Sexual Dysfunction and Contraception After Transplant

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A DIVISION OF GIFT OF LIFE INSTITUTE

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I have no relevant financial disclosures

Objectives

- Review literature regarding sexual dysfunction in transplant recipients.
- Review contraceptive choices and their mechanism of action.
- List best and most effective contraceptive choices for post-transplant recipients per CDC and review of the literature in transplant recipients.

Sexuality Post-Transplant

WHO Initiatives

- Developing sexual health indicators (adults & adolescents)
  Healthy sexuality
  Dysfunction / vulnerability

- World Sexual Health Day – September 4
  Managed by the World Association for Sexual Health
  - attempts to break down social and cultural taboos associated with sexuality and to promote positive sexual health around the world

- Sexuality guidelines for healthcare providers

Sexual Health-definition

Working definition, sexual health:

"…a state of physical, emotional, mental and social well-being in relation to sexuality; it is not merely the absence of disease, dysfunction or infirmity.

Sexual health requires a positive and respectful approach to sexuality and sexual relationships, as well as the possibility of having pleasurable and safe sexual experiences, free of coercion, discrimination and violence.

For sexual health to be attained and maintained, the sexual rights of all persons must be respected, protected and fulfilled." *(WHO, 2006a)*

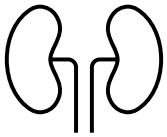
What is “Normal” Sexual Health?

Whatever gives a person &

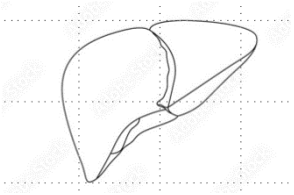
their partner pleasure

- Touching & other signs of affection that don’t necessarily end in intercourse
- Active interest in sex throughout life, regardless of age
- Positioning that takes into account patient’s physical condition
- Temporary loss of interest in sex during an illness or preoccupations with concerns for their health

Sexual Dysfunction after Transplantation



Reported in 30-50% of recipients
(most studies in men)



Sparse publications

Even less publications

Chronic Illness

- End stage organ failure
- dialysis
- Hormonal abnormalities/endocrine disorders
  - Hyper/hypothyroidism
  - Neuropathies
- Atherosclerosis / peripheral vascular disease
- Surgical procedures
- Neurological conditions
  - Nerve injury d/t prostate surgery
  - Stroke
- Alcohol/drug use and abuse

Psychosocial Factors

- Depression & anxiety
- Low self esteem
  - Altered body image
  - Altered roles/relationships
- Loss of intimacy
  - Partner may not be ready
  - Worries about surgery / pregnancy/ infection and more
- Age
- Low health related quality of life

Drugs Affecting Sexual Function

Drug/ Drug Class	Sexual side effect
Sirolimus/everolimus	Decreased desire and erectile dysfunction; decreases testosterone levels
Steroids	Decreased testosterone levels; menstrual irregularities
Antihypertensives	Most cause decreased libido and erectile dysfunction
Antihistamines	Inhibited sexual arousal, vaginal dryness, erectile dysfunction
H 2 Blockers	Decreased libido and decreased sperm count

Agarwal 2021

Drugs Affecting Sexual Function

Drug/ Drug Class	Sexual side effect
Antidepressants (SSRIs, SNRIs, MAOIs, tricyclic)	Most cause decreased libido, erectile dysfunction, delayed orgasm, and decreased sexual satisfaction
Antipsychotics (prolactin-elevating and prolactin-sparing*)	Decreased libido, impaired arousal and orgasm, erectile dysfunction
Antianxiety	Decreased arousal, libido and delayed orgasm

*Less severity for prolactin sparing

Agarwal 2021

Overall Effects on Sexual Function

- Erectile dysfunction
- Ejaculatory disorders
- Loss of libido
- Orgasmic disorder
- Irregular menstrual cycle
- Early onset of menopause
- Fear of infection

Interventions

- Thorough history and physical exam
- Appropriate referrals as indicated
  - Urologist, gynecologist, mental health provider
- Adjustment of medications
- Addition of medication
  - Viagra (sildenafil) can be useful selectively
    - 60% transplant recipients respond
    - Metabolized via same pathway as CsA
  - Cardiovascular disease risk stratification

Barriers to Adding this Discussion

- Lack of Training
- Comfort Level
- Personal Values
  - Is sexuality a priority?
  - Religious or cultural belief systems
  - Personal relationship experiences

Helpful tips…

- Ensure privacy
- Ensure confidentiality
- Address sexual concerns early and throughout transplant process
- Having protocols can help make this routine practice
- Determine patient goals
  - Meet with patient where they are
- Avoid overreaction
- Refer patients for complex problems

Bottom line…

- More detailed and comprehensive data are needed in the field of sexual function after transplantation.

- This needs to be incorporated into routine assessment of the patient.

Contraception Use After Transplant

Most Effective

Less than 1 pregnancy per 100 women in a year

6-12 pregnancies per 100 women in a year

18 or more pregnancies per 100 women in a year

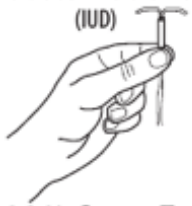
Least Effective

Reversible

Implant

0.05 %

Intrauterine Device (IUD)



LNG - 0.2 % Copper T - 0.8 %

Permanent

Male Sterilization (Vasectomy)

0.15 %

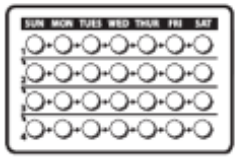
Female Sterilization (Abdominal, Laparoscopic, Hysteroscopic)

0.5 %

Injectable

6 %

Pill



9 %

Patch

9 %

Ring

9 %

Diaphragm

12 %

Male Condom

18 %

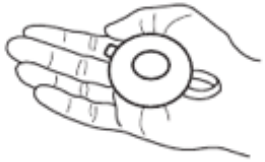
Female Condom

21 %

Withdrawal

22 %

Sponge



24 % parous women
12 % nulliparous women

Fertility-Awareness Based Methods

24 %

Spermicide

28 %

How to make your method most effective

After procedure, little or nothing to do or remember.

Vasectomy and hysteroscopic sterilization: Use another method for first 3 months.

Injectable: Get repeat injections on time.

Pills: Take a pill each day.

Patch, Ring: Keep in place, change on time.

Diaphragm: Use correctly every time you have sex.

Condoms, sponge, withdrawal, spermicides: Use correctly every time you have sex.

Fertility awareness-based methods: Abstain or use condoms on fertile days. Newest methods (Standard Days Method and TwoDay Method) may be the easiest to use and consequently more effective.

CONDOMS SHOULD ALWAYS BE USED TO REDUCE THE RISK OF SEXUALLY TRANSMITTED INFECTIONS.

Other Methods of Contraception

Lactational Amenorrhea Method: LAM is a highly effective, *temporary* method of contraception.

Emergency Contraception: Emergency contraceptive pills or a copper IUD after unprotected intercourse substantially reduces risk of pregnancy.

Contraception Use after Transplant

European study - contraception use in KT & LT pts

	Post-transplant Group (n = 87)
No contraception	48.3%
Oral contraception	5.7%
Contraceptive patches	2.3%
Intrauterine device	3.4%
Condoms	34%
Natural methods	2.3%
Coitus interruptus	5.7%

Contraception Use after Transplant

- **Shah et al. from USRDS Medicare claims only 9.5% of women post-transplant were using prescribed contraception post-kidney transplant**

- **French et al. (73 KTs, 59 LTs)**
  - **Only 50% of women were on contraception post-transplant**
  - **44% were not aware that pregnancy is possible after transplant**

- **Unplanned pregnancies: 30- 49% in transplant patients (TPRI 22)**

Shah et al J Nephrol 2021; French et al, Obstet Gynecol 2013

Contraception Recommendation from MPA REMS

Acceptable Contraception Methods for Females of Reproductive Potential*			
Option 1 **Methods to Use Alone**	Intrauterine devices (IUDs) Tubal sterilization Patient's partner had a vasectomy		
OR			
Option 2 **Choose One Hormone Method AND One Barrier Method**	**Hormone Methods** choose 1		**Barrier Methods** choose 1
	Estrogen and Progesterone Oral contraceptive pill Transdermal patch Vaginal ring **Progesterone-only** Injection Implant	AND	Diaphragm with spermicide Cervical cap with spermicide Contraceptive sponge Male condom Female condom
OR			
Option 3 **Choose One Barrier Method from each column (*must choose two methods*)**	**Barrier Methods** choose 1		**Barrier Methods** choose 1
	Diaphragm with spermicide Cervical cap with spermicide Contraceptive sponge	AND	Male condom Female condom

https://www.mycophenolaterems.com/HCPOverview.aspx

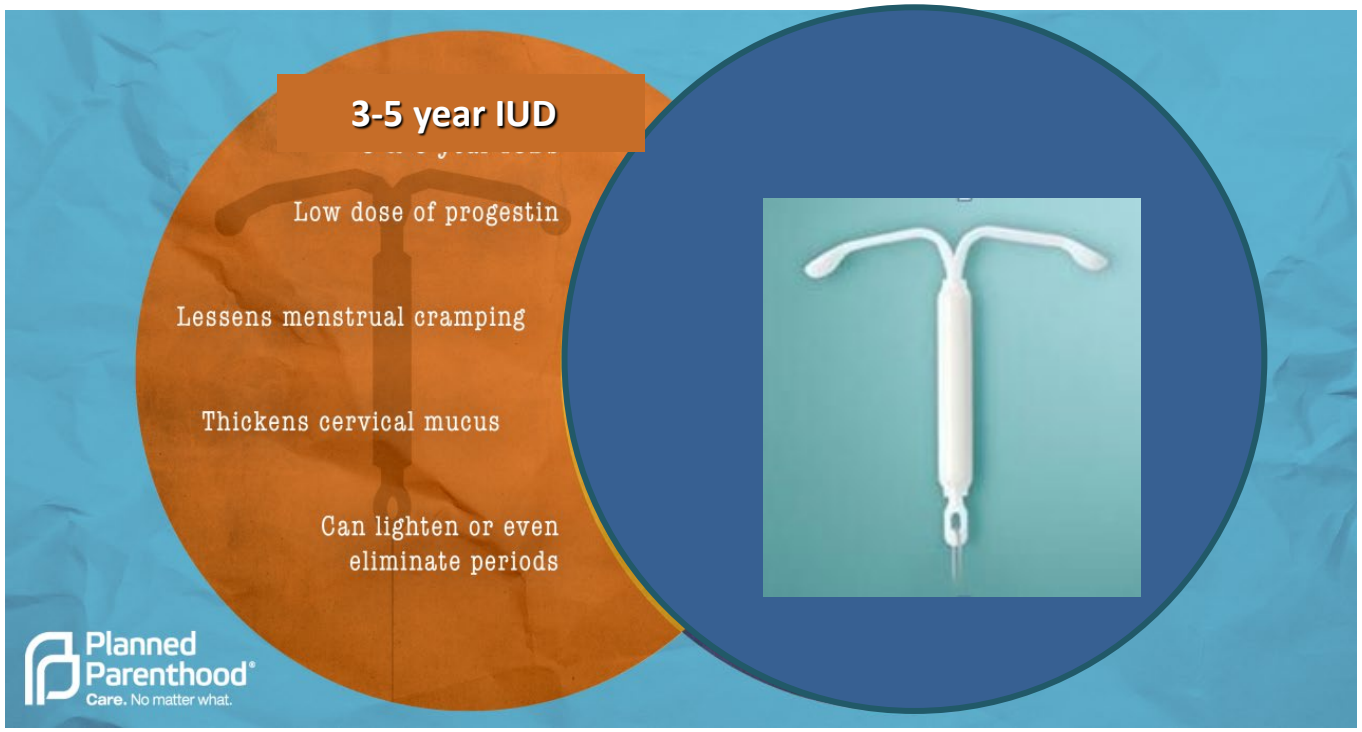
Intrauterine Devices (IUD)

Safety for both hormonal and copper IUD

- **Over 99% effective**
- **Inserted into the uterus**
- **Keeps sperm from reaching an egg**
- **Can be removed at any time**
- **Fertility returns after removal**
- **Can be used in adolescents**

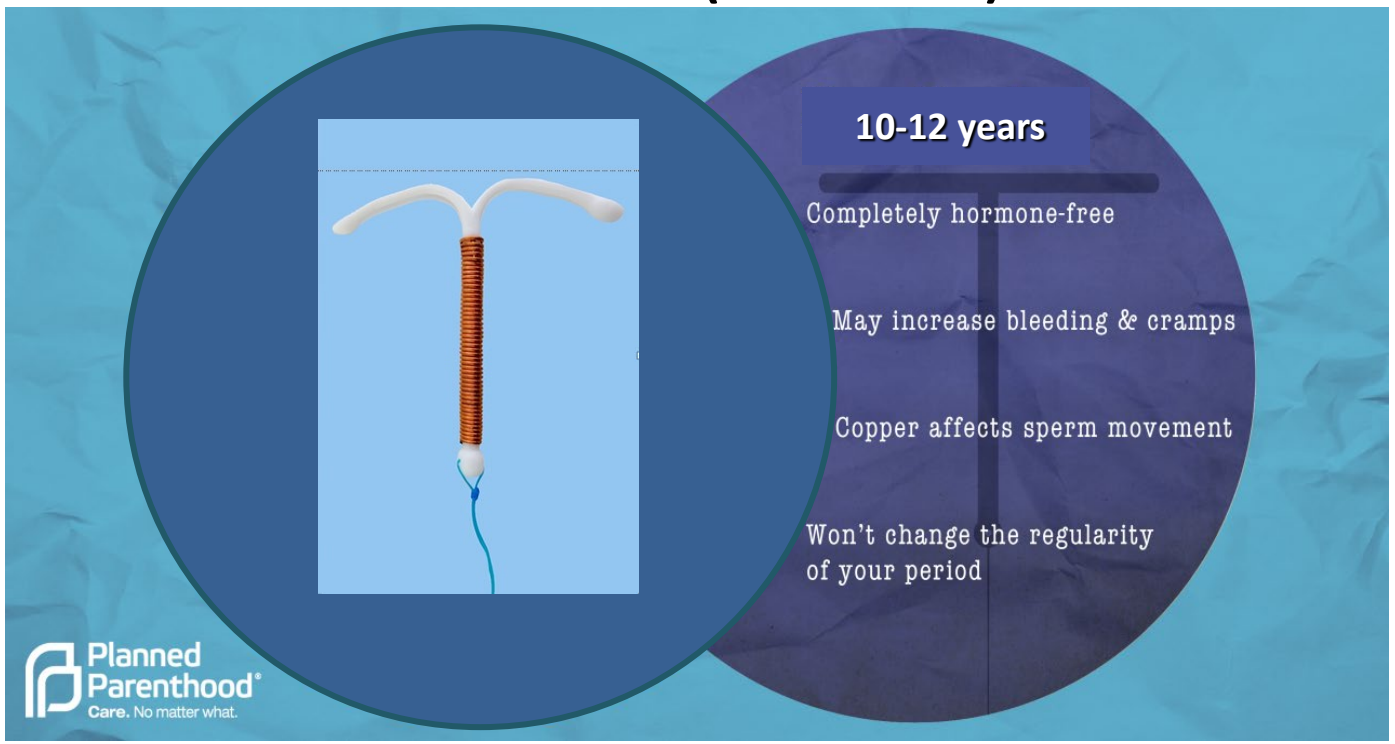
Intrauterine Devices (IUD)

Levonorgestrel (Skla & Mirena)



Intrauterine Devices (IUD)

Copper (ParaGuard)



Intrauterine Devices (IUD)

Historical concerns:

- **Lower efficacy of IUD with immunosuppression**
  - **Transplant IMS acts primarily on T cells, with preserved macrophage activity**
- **Risk of pelvic inflammatory disease (PID)**
  - **No increased PID risk in either general or immunocompromised populations**

IUD after transplant

n=647 women post KT
with 15.5% having an unwanted pregnancy

Table 2 Use of contraception after renal transplantation according to whether the transplant recipients had an unplanned pregnancy ($n=98$) or had not become pregnant ($n=536$).

	Unwanted pregnancy ($n=98$)		*No pregnancy ($n=536$)*		
Use of contraception	*Yes, n (%)*	*No, n (%)*	*Yes, n (%)*	*No, n (%)*	*p-value*
Rhythm method ($n=55$)	20 (20%)		35 (7%)		<0.0001
Condom ($n=253$)	12 (12%)		241 (45%)		<0.0001
Withdrawal ($n=22$)	7 (7%)		15 (3%)		0.0633
Oral contraceptive ($n=34$)	4 (4%)		30 (6%)		0.7040
Intrauterine device ($n=178$)	0 (0%)		178 (33%)		<0.0001

IUD after transplant

Study	N	Follow-up	Transplant	IUD	Pregnancy	PID
Juliato 2018	23	Median 6.3 yrs	KT, LT	LNG	0	0
Huguelet 2017	6	18-32 months	KT, LT	LNG	0	0
Ramhendar & Byrne 2011	11	38 months	KT	LNG	0	0
Bahamondes 2011	8	1 yr	KT, LT	LNG	0	0
Xu 2011	178	≥ 6 mo	KT	*	0	*
Fong 1999	1	1 yr	KT	LNG	0	0
Zerner 1981	2	*	KT	Copper	2	0

Failure rates: copper 0.8% and LNG 0.2%

*not reported

Combined Hormonal Contraceptives (CHC)

- Estrogen + progestin; 9% failure rate
- Safety concerns- VTE (1/1,000), cholestatic liver injury, stroke, HTN, P450 interactions- no controlled studies in transplant patients
  - **KT:** n=26 pill & n=10 patch users followed 18-36 mo:
    - 1 thrombophlebitis and 1 graft failure (10 yrs post KT) with pills; ~ 35% users required increased BP medications

  - **LT:** n=10 pill & n=6 patch users followed 12 months
    - 1 pt on high dose pills developed cholestasis
      - no issues with HTN

https://livertox.nih.gov/Estrogens.htm;

Progestin only

- **Progestin only pill (POP):**
  - No increased risk of VTE or HTN
  - Failure rate 9%

- **Injection** (Medroxyprogesterone)**:**
  - Every 12-week dosing, failure rate 6%
  - 2004 FDA black box warning for bone loss, (resolves with cessation of use)
  - Greater risk of impaired bone health in tx women

- **Implant** (Etonogestrel implant)**:**
  - Less effect on bone health; failure rate 0.05%
  - Compared 24 women with a transplant with implant vs. 24 matched controls (age, transplant type, institution)
  - No statistical differences in pregnancy, infection, immunosuppressant change between the groups

1 = No restriction
2 = Benefits outweigh theoretical or proven risks
3 = Risks may outweigh benefits
4 = Unacceptable risk

Of note, a 2024 version of the Medical Eligibility Criteria (MEC) is in process, and some MEC contraceptive safety grades in SOT recipients are anticipated to differ from 2016, as more published safety data and expert guidance documents are now available.

CDC Recommendations: Contraception After Solid Organ Transplant

Graft Condition	Copper IUD	Hormonal IUD	CHC (pill, patch, ring)	POP	DMPA	Implant
Uncomplicated	2	2	2	2	2	2
Complicated	3	3	4	2	2	2

Centers for Disease Control, MMWR Recomm Rep 2016

“Complicated” Graft Function

- *Complicated = “acute or chronic graft failure, rejection, or cardiac allograft vasculopathy”*

- Graft dysfunction primarily affects safety of estrogen containing agents (i.e., CHC)

Reasonable thresholds for CHC use[1]:

- Absence of decompensated cirrhosis[2]
- BP < 130/90 mmHg
- Normal renal function (*GFR ≥ 90)*
- Absence of cardiac allograft vasculopathy

[1]Sarkar et al, Am J Transplant 2018

CDC Recommendations: *Continued* Contraceptive With Graft Complications

Copper IUD	Hormonal IUD
2	2

1 = No restriction
2 = Benefits outweigh theoretical or proven risks
3 = Risks may outweigh benefits
4 = Unacceptable risk

Centers for Disease Control, MMWR Recomm Rep 2016

Summary: Contraception After Solid Organ Transplant

- **Most transplant recipients don't use effective methods of contraception.**
- **Unplanned pregnancy after transplant is common.**
- **Family planning should be discussed before transplant and throughout the post-transplant course.**
- ***IUDs:* low failure rate, minimal / no drug-drug interactions, and have a favorable safety.**
- **Risk /benefit of contraceptive use is less than an unplanned pregnancy.**


thank you
danke
謝謝
ngiyabonga
شكراً جزيلاً
teşekkür ederim
спасибо
dank je
gracias
tapadh leat
mochchakkeram
dziękuję
go raibh maith agat
obrigado
sukriya
kop khun krap
arigato
dakujem
merci
terima kasih
감사합니다
Мерси

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Contact Information

How to reach the TPRI to report pregnancies or request information:

Email: TPR@TransplantPregnancyRegistry.org

Toll-free (US): 877-955-6877
Outside US: 01-215-599-2078

Website: TransplantPregnancyRegistry.org

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