

Is there a real role and place for use of intrauterine contraception in South Africa?

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Introduction

The intrauterine contraception device (IUD) is highly effective, safe, cost-effective, long-acting, and rapidly reversible with few side effects. It is a private and convenient method of contraception, does not interfere with the spontaneity of sex, is acceptable to many patients, has superior continuation rates, and offers several non-contraceptive health benefits

There are different types of IUD approved for use in South Africa. With regards to copper containing devices, the copper T380A is considered to be the "golden standard" internationally, being significantly more effective in pregnancy prevention than all other copper containing intrauterine devices. Copper T380A is registered for ten years use and long term follow up indicates that the device has a cumulative failure rate at 7 yrs of 1.4/100 women with proven efficacy of 2.2/100 women at 12 yrs.¹ The World Health Organization (WHO) concluded that the CuT380A is equally effective as female sterilization in long term pregnancy prevention and should be considered as an alternative to surgical sterilization.

The levonorgestrel releasing intrauterine system (LNg) consist of two types. One contains 52 mg of levonorgestrel with an initial release rate of 20 mcg/day (Mirena® referred to as LNg20) and the other contains 13.5 mg of levonorgestrel initially released at 14 mcg/day (Skyla, referred to as LNg14). The LNg20 IUD is approved for up to five years of contraceptive use. The LNg20 IUD marketed as Mirena® has not been studied for extended use; however, related IUDs with a similar dose of levonorgestrel may have efficacy beyond five years.² With perfect use, the probability of pregnancy in the first year is 0.1 percent; with typical use, the first-year pregnancy rate is 0.1 to 0.2 percent.² This is comparable to that with sterilization procedures. With five years of continuous use, the cumulative pregnancy rate is 0.5 to 1.1 percent.^{3,4}

South Africa is a developing country with financial challenges that's hampers health service delivery. In SA we are also faced with an HIV endemic, with recent statistics

indicating that HIV transmission had increased despite the availability of antiretroviral drugs. IUD offers some solutions in our health challenges as it has proven to be a highly and cost effective safe contraception method.

IUD is equally effective as surgical sterilization

The LNg20 IUDs and the TCu380A IUD are two forms of long acting reversible contraception both available in SA. Method failure rates are comparable to that of tubal sterilization, thus they should be considered as first-line alternatives to surgical sterilization. Currently the main methods of surgical sterilization are performed laparoscopically or hysteroscopically. Laparoscopic sterilization requires at least one day of hospitalization, theatre time, equipment and a skilled surgical team. Hysteroscopy requires equipment and skills not available in most hospitals. If according to the literature IUDs are as effective as sterilization, the question is can IUDs replace the need for surgical sterilization? If IUDs can be readily available in SA it will reduce the cost to the patients and the healthcare system.

Cancer risk reduction

Cervical cancer is the most common malignancy in women living in developing countries. In SA the high prevalence of HIV infection increases and complicates the risk of premalignant lesions and invasive cancer. The primary method of prevention of cervical cancer is the HPV vaccine which is available in SA and secondary prevention is cervical cytology which is currently poorly implemented in SA. According to some studies women who have ever used a copper T380A or LNg20 IUD had a reduced risks of cervical cancer compared with nonusers (cervical cancer OR 0.55, 95% CI 0.42-0.70) despite the fact that there were no differences in the prevalence and distribution of HPV types.⁵ One hypothesis for the decreased risk of cervical cancer is that the device or its string triggers a cellular immune response that prevents persistence of HPV infection.^{5,6}

IUDs can provide reduce cervical cancer risk in countries with poorly implemented screening programmes. It might also slow the progression of premalignant lesions to cancer in HIV positive patients. LNg20 protect against endometrial cancer by causing endometrial decidualisation and glandular

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atrophy. It can also be used in women with endometrial hyperplasia and as endometrial protection for those on oestrogen therapy.

IUDs as emergency contraception

The lifetime risk of dying due to pregnancy in sub-Saharan Africa is 1 in 22.⁷ It is estimated that 14 million unintended pregnancies occur every year in sub-Saharan Africa.⁸ High pregnancy rates are common amongst adolescent women in South Africa. Unintended pregnancy and abortion remain a common problem in South Africa. This is partly due to lack of service provision and the healthcare system's inability to meet women's contraceptive needs. However, a large proportion of these pregnancies also occur due to lack of knowledge and myths regarding contraception, failure and discontinuation of short-term hormonal contraception.⁸

Emergency contraception has the potential to significantly decrease rates of unintended pregnancy and abortion significantly in SA. The copper IUD is currently the most effective method of emergency contraception with the failure rates of less than 1 in 1000 compared to 15-30 per 1000 for hormonal emergency contraception.⁹ It should especially be considered in the group of women that present between 72 and 120 hours after unprotected sexual intercourse. An additional benefit is that it can be left in situ as a long-term regular contraceptive method.

Post-abortion and postpartum placement

Intrauterine devices (IUDs) can be inserted immediately after a pregnancy termination, spontaneous miscarriage, or delivery. Post-abortion and postpartum procedures are convenient and ensure that the woman is not pregnant. Ovulation can return as soon as three weeks after delivery in those who are not fully breastfeeding, and by three months for those who are.

Since follow-up is a challenge in most of our patients in SA this method may benefit patients who are unable or unwilling to return for later insertion, and who do not have other options for effective contraception. IUDs may be more convenient in patients with unreliable follow-up because it requires less visits for surveillance. Prior to post-abortion insertion, the provider should verify that the operation was uncomplicated and confirm the absence of infection or significant bleeding. Ultrasound guidance may be useful for fundal placement. Prior to post delivery insertion, the provider should verify that the delivery was uncomplicated, the uterus is well contracted (uterotonic agents may be given), bleeding has diminished, and there is no evidence of infection. Insertion should be avoided if there has been postpartum haemorrhage or if there is any suspicion of retained placenta or disruption of a uterine scar. Fundal placement is important for minimizing the risk of expulsion. Breastfeeding does not appear to affect the risk of expulsion.

Privacy

SA is country with different cultures and religious beliefs. Women abuse is a common problem worldwide (despite race, level education and regions) and many women in SA suffer different kinds of abuse including reproductive abuse. For some of those women IUDs offer some solutions. Insertion of IUDs is an office procedure requiring minimum skills and it

can be inserted at any time during the menstrual cycle as well as post-abortion and postpartum. This means that it can be done at primary health care level as an out-patient at any time excluding pregnancy without knowledge of the male partner. The privacy of IUD offers a better solution in women who are deprived of their reproductive choices by their male partner.

HIV

Intrauterine contraception does not increase the risk of HIV acquisition over that in users of other contraceptives.^{10,11} Limited data also show no increased risk of PID in HIV-infected IUD users compared with HIV-negative IUD users or HIV-infected women not using an IUD; the lack of increased risk also applies to HIV infected women with low CD4 counts.^{12,13}

There is no evidence of greater cervical shedding of HIV-1 DNA in HIV-infected IUD users and no increased risk of transmission to an HIV-negative partner.¹⁴ In addition; there are no known drug interactions between IUDs and antiretroviral therapy.¹⁵

Women who are HIV-infected, like other women, need effective long-term contraception. In conjunction with correct and consistent condom use, the IUD may be safely used in women with or at risk of HIV infection.¹⁴ However, for women at risk of HIV infection who are also at risk of acquiring other sexually transmitted diseases (STDs), a progestin contraceptive, including a levonorgestrel IUD, may be preferable due to protection against ascending infections.

There are sparse data on the safety and efficacy of IUD use by women with immunosuppression unrelated to HIV (e.g. women undergoing cancer chemotherapy, organ transplant recipients, and women receiving immunosuppressive therapy for autoimmune disease). In general, the WHO, centres for disease control (CDC), and Society of Family Planning (SFP) do not consider immunosuppression a contraindication to IUD use, primarily based on safety and efficacy data from HIV-positive women.^{16,17}

Pelvic infection

Misinformation about the risk of pelvic infection and infertility among health providers and patients has led to limited use of IUDs. Infertility secondary to infection is a common problem in SA. There is no scientific reason why a sterile IUD, inserted under aseptic conditions causes infections. Pelvic inflammatory disease (PID) is most strongly associated with the insertion process and with the user's risk of acquiring a sexually transmitted disease.^{18,19} The risk of infection is greatest in the first 20 days after insertion and is rare thereafter and does not increase with prolonged IUD use.^{18,20} PID following insertion is due to a polymicrobial infection, usually involving anaerobic bacteria from the cervix and vagina.²¹ Risk factors include bacterial vaginosis, cervicitis, and contamination of the endometrial cavity at insertion.²²

Infections more than one month after insertion are generally due to a newly acquired STD.^{21,23} The LNG20 IUD may decrease the risk of PID, as observed with other progestin-containing contraceptives.^{24,25} Progestin thickens cervical mucus, thereby possibly providing an enhanced barrier against ascending infection.

Ectopic pregnancy

The IUD is protective against both intrauterine and extra-uterine pregnancies and is an acceptable option for women with a history of a prior ectopic pregnancy or risk factors for ectopic pregnancy.^{2,28} Women with a past history of ectopic pregnancy can safely use either the LNg or copper IUD. Women using intrauterine contraception have a lower incidence of ectopic pregnancy than non-contracepting women because the IUD works by preventing fertilization as well as implantation. Women using no contraception are 10 times as likely to develop an ectopic pregnancy as IUD users.² However, IUD users are at higher risk of having an ectopic pregnancy if pregnancy occurs (1 in 2 pregnancies for the LNg20 IUD and 1 in 16 pregnancies for the copper IUD versus 1 in 50 pregnancies among non-contraceptors).^{27,28}

Chronic medical conditions

The Centres for Disease Control (CDC) and the World Health Organization have published eligibility criteria tables for intrauterine contraception by maternal medical condition or personal characteristics. IUDs are suitable for use in most patients with underlying medical conditions because of less systemic effects. Many women with complicated and uncomplicated medical conditions do not qualify to use hormonal contraception. In addition some women requiring a permanent method of contraception are not eligible for surgery due to their medical condition. In those circumstances IUDs are an effective alternative method of contraception.

Peri-menopausal women

A patient in peri-menopausal period still requires effective contraception. These patients are at risk of pregnancy, and pregnancy at this period carries significant morbidity and mortality. The majority of those patients opt for surgical methods. IUDs are an effective alternative to surgery in these patients.

Cost-effectiveness

When considering cost-effectiveness of contraception, one must consider direct and indirect cost. Direct costs include service provision such as drug costs, staff costs and equipment costs. Indirect costs include pregnancy and outcome of that pregnancy (e.g. TOP, miscarriage and term delivery). The financial burden of unintended pregnancy is huge on healthcare resources irrespective of pregnancy outcomes. Many unplanned pregnancies results in children dependant on child support grants, health care costs and educational costs for approximately eighteen years.

In the UK it has been estimated that the provision of family planning services saved the country £25 billion in 1991.²⁹ This included savings within the British National Health Service (NHS) and additional savings from income maintenance payments (e.g. Child benefit).²⁹ Studies in the USA demonstrated similar cost-savings.³⁰ Hence, cost-effectiveness is influenced by the methods' contraceptive effectiveness especially regarding failure rates, compliance and continuation rates.³⁰

The IUD method is more cost-effective than the combined oral contraceptive pill even if only used for 1

year.³¹ The IUDs and implants are more cost-effective than the progestogen only injectable contraceptives.³¹ The Cu-IUD is the least expensive option but the implant is the most effective.

Even though the South African economy does not equate to the developed countries, one must consider the immeasurable costs such as cessation of schooling in teenage mothers, loss of the human potential and poor quality of life.

Copper or Levonorgestrel?

Most women can safely use either the copper or levonorgestrel (LNg) IUDs. When counselling a patient about the choice of IUD, it is helpful to know her menstrual history, her medical history, her desire for lighter or less painful menses, and her feelings about amenorrhea, unscheduled bleeding, and spotting.

When to choose copper — Women who may prefer the copper IUD include:

- Women who want or need to avoid exogenous hormones, such as women with recent breast cancer (within five years);
- Women who wish to avoid the potential progestin-related side effects of the levonorgestrel IUDs (amenorrhea, unscheduled bleeding, spotting);
- Women who desire no or minimal interruption in their endogenous menstrual cycle;
- Women who need uninterrupted contraception for several years: the TCU380A is approved for many more years of use than LNg IUDs (10 years versus 5 years for LNg20)
- Women who need emergency contraception. The TCU380A can be inserted for emergency contraception, and then left in place to provide ongoing contraception.

When to choose levonorgestrel — Women may prefer LNg IUD if they want to use a hormonal contraceptive with minimal systemic hormonal effects. Women often choose the LNg20 IUD for its many non-contraceptive health benefits:

- Reduction in dysmenorrhea and menstrual bleeding
- Treatment of endometrial hyperplasia and cancer
- Endometrial protection
- Treatment of endometriosis
- Protection from pelvic inflammatory disease

Conclusion

Negative publicity, outdated safety concerns and misinformation have limited the use of IUDs in many suitable potential users. The myths that still prevail amongst women and health professionals are that IUDs cause ectopic pregnancy, infertility, pelvic infection, should not be used in teenagers and nulliparae can only be fitted during menses, should be checked every year and should not be used in women with HIV. The older IUDs were non-medicated and were made only of a plastic material. Modern IUDs which contains levonorgestrel or copper are extremely safe, highly effective or are long lasting but reversible, have monofilament tail strings and are not associated with increase risk of infections beyond risk associated with insertion.

IUDs can be used by nulliparous, nulligravid, and adolescent women. Women who want or need to avoid

exogenous estrogen can safely use both forms of intrauterine contraception. There are few absolute contraindications to use; the risks and benefits need to be assessed according to individual patient characteristics.

Advantages of the TCu380A IUD include that it can be used in women who want or need to avoid hormonal contraception; it may be left in place for as long as 10 years (versus five years for the LNG20 IUD); it may be used for emergency contraception, and it is the only IUD currently approved for post-placental insertion.

Advantages of the LNG20 and LNG14 IUDs include a significant reduction in menstrual blood loss and dysmenorrhea. The LNG20 IUD is a good choice for women who desire or are not bothered by amenorrhea, and preferred for women able to tolerate unscheduled light bleeding or spotting, both of which are common side effects.

The LNG20 IUD has several potential non-contraceptive health benefits: it is an alternative to surgical management of menorrhagia and it is being evaluated for treatment of endometrial hyperplasia, for endometrial protection during estrogen therapy and tamoxifen use, and in the management of pain related to endometriosis. In addition, the LNG20 may decrease the risk of pelvic inflammatory disease (PID). In SA with several health and social challenges IUDs offers a solution to most of those problems.

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