	Liver	Contraception	2006	8	No	No	Mycophenolate, Tacrolimus
2	17	1997	Small bowel	Contraception	2010	32	No	No	Prednisone, Tacrolimus
3	18	2011	Renal	Contraception	2012	21	No	No	Azathioprine, Mycophenolate, Prednisone, Sirolimus
4	17	1996	Cardiac	Contraception	2013	1	No	No	Mycophenolate, Tacrolimus
5	17	1994	Cardiac	Contraception	2014	12	No	No	Cyclosporine, Mycophenolate, Sirolimus
6	21	2008	Renal	Contraception	2014	22	No	No	Azathioprine, Prednisone, Tacrolimus

*PID, pelvic inflammatory disease.