Using an Intrauterine Device in Immunocompromised Women

Hyacinth Browne, MD[a], **Somjate Manipalviratn, MD**[a], and **Alicia Armstrong, MD, MHSCR**[a]

a*Program in Reproductive and Adult Endocrinology, NICHD, NIH, Bethesda, Maryland, United States, 20892*

Abstract

Intrauterine devices (IUDs) are a viable treatment option for immunocompromised women who need contraception or menses suppression. They may also be an alternative treatment for women who have a contraindication to estrogen use. A review of the literature on IUD use in this population is sparse, but currently available data suggest that immunocompromised women are not at greater risk of developing pelvic infections.

The effectiveness of the IUD for its contraceptive and non-contraceptive benefits is well-documented (1). Since the introduction of the Dalkon shield in 1970, which was associated with a higher incidence of infectious morbidity and resultant litigation, both patients and physicians often associate all IUDs with increased infectious morbidity (2). Clinical experience and studies; however, indicate that the risk of infection is significantly increased immediately after its insertion (2), but this risk decreases with time. Among immunocompetent women, the IUD is highly effective and safe (1,2) and is a common form of contraception world-wide (1). However, as a result of the experience with the Dalkon Shield, there is a great deal of reluctance to consider its use and it is still underutilized in the United States. Furthermore, it is often not considered in neutropenic or immuno-compromised patients, even though there is very little evidence in the literature to support a markedly increased risk of infectious morbidity in this population. We address the use of IUDs in immuno-compromised women to show that there is no definitive evidence regarding an increased risk of infectious morbidity associated with its use in this population.

The literature on IUD use in immuno-compromised women is sparse, but most of the available evidence is in the HIV-infected population. Some of the theoretical concerns about IUD placement in HIV-infected women include an increased risk of pelvic inflammatory disease (PID) because they are immuno-compromised, and a theoretical increase in the risk of female-to-male transmission of HIV via increased viral shedding or menstrual blood loss (2). However, the data does not suggest that immuno-compromised HIV-infected women have a higher likelihood of febrile morbidity with IUD usage (3), or have a higher female-to-male HIV-1 transmission rate (4). A well-designed prospective study in 98 women examining the prevalence of HIV-1 DNA cervical shedding showed no statistically significant difference in viral shedding rates between the baseline (50%) and at 4-month follow-up after copper IUD insertion (43%) (OR 0.8; 95% CI 0.5-1.2) (5).

Corresponding author: Hyacinth Browne, MD Program in Reproductive and Adult Endocrinology, NICHD CRC 1 East Rm 1-E-3140 National Institutes of Health 10 Center Drive Bethesda, MD 20892 Telephone: 301-402-7309 Fax: 301-402-0884 E mail: brownehy@mail.nih.gov.

Precis: Immunocompromised women are not at greater risk of developing pelvic infections when using intrauterine devices.

A prospective cohort study of 649 women (3) that examined complications associated with the use of copper intrauterine devices among HIV-1-infected women and non-infected women over 4 months showed no increase in overall complications in women regardless of immune status. Furthermore, women who were severely, moderately, and mildly immunocompromised had an overall infection-related complication rate of 0%, 8% and 8%, respectively. During the 2-year follow-up of 636 of these women, the incidence of pelvic inflammatory disease was rare in both HIV-1-infected women (2.0%) and non-infected women (0.4%), (P = .09) (6). Multivariate analyses also suggested no association between HIV-1 infection and increased risk of overall complication (HR = 1; 95% CI 0.6-1.6). Infection-related complications were also similar between groups (10.7% of HIV-1 infected, 8.8% of non-infected; P = .05). IUD use remained safe after 2 years of use in both groups, and infection-related complications were also comparable between groups. Although the authors did not have adequate power to detect differences in complication rates between the two groups, no increase in infectious morbidity was noted in women who were HIV-infected and used an IUD.

A more recent study (7) that randomized 599 post-partum HIV-infected women to receive either the copper IUD or hormonal therapy for contraception, and then followed them for two years, showed no difference in infectious morbidity between the two groups. No one in the hormonal therapy arm developed PID, whereas one woman assigned to the IUD group developed PID (crude rate, 0.16/100 woman-years; 95% CI, 0.004-868). In addition, there was a greater risk of disease progression in women who received hormonal contraception (13.2/100 woman-years) than in those who were allocated to the IUD arm (8.6/100 woman-years; hazard ratio, 1.5; 95% CI, 1.04-2.1).

In addition to the contraceptive benefits of IUDs, levonorgestrel-releasing intrauterine system (LNG-IUS) was shown to reduce menstrual blood loss with an associated slight increase in hemoglobin during a 12-month follow-up in a small prospective study of 12 HIV-infected women (8). No occurrence of pelvic inflammatory disease was reported in this study. Moreover, detectable rates of HIV RNA in cervicovaginal lavage remained the same before and after the insertion of LNG-IUS (10%).

Copper IUD use in women with systemic lupus erythematosus (SLE) has not been associated with an increase in pelvic infections (9,10). One randomized, prospective study (9) that looked at contraceptive methods in 162 women with SLE showed that copper IUD use did not change disease activity, incidence of lupus flares, and development of severe infections. Although more women in the IUD group developed severe infections compared to the combined oral contraceptives and progestin-only groups (5/54, 3/54, 2/54, respectively), 2/5 of these infections in the IUD group were related to meningitis. The types of infections that these women developed were not reported by the authors.

Julkunen et al. (10) also investigated the contraceptive practices of 85 women with SLE compared to immunocompetent women and found that there was a lower tendency for IUD and oral contraceptive use in women with SLE compared to barrier and natural methods. Although only 12% of women used a copper IUD in this study, there were no major infectious or bleeding complications associated with its use. The authors postulated that the lower use of IUDs by SLE patients as compared to healthy women may reflect the fear of both physicians and patients about the potential risk of developing infections since they are immuno-compromised.

Levonorgestrel (LNG) IUD use for treatment of menorrhagia secondary to uterine myomas in a renal transplant patient has also been reported and was not associated with febrile complications (11). The IUD was found to be an effective non-surgical treatment option for menorrhagia related to myomas. In addition to the theoretical concern of increased infectious

morbidity with IUD use in immuno-compromised women, there have been case reports describing copper IUD failures in immuno-compromised renal transplant patients (12). Immunosuppressive agents, such as cytoxan, leukeran, and azathioprine, have been shown to alter the immune response generated by the IUD and to reduce its efficacy, thus allowing for conception to occur (12).

Much of the reluctance to insert IUDs is based on earlier studies that linked IUD use to an increase risk of PID (13). However, many of these studies had inappropriate comparison groups, overdiagnosed salpingitis among IUD users, and did not control for potential confounders (such as prior PID, sexual behaviour, and the presence of sexually transmitted diseases) (2,13). More recent studies do not support an increased risk of infectious morbidity with IUD use in immuno-compromised women (3,6,7-11), but its use should be closely monitored for abnormal clinical signs and symptoms in these women. Based on the current available data, the IUD is a viable treatment option for immuno-compromised women who need contraception and menses suppression, and it may be an alterative treatment for women who have a contraindication to estrogen use.

Acknowledgements

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