Best Practice & Research Clinical Obstetrics and Gynaecology 28 (2014) 807–824

Contents lists available at ScienceDirect

Best Practice & Research Clinical Obstetrics and Gynaecology

journal homepage: www.elsevier.com/locate/bpobgyn

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The intrauterine device and the intrauterine system

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Keywords:
training
effectiveness
intrauterine devise
intrauterine system
coil
contraception

Intrauterine contraception is used by about 100 million women worldwide, making it the most popular form of fertility regulation. In UK community contraception clinics, however, long-acting reversible contraception has increased to 28% of users, and intrauterine contraception accounts for only 8% of methods used by women accessing these services. Potential exists to increase uptake of these more effective methods. In this chapter, we review the clinical advantages, disadvantages and cost-effectiveness of intrauterine contraception. We discuss the management of complications along with advice for trainers, and briefly consider issues in developing countries.

Introduction

Intrauterine contraceptives (IUCs) are the most widely used contraceptive methods in the world. The two most common models currently in use are the 10-year banded copper intrauterine device and the levonorgestrel-releasing intrauterine system (LNG-IUS). National Guidance recommends greater use of long-acting reversible contraception (LARC) [1], as this would reduce unwanted pregnancies. The four LARC methods are the implant, the intrauterine device (IUD), the intrauterine system (IUS), and the injections. They are all more cost-effective than oral contraception even at 1 year of use. This is because although pills and condoms have low initial costs compared with the high 'up-front' costs of the IUS and implant, the much lower user failure rates of the LARC methods mean the costs of fewer unwanted pregnancies offset the cost of the drugs. These low failure rates are similar in women over and under the age of 21 years. They are safe, with few side-effects, have a high continuation rate, and can be used irrespective of age or parity. Many healthcare professionals discourage the use of these

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http://dx.doi.org/10.1016/j.bpobgyn.2014.05.004
1521-6934/

devices by adolescents, young women and nulligravidas, although the World Health Organization (WHO) makes no restrictions on the use of IUCs. They are an excellent tool for preventing unplanned pregnancy, and should be considered as a first-line contraceptive choice for any woman with no medical contraindications [2].

History

Many stories have been documented of various objects being inserted into the uterus to prevent pregnancy. These include stones in the uteri or vaginae of camels, gold balls, wedding rings, rings made of silkworm gut, later wound with silver or silver–copper alloy being used for contraception. These are now made of coiled stainless steel and called a Grafenberg ring (Fig. 1c), which are widely used in China These usually have no thread, presumably as they were intended as a lifetime method not to be removed after the birth of the first child. They can be removed with a simple, small uterine hook. Wider acceptance of the method was eventually achieved with the Lippes Loop (Fig. 1b) in 1962. One of these inert devices could be left *in situ* until past the menopause, without replacement, and so was often popular with multiparous women. Modern bioactive devices have a licensed period of use, after which it is recommended that they are replaced, but they are smaller than the old inert devices, and so may cause less pain and bleeding problems.

Modern intrauterine methods are much improved from the older devices. Early IUDs, such as the Dalkon Shield (Fig. 1a), were associated with severe pelvic inflammatory disease and tubal infertility. This was caused by infection spreading up the multi-filament threads into the uterus. Even though other IUDs do not have this problem, the Dalkon Shield litigation resulted in regions, especially in the USA, where women were denied IUDs for decades. Currently, around 150 million women worldwide use the newer IUDs and IUS, but potential still exists for much wider use if myths can be overcome and training is provided for health professionals.

Types of devices

Intrauterine methods include the framed copper-bearing devices (Cu-IUDs), which can be 'banded' (i.e. have extra Cu bands on the arms, or un-banded) (Fig. 2).

In addition, frameless Cu intrauterine implants (Cu-IUIs) (Fig. 3), and the levonorgestrel-releasing system (LNG-IUS) (Figs. 4 and 5) are available. Copper-bearing devices (Cu-IUDs) can be 'banded' (i.e. have extra Cu bands on the arms) or un-banded. Only the copper devices are used for emergency contraception. Fertility resumes normally after removing THE Cu-IUD or LNG-IUS [3].

Clinical features, advantages and disadvantages of the intrauterine device compared with the intrauterine system

Eligibility to use intrauterine contraception

The IUD and IUS are effective and safe for most women, with a few exceptions, as detailed in the UK Medical Eligibility Criteria [2,4]:

Postpartum, the normal policy is to delay insertion of the IUD and IUS until 4 weeks postpartum. This is to allow for involution of the uterus. Although immediate postpartum insertion up to 48 h after delivery has been suggested, this may result in high expulsion rates.

Women with current venous thromboembolism who are taking anticoagulants need reliable contraception, as pregnancy would be particularly risky. Oestrogen-containing methods are clearly contraindicated, so LARC methods are a preferred choice. Intrauterine devices are a possibility but the anticoagulant may cause menorrhagia. The IUS should overcome this problem as no clinically significant interaction occurs between anticoagulants and the progestogen in the IUS.

Known or suspected pregnancy is a contraindication, but that should not prevent 'quick-starting' [5] the intrauterine methods on the day of presentation or with emergency contraception, provided reasonable efforts are made to exclude pregnancy, and the woman is followed up in 3 weeks to confirm non-pregnancy.