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Review Article

Intrauterine Devices-Intrauterine Drug Delivery System

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ABSTRACT

IUDs are commonly used contraceptive devices by women. These are placed in the uterus through the cervix, which provides a flexible and effective birth control. Around 25% of women prefer IUDs over other contraceptive methods. The decrease in sterilisation techniques (tubectomy) is due to the increase in effectiveness of IUDs.

INTRODUCTION

IUD's also known as Intrauterine Drug Delivery systems, are the medical devices placed in the uterus through the cervix to prevent pregnancy. The IUDs are effective in birth control, having an effectiveness percentage of 99.2-99.9%. But they do not protect against STDs.

METHODS

The working of IUDs is as follows, based on their types:

1. Copper ions in Cu-T:

The copper-T works by releasing copper ions into the uterus. These copper ions prevent fertilisation by killing or impairing the sperm's ability to function. The copper ions create a hostile environment for the sperm.

2. Hormonal IUDs

The most commonly used hormonal IUD is progesterone, which thickens the cervix by triggering the release of mucus. This step prevents the sperm from entering the uterus, thereby effectively preventing fertilisation.

Types

IUDs can broadly be classified into 2 categories;

1. Hormonal IUDs

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They usually contain progesterone or its analogues. Some common examples include:

- Mirena
- Kyleena
- Liletta
- Skyla

They usually last from 3 to 8 years.

2. Non–hormonal IUDs

The most common non-hormonal IUD is copper-T, which is popularly known by its brand name - ParaGard. These last for nearly 10 years.

Placement

Fig.1: placement of IUD in the uterus

ADVANTAGES

1. IUDs are 99% effective in preventing pregnancy.
2. They provide long-lasting protection ranging from 3-10 years, depending on the type.
3. They require no maintenance after their one-time insertion.
4. The fertility becomes normal after their removal.
5. Their application does not leave any scars.
6. They are safe postpartum.
7. Hormonal IUDs offer more advantages, like

a) lighter to no periods

b) reduced menstrual cramps

c) reduced heavy bleeding

8. Copper IUDs are hormone-free, hence can be used by females who are sensitive to hormonal changes, and are effective immediately after insertion.

DISADVANTAGES

1. They cause pain and discomfort during insertion.

2. Hormonal IUDs cause irregular bleeding for the first few months.
3. Copper IUDs cause heavy bleeding and more painful cramps during periods.
4. There is a high chance of the IUD being expelled in the first few months.
5. They do not protect against STDs.
6. There is a 0.1% risk of uterine wall perforation.
7. There is a risk of pelvic inflammation.
8. Hormonal IUDs may cause mood swings, increased acne, and breast tenderness.
9. Copper IUDs may break during their removal, causing surgical complications.

Uses

1. IUDs are used for birth control and to prevent pregnancy.
2. They offer long-term contraception.
3. Copper IUDs can also be used as an emergency contraception.
4. They offer flexible and reversible fertility control to women.
5. Hormonal IUDs can help in managing heavy periods as they help in reducing menstrual bleeding.
6. IUDs can be used immediately after parturition and or abortion.

CONCLUSION: -

This article showcases that IUDs are effective in preventing conception and have potential in treating symptoms of menorrhagia, dysmenorrhea, PCOD and other uterine and menstrual-related problems.

REFERENCES

1. Wikipedia contributors. (2025, August 4). Intrauterine device. In Wikipedia, The Free Encyclopedia. Retrieved 07:41, August 14, 2025, from https://en.wikipedia.org/w/index.php?title=Intrauterine_device&oldid=1304124557
2. What Are the Different IUD Types?
3. IJCRT2401400.pdf (IJCRT-OVERVIEW OF INTRAUTERINE DRUG DELIVERY SYSTEM -Jeevan R. Rajguru, Punam B. Gawari, Rutuja S. Desai, Anupama A. Isal, Sampat D. Navale)
4. IRJET-V8I9231.pdf (IRJET-Intrauterine Device (IUD): A Review of Types of IUD Devices Mohamed Rifat A K, Jeevanantham R, Saravanan S, Keerthivasan S, Madhan Kumar B)
5. IUD Pros and Cons To Consider
6. IUD: Advantages and Disadvantages.

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