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A REVIEW ON INTRAUTERINE DEVICES

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ABSTRACT

The intrauterine device (IUD) is a method of birth control designed for insertion into a woman's uterus so that changes occur in the uterus that makes it difficult for fertilization of an egg and implantation of a pregnancy. IUDs also have been referred to as "intrauterine contraception (IUC)". IUDs approved for use in the U.S. contain medications that are released over time to facilitate the contraceptive effect. This article reviews the design, mechanism and types of IUD and risks of contraception.

KEYWORDS

IUD, Fertilization, Implantation and Contraception.

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INTRODUCTION^{1,2}

The current intrauterine device (IUD) is a small device, often 'T'-shaped, containing either copper or levonorgestrel, which is inserted into the uterus. They are one form of long-acting reversible contraception which are the most effective types of reversible birth control. Failure rates with the copper IUD is about 0.8% while the levonorgestrel IUD has a failure rate of 0.2% in the first year of use. Among types of birth control, they along with birth control implants result in the greatest satisfaction among users.

Evidence supports effectiveness and safety in adolescents and those who have and have not previously had children. IUDs do not affect breastfeeding and can be inserted immediately after delivery. They may also be used immediately after an abortion. Once removed, even after long term use, fertility returns to normal immediately. While copper IUDs may increase menstrual bleeding and result in more painful cramps hormonal IUDs may reduce menstrual bleeding or stop menstruation altogether. Other potential complications include expulsion (2–5%) and rarely perforation of the uterus (less than 0.7%). Cramping can be treated with NSAIDs]

As of 2007, IUDs are the most widely used form of reversible contraception, with more than 180 million users worldwide. A previous model of the intrauterine device was associated with an increased risk of pelvic inflammatory disease, however the risk is not affected with current models in those without sexually transmitted infections around the time of insertion.

An ideal contraception should be the one that has a minimum number of births with the lowest number of method related deaths. The comparison has demonstrated that all three methods of contraception outlined in Table No.1.

TYPES OF IUDs^{3,4,5}

Hormonal IUD

The hormonal IUD, such as Mirena, releases levonorgestrel, which is a form of the hormone progestin. The hormonal IUD appears to be slightly more effective at preventing pregnancy than the copper IUD. The hormonal IUD is effective for at least 5 years.

Copper IUD

The most commonly used IUD is the copper IUD (such as Paragard). Copper wire is wound around the stem of the T-shaped IUD. The copper IUD can stay in place for at least 10 years and is a highly effective form of contraception.

MECHANISM OF CONTRACEPTION BY IUDs

Both types of IUD prevent fertilization of the egg by damaging or killing sperm. The IUD also affects the

uterine lining (where a fertilized egg would implant and grow).

Hormonal IUD

This IUD prevents fertilization by damaging or killing sperm and making the mucus in the cervix thick and sticky, so sperm can't get through to the uterus. It also keeps the lining of the uterus (endometrium) from growing very thick. This makes the lining a poor place for a fertilized egg to implant and grow. The hormones in this IUD also reduce menstrual bleeding and cramping.

Copper IUD

Copper is toxic to sperm. It makes the uterus and fallopian tubes produce fluid that kills sperm. This fluid contains white blood cells, copper ions, enzymes, and prostaglandins.

Insertion

You can have an IUD inserted at any time, as long as you are not pregnant. An IUD is inserted into your uterus by your doctor. The insertion procedure takes only a few minutes and can be done in a doctor's office. Sometimes a local anesthetic is injected into the area around the cervix, but this is not always needed.

IUD insertion is easiest in women who have had a vaginal childbirth in the past.

Your doctor may have you feel for the IUD string right after insertion, to be sure you know what it feels like. You may be given antibiotics to prevent infection.

Advantages

Advantages of IUDs include

- cost-effectiveness over time
- ease of use
- lower risk of ectopic pregnancy
- no interruption of foreplay or intercourse

Other advantages of the hormonal IUD^{4,5}

Also, the hormonal IUD:

- Reduces heavy menstrual bleeding by an average of 90% after the first few months of use.
- Reduces menstrual bleeding and cramps and, in many women, eventually causes menstrual periods to stop altogether. In this case, not menstruating is not harmful.

- May prevent endometrial hyperplasia or endometrial cancer.
- May effectively relieve endometriosis and is less likely to cause side effects than high-dose progestin.³
- Reduces the risk of ectopic pregnancy.
- Does not cause weight gain.

Risks

Risks of using an intrauterine device (IUD) include

Menstrual problems

The copper IUD may increase menstrual bleeding or cramps. Women may also experience spotting between periods. The hormonal IUD may reduce menstrual cramps and bleeding.

Perforation

In 1 out of 1,000 women, the IUD will get stuck in or puncture (perforate) the uterus. 1 Although perforation is rare, it almost always occurs during insertion. The IUD should be removed if the uterus has been perforated.

Expulsion

About 2 to 10 out of 100 IUDs are pushed out (expelled) from the uterus into the vagina during the first year. This usually happens in the first few months of use. Expulsion is more likely when the IUD is inserted right after childbirth or in a woman who has not carried a pregnancy.¹ When an IUD has been expelled you are no longer protected against pregnancy.

DISADVANTAGES

Disadvantages of IUDs include the

- High cost of insertion

- no protection against STDs
- The need to be removed by a doctor.

Disadvantages of the hormonal IUD

The hormonal IUD may cause noncancerous (benign) growths called ovarian cysts, which usually go away on their own.

The hormonal IUD can cause hormonal side effects similar to those caused by oral contraceptives, such as breast tenderness, mood swings, headaches, and acne. This is rare. When side effects do happen, they usually go away after the first few months.

Adverse effects^{3,4,5,6}

Regardless of containing progestogen or copper, potential side effects of intrauterine devices include

- Expulsion
- uterus perforation
- pelvic inflammatory disease (especially in the first 21 days after insertion)
- Irregular menstrual pattern. A small probability of pregnancy remains after IUD insertion, and when it occurs there's a greater risk of ectopic pregnancy.

Substantial pain that needs active management occurs in approximately 17% of nulliparous women and approximately 11% of parous women. In such cases, NSAID are evidenced to be effective. However, no prophylactic analgesic drug have been found to effective for routine use for women undergoing IUD insertion.

Also, IUDs with progestogen confer an increased risk of ovarian cysts, and IUDs with copper confer an increased risk of heavier periods.

Table No.1: Contraception Practices of U.S. Couples of Child Bearing age

Method of contraception	Percentage of those survived
Oral contraceptive pills	26.3
Condom or Diaphragm	10.0
IUD	6.4
Foam	2.6
Rhythm	2.2
Other	28.8

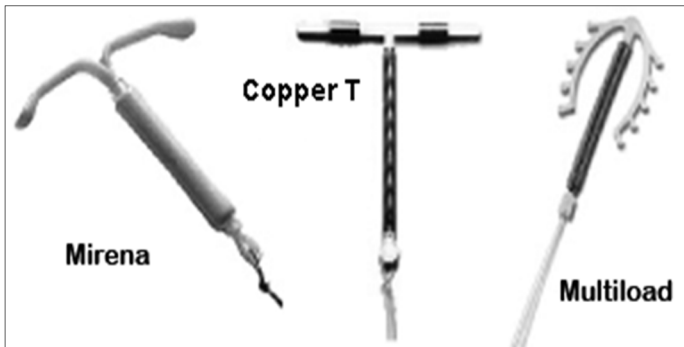


Figure No.1: Copper IUD

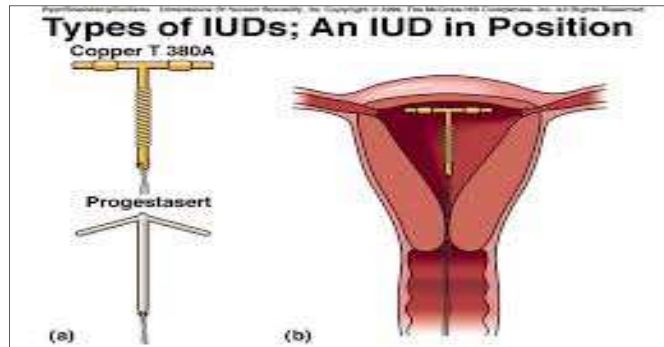


Figure No.2: IUD Position

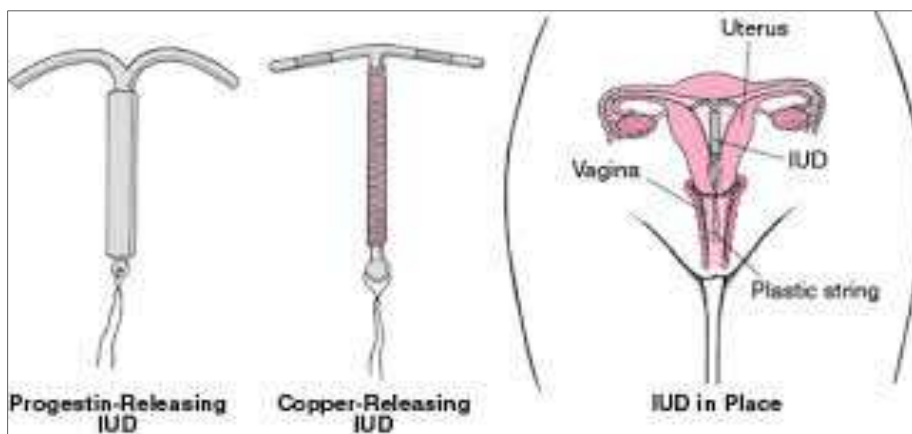


Figure No. 3: Types of IUDs

CONCLUSIONS

IUD are the most effective way of contraception other method of contraception but under the supervision of doctor it is safe. Repeated use of the IUDs will leads to unwanted effects.

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CONFLICT OF INTEREST

We declare that we have no conflict of interest.

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