6-27-2020

Intrauterine Devices in the Context of Gonococcal Infection, Chlamydial Infection, and Pelvic Inflammatory Disease: Not Mutually Exclusive

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Published Citation

Esposito, Christa Palancia. "Intrauterine Devices in the Context of Gonococcal Infection, Chlamydial Infection, and Pelvic Inflammatory Disease: Not Mutually Exclusive." Journal of Midwifery & Women's Health 65, no. 4 (2020): 562-566. https://doi.org/10.1111/jmwh.13120

Intrauterine Devices in the Context of Gonococcal Infection, Chlamydial Infection, and Pelvic Inflammatory Disease: Not Mutually Exclusive

Abstract

The use of long-acting reversible contraception (LARC), namely intrauterine device (IUDs) and the subdermal implant, has been recommended to address the high rate of the unintended pregnancy in the United States. IUDs are a safe, highly effective contraceptive method, suitable for most women. The underutilization of IUDs arises in part from the lack of translation of best practices in the clinical setting as well as fears and misperceptions about this contraceptive method held by health care providers and women. This article reviews screening and management of *Neisseria gonorrhoeae and Chlamydia trachomatis* infection and pelvic inflammatory disease in women who are using or want to use an IUD. An IUD may be inserted without prior screening for *N gonorrhoeae* or *C trachomatis* in low-risk, asymptomatic women. An in situ IUD may remain in the uterus during and after treatment for *N gonorrhoeae*, *C trachomatis*, or pelvic inflammatory disease (PID). The risk of PID with an IUD in situ is less than 1%. Following IUD best practices, including their use in the context of sexually transmitted infections, can increase the availability of this method for suitable candidates and decrease the unintended pregnancy rate.

Keywords: Intrauterine device (IUD), long-acting reversible contraception (LARC), contraception, unintended pregnancy, sexually transmitted infections, *Neisseria gonorrhoeae*, *Chlamydia trachomatis*, pelvic inflammatory disease

Case Report

K.V. is 22-year-old woman who presents for her annual gynecological examination with her certified nurse-midwife (CNM). She had an induced abortion at a nearby clinic 3 months ago with no complications. She was prescribed oral contraceptive pills (OCPs) at the clinic but missed "a bunch" so stopped taking them. She is currently not using any form of contraception and would like to resume OCPs. K.V. had an appendectomy at age 12. She has no other obstetric history or health conditions. She is heterosexual and intermittently sexually active with the same partner for over two years. She reports no history of sexually transmitted infections (STIs) or pelvic inflammatory disease (PID).

Findings from the physical examination are normal, and a urine pregnancy test is negative. Neisseria gonorrhoeae and Chlamydia trachomatis tests were negative at her last visit one year ago and repeated at this visit. K.V. has no known contraindications to any contraceptive methods. Contraceptive options are discussed at length, including risks and benefits, and K.V. decides she would like an intrauterine device (IUD). She is scheduled to return to the office for the IUD insertion in 2 weeks, which should coincide with her menses.

K.V.'s C trachomatis test is positive. Azithromycin (Zithromax) is prescribed, and her IUD insertion visit that was scheduled for 2 weeks later is canceled. No follow-up appointment is made, and K.V. has no reliable contraception. When the CNM learns of the situation 2 days later, she calls K.V. and explains that she can still have the IUD placed and that her infection will be cured before the date of the insertion.[1,2] K.V. is hesitant to reschedule her IUD placement because she is worried about the risk of PID. The CNM advises K.V. that the risk of PID with an IUD is less than 1%[1,3] and reassures her of the efficacy and safety of the IUD. With K.V.'s continued uncertainty, the CNM offers her an appointment to revisit her contraceptive options and a prescription for an OCP for the interim. She encourages K.V. to use condoms to protect herself against pregnancy and STI.[4,1] K.V. declines an office visit and OCP prescription stating she will consider all her options and call back. K.V. never calls the office and does not respond to messages left by the CNM.

This case report is a composite of elements from different patients.

Introduction

In the United States, the unintended pregnancy rate is the highest for women between the ages of 20 and 25 years, at 81%.[5] The Healthy People 2020 initiatives to decrease unintended pregnancy and increase the use of long-acting reversible contraception (LARC), including the intrauterine device (IUD) and implant, call upon women's health care providers to offer effective contraception to appropriate candidates.[6] The rate of unintended pregnancy may be reduced by women's health care provider IUD counseling and provision.[7] In the context of the STIs *N gonorrhoeae* and *C trachomatis*, some health care providers may not to adhere to IUD best practices.[8] This article reviews evidence-based care for women with, or seeking, an IUD while experiencing a *N gonorrhoeae* or *C trachomatis* infection or PID.

Intrauterine Devices

LARC methods are 20 times more effective than other forms of contraception, such as OCPs.[9] IUD insertion is an in-office procedure with few contraindications.[9] There are currently 5 IUDs available, 4 levonorgestrel-releasing IUDs varying in size and dose and one hormone-free, copper IUD.[9] These IUDs are effective for between 3 and 10 years, depending on the type.[9]

Although LARC methods have a failure rate of less than 1%, they are underutilized, particularly in US women aged younger than 25 years.[10,11] Overall use of IUDs among US women is 11.8%.[12] The underutilization of IUDs stems, in part, from misinformation and fears about this method held by both health care providers and women.[5,13] Some health care providers limit the use of IUDs due to a perceived risk of STIs, PID, and the possibility of subsequent ectopic pregnancy and infertility.[14] While some health care providers and women remember an older generation of IUDs, such as the Dalkon Shield in the 1970s, that were linked with these complications, research on the currently available IUDs has found that they are safe, even with the diagnosis of a concomitant STI.[1,15,16]

Women report the lack of information and access to appropriate contraceptive methods, especially the IUD, as barriers to the use of highly reliable contraception.[13,17] Reluctance to use an IUD has been linked to "horror stories" communicated via friends and the media, fear of pain with insertion, fear of impairing future fertility, and historical injustices concerning the sterilization of Native American and black women.[13,17] Some US women perceive a lack of contraceptive autonomy, particularly when they sense contraceptive coercion by their

provider.[11,17] There may also be a perception of provider biases against socially marginalized women.[17] Women of varying races report a sense of distrust in their provider, specifically when their provider is reluctant to remove LARC when requested.[17] Through shared decision making, women's health care providers can dispel misconceptions and offer unbiased, noncoercive, evidence-based information to facilitate a suitable contraceptive choice.[13,17]

Candidates for Intrauterine Device Use

IUDs are an appropriate contraceptive method for most women, regardless of their age, parity, and history of STIs and ectopic pregnancy.[6,15] The *US Medical Eligibility Criteria for Contraceptive Use* (US MEC) is an evidence-based resource that summarizes recommendations for the safe use of contraceptive methods in the presence of medical conditions, such as migraine headache or diabetes, and other health characteristics, such as breastfeeding or medication use.[15] The US MEC classifies the use of each method of contraception on a scale of 1 to 4; a method categorized as a 1 may be used without reservation, a Category 4 indicates use of the contraception poses an unacceptable risk (see Table 1).[15] IUD use is further categorized in terms of its initiation and continuation. Broadly speaking, IUD initiation and continuation is deemed acceptable (Category 1, 2, or 3) in most situations.[15] IUD initiation is an unacceptable risk (Category 4) in the presence of a known or suspected active cervical or uterine infection, certain malignancies, and uterine anomalies.[15]

A consideration of IUD use in adolescents and women aged younger than 25 years is the risk of STIs and potential for PID. This age group has the highest risk of acquiring *N gonorrhoeae* and *C trachomatis*.[1] IUDs do not protect against STIs; condoms are recommended for concomitant use.[1,3] *N gonorrhoeae* and *C trachomatis* are among the leading causal agents for PID; however, having a history of either of these STIs is not a contraindication for IUD initiation or continuation.[1,15] Likewise, women with a history of ectopic pregnancy or PID treated more than 3 months ago may be candidates for an IUD.[1,15] In the presence of a known or suspected *N gonorrhoeae* or *C trachomatis* infection or PID, IUD insertion is delayed until screening is performed and/or treatment is completed.[1,15] In the absence of a known cervical or uterine infection or purulent cervical discharge, an IUD may be inserted with an unknown *N gonorrhoeae* and *C trachomatis* status.[1,15]

Screening and Treatment for *N gonorrhoeae* or *C trachomatis* with Intrauterine Device Use

N gonorrhoeae and *C trachomatis* may present asymptomatically, or mucopurulent cervical discharge, intermenstrual bleeding, or a friable cervix may be detected.[1] *N gonorrhoeae* and *C trachomatis* may be detected through a nucleic acid amplification test (NAAT) of an endocervical or vaginal swab specimen or a first-void urine specimen at the time of IUD insertion.[1] *C trachomatis* is treated with a one-time 1 g oral dose of azithromycin.[1] *N gonorrhoeae* is treated with a one-time dose of ceftriaxone (Rocephin) 250 mg intramuscularly and azithromycin 1 g orally, due to the incidence of concomitant *C trachomatis* infection.[1] There are acceptable alternatives to these regimens (see Table 2).[1] *N gonorrhoeae* and *C trachomatis* are considered cured one week after treatment.[1] Therefore, the insertion of an IUD may proceed one week after the diagnosis and treatment of these infections. If an IUD is in situ, it may remain in place during the treatment of *N gonorrhoeae* and *C trachomatis*.[1] Rescreening for *N gonorrhoeae* and *C trachomatis* after treatment should take place in 3 months, unless reinfection is suspected sooner, but no sooner than 3 weeks after treatment to avoid a false-positive from nonviable organisms still present in the vagina.[1]

Treatment of Pelvic Inflammatory Disease in Women with an Intrauterine Device

PID is caused by a myriad of bacteria in the genital tract, including *N gonorrhoeae* and *C trachomatis*.[1] The presentation of PID can be vague but often includes pelvic or low abdominal pain.[1] A low threshold for diagnosis and treatment should be practiced to avoid the potential sequelae of PID, including ectopic pregnancy and infertility.[1] The minimum criteria for the diagnosis of PID is the presence of any one of the following: uterine tenderness, cervical motion tenderness, or adnexal tenderness.[1] Other signs may include fever (temperature > 101^{o}F), purulent cervical discharge, cervical friability, and elevated C-reactive protein or erythrocyte sedimentation rate values.[1] Treatment regimens for uncomplicated, mild to moderately severe PID are presented in Table 3.[1] Inpatient intravenous therapy is warranted in severe cases with high fever, nausea, vomiting, tubo-ovarian abscess, inability to tolerate oral treatment, or lack of response to oral or intramuscular antibiotics.[1]

IUD insertion is contraindicated in women with current PID.[1] If a woman who has an IUD develops PID, her IUD does not have to be removed.[1] The removal of an IUD does not affect the course of active PID.[15] IUD removal is indicated if PID is unresponsive to treatment or

the woman desires removal (see Figure 1).[1,3] When IUD removal is needed, it should be delayed until 48 to 72 hours after the initiation of antibiotics to prevent dissemination of the infection.[1,15]

Implications for Clinical Practice

This case report highlights the use of IUDs in the context of STIs and PID and the need for women's health care provider education and translation of best practices into clinical practice.[18,19] Midwives have a role in the ongoing education of the interprofessional women's health care team. Consistency in women's health care providers' translation of IUD best practices into clinical practice needs improvement.[8,20] It is important to ensure all health care providers, including those who provide primary and pediatric care, are aware the use of IUDs is recommended for young women and that STIs are not a contraindication for IUD use or continuation.[1,15,21]

A woman's lifelong contraceptive decision making is facilitated by her health care provider and her health care provider's recommendations.[22] Women's health care providers can ensure access and provision of desired contraception at every visit. A recent study found that almost 25% of eligible women (n = 305) did not receive any form of contraception over the course of 450 cumulative visits to a health care setting.[20] This study highlights the missed opportunity for contraception provision by women's health care providers.[20]

Ongoing women's health care provider LARC training has increased health care provider IUD knowledge and utilization.[18,19] A free, publicly available resource that can be used for health care provider training and dissemination of IUD best practices is the American College of Obstetricians and Gynecologists (ACOG) LARC Video Series.[9] This set of videos covers various topics including IUD candidacy, counseling, informed consent, and clinical management.[9] With women's health care providers' implementation of current IUD best practices, women may realize increased access to appropriate contraception, which can decrease the rate of unintended pregnancy.

Conclusion

In the United States, unintended pregnancy is a persistent public health problem. Providing appropriate contraception can prevent unintended pregnancy. While the evidence shows that most women are candidates and there are few contraindications to IUD use, some health care

providers may not offer IUDs to eligible candidates due to fears and lack of knowledge, particularly in the context of STIs and PID.[9,22] The CDC and ACOG recommend health care providers offer IUDs as a safe contraceptive method, specifically to young women with the highest risk of unintended pregnancy.[3.9] History of ectopic pregnancy or PID are not contraindications for IUD use; IUDs may be inserted in low-risk, asymptomatic women without prior *N gonorrhoeae* or *C trachomatis* screening.[1,15] A diagnosis of *N gonorrhoeae* or *C trachomatis* infection or PID does not require removal of the IUD.[1] Women's health care providers serve women best by meeting their contraceptive needs. Implementation of best practices facilitates the access to and provision of IUDs relative to STIs and PID.

References

1. Centers for Disease Control and Prevention. *2015 Sexually Transmitted Diseases Treatment Guidelines*. https://K.V..cdc.gov/std/tg2015/default.htm. Accessed August 26, 2019.
2. Birgisson NE, Zhao Q, Secura GM, Madden T, Peipert JF. Positive testing for neisseria gonorrhoeae and chlamydia trachomatis and the risk of pelvic inflammatory disease in IUD users. *J Womens Health*. 2015; 24(5), 354-359. doi:10.1089/jwh.2015.5190.
3. Curtis KM, Jatlaoui TC, Tepper NK, Zapata LB, Horton LG, Jamieson DJ, et al. U.S. Selected Practice Recommendations for Contraceptive Use, 2016. *MMWR Recomm Rep*. 2016; 65(4), 1-66. http://dx.doi.org/10.15585/mmwr.rr6504a1. Accessed January 19, 2020.
4. American College of Obstetricians and Gynecologists. College guidance on annual women's health care. https://K.V..acog.org/About-ACOG/ACOG-Departments/Annual-Womens-Health-Care/College-Guidance-on-Annual-Womens-Health-Care. Accessed January 19, 2020
5. Finer LB, Zolna MR. Declines in unintended pregnancy in the United States, 2008-2011. *New Eng J Med* . 2016; 374(9): 843-852. doi:10.1056/NEJMsa1506575
6. Healthy People 2020. Washington, DC: U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion. https://www.healthypeople.gov/2020/topics-objectives/topic/family-planning. Accessed January 19, 2020.
7. Harper CC, Rocca, CK, Thompson KM, Morfesis J, Goodman S, Darney PD, et al. Reductions in pregnancy rates in the USA with long-acting reversible contraception: A cluster randomised trial. *Lancet*. 2015; 386(9993), 562-

568. https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(14)62444-2/fulltext. Accessed August 23, 2019.

8. Philliber AE, Hirsch H, Brindis CD, Turner R, Philliber S. The use of ACOG guidelines: Perceived contraindications to IUD and implant use among family planning health care providers. *Matern Child Health J*. 2017; 21(9), 1706-1712. https://doi.org/10.1007/s10995-017-2320-1. Accessed August 23, 2019.
9. American Congress of Obstetricians and Gynecologists. The Long-acting Reversible Contraception (LARC) Program: *LARC Video Series. https://www.acog.org/About-ACOG/ACOG-Departments/Long-Acting-Reversible-Contraception/LARC-Video-Series.* Accessed January 19, 2020.
10. Trussell J. Contraceptive failure in the United States. *J Contracept*. 2011; 83(5): 397-404. Doi:10.1016/j.contraception.2011.01.021
11. Zeal C, Higgins JA, Newton SR. Patient-perceived autonomy and long-acting reversible contraceptive use: A qualitative assessment in a midwestern, university community. *Biores Open Access.* 2018; *7*(1), 25-32. doi.org/10.1089/biores.2017.0037.
12. Kavanaugh ML, Jerman, J. Contraceptive method use in the United States: trends and characteristics between 2008 and 2014. *Contraception*. 2018; 97(1):14–21. https://doi.org/10.1016/j.contraception.2017.10.003. Accessed August 23, 2019.
13. Gomez AM, Freihart B. Motivations for interest, disinterest and uncertainty in intrauterine device use among young women. *Matern Child Health J*. 2017; 21(9), 1753-1762. https://doi.org/10.1007/s10995-017-2297-9. Accessed August 23, 2019.
14. Harper CC, Blum M, Thiel de Bocanegra H, Darney P, Speidel JJ, Policar M, et al. Challenges in translating evidence to practice: The provision of intrauterine contraception.

Obstet Gynecol. 2008; 111(6), 1359-1369. https://journals.lww.com/greenjournal/Fulltext/2008/06000/Obstetrician_Gynecologists_and_the_Intrauterine.17.aspx. Accessed August 23, 2019.

15. Curtis KM, Tepper NK, Jatlaoui TC, Berry-Bibee, E., Horton LG, Zapata LB, et al. Centers for Disease Control and Prevention. U.S. Medical Eligibility Criteria for Contraceptive Use, 2016. *MMWR Recomm Rep*. 2016; 65(3), 1-104. https://www.cdc.gov/mmwr/volumes/65/rr/rr6503a1.htm Accessed January 19, 2020.
16. Lotke PS. Increasing use of long-acting reversible contraception to decrease unplanned pregnancy. *Obstet Gynecol Clin North Am.* 2015; 42(4): 557-567. doi: 10.1016/j.ogc.2015.07.008.
17. Higgins JA, Kramer RD, Ryder KM. Health care provider bias in long-acting reversible contraception (LARC) promotion and removal: Perceptions of young adult women. *Am J Public Health.* 2016; 106(11), 1932-1937. https://ajph.aphapublications.org/doi/pdf/10.2105/AJPH.2016.303393. Accessed August 23, 2019.
18. Thompson, KM, Rocca, CH, Stern, L, Morfesis, J, Goodman, S, Steinauer, J, et al. Training contraceptive health care providers to offer intrauterine devices and implants in contraceptive care: A cluster randomized trial. *Am J Obstet Gynecol*. 2018; 218(6), 597.e1-e7. https://doi.org/10.1016/j.ajog.2018.03.016. Accessed July 28, 2019.
19. Esposito CP, LoGiudice JA. Beliefs and use of intrauterine devices among women's healthcare providers. *J Nurse Pract*. 2019; 15(9), 682-687. doi.org/10.1016/j.nurpra.2019.05.005
20. Santibenchakul S, Tschann M, Carlson ADP, Hurwitz EL, Salcedo J. Promotion of long-

acting reversible contraception among adolescents and young adults. *J Midwifery Womens Health*. 2019; 64(2): 194-200. https://doi.org/10.1111/jmwh.12934. Accessed August 23, 2019.

21. Saldanha, N. Use of short acting reversible contraception in adolescents: The pill, patch, ring, and emergency contraception. *Curr Probl Pediatr*. 2018; 48(2), 333-344. https://doi.org/10.1016/j.cppeds.2018.11.003. Accessed July 28, 2019.
22. Guzzo, KB, Hayford, SR. Adolescent reproductive and contraceptive beliefs and attitudes and adult contraceptive behavior. *Matern Child Health J*. 2018; 22(1), 32-40. https://link.springer.com/article/10.1007%2Fs10995-017-2351-7. Accessed August 23, 2019.

Table 1. *US Medical Eligibility Criteria for Contraceptive Use* Classification Categories

1	A condition for which there is no restriction for the use of the contraceptive method.
2	A condition for which the advantages of using the method generally outweigh the theoretical or proven risks.
3	A condition for which the theoretical or proven risks usually outweigh the advantages of using the method.
4	A condition that represents an unacceptable health risk if the contraceptive method is used.

Source: Centers for Disease Control and Prevention.[15]

Table 2. Treatment of Uncomplicated *N gonorrhoeae* and *C trachomatis* Infections

Medication	Dose	Route	Frequency, per day	Duration, day
Recommended Regimens for *C trachomatis*				
Azithromycin (Zithromax)	1 g	Oral	1	1
or				
Doxycycline (Doryx)	100 mg	Oral	2	7
Alternative Regimens for *C trachomatis*				
Erythromycin base (Ery-Tab)	500 mg	Oral	4	7
or				
Erythromycin ethyl succinate (EES 400)	800 mg	Oral	4	7
or				
Levofloxacin (Levaquin)	500 mg	Oral	1	7
or				
Ofloxacin (Floxin)	300 mg	Oral	2	7
Recommended Regimen for *N gonorrhoeae*				
Ceftriaxone (Rocephin)	250 mg	IM	1	1
plus				
Azithromycin (Zithromax)	1 g	Oral	1	1
Alternative Regimen for *N gonorrhoeae*: If ceftriaxone is not available				
Cefixime (Suprax)	400 mg	Oral	1	1
plus				
Azithromycin (Zithromax)	1 g	Oral	1	1

Source: Centers for Disease Control and Prevention.[1]

Table 3. Treatment of Mild to Moderately Severe Pelvic Inflammatory Disease

Medication	Dose	Route	Frequency, per day	Duration, day
Recommended Intramuscular/Oral Regimens				
Ceftriaxone (Rocephin)	250 mg	IM	1	1
plus				
Doxycycline (Doryx)	100 mg	Oral	2	14
with or without*				
Metronidazole (Flagyl)	500 mg	Oral	2	14
or				
Cefoxitin (Mefoxin)	2 g	IM	1	1
and				
Probenecid (Probalan)	1 g	Oral	1	1
plus				
Doxycycline (Doryx)	100 mg	Oral	2	14
with or without*				
Metronidazole (Flagyl)	500 mg	Oral	2	14
or				
Other parenteral third-generation cephalosporin (e.g., ceftizoxime or cefotaxime)				
plus				
Doxycycline (Doryx)	100 mg	Oral	2	14
with* or without				
Metronidazole (Flagyl)	500 mg	Oral	2	14

*The recommended third-generation cephalosporins are limited in the coverage of anaerobes. Therefore, until it is known that extended anaerobic coverage is not important for treatment of acute pelvic inflammatory disease, the addition of metronidazole to treatment regimens with third-generation cephalosporins should be considered.

Source: Centers for Disease Control and Prevention.[1]

Figure 1. Management of Pelvic Inflammatory Disease in Intrauterine Device Users

*Treat according to CDC's *STD Treatment Guidelines* (available at https://www.cdc.gov/std/treatment).

Abbreviations: IUD, intrauterine device; PID, pelvic inflammatory disease.

Source: Adapted from Center for Disease Control and Prevention.[3]