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An Article on Common Risks of Intrauterine Devices Experienced by Disparate Age Group of Women

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Abstract: ***An intrauterine device, or IUD, is a small device that doctors insert in the uterus as a contraceptive. Many women experience IUD side effects, especially in the first few weeks to the several months following insertion. Major concern in disparate age of women depends upon various physiological factors. Indubitably uterine perforation, expulsion and bleeding irregularities are the common one with an IUD. Sometimes the perforation may be partial or sometimes whole device passes to the peritoneal cavity, moreover large randomized trial of parous women aged 18 to 38 observed highest rate of IUD expulsion. Copper containing device mostly causes intermenstrual spotting or heavy or prolonged menstrual bleeding and thus it is main reason for the method discontinuation. All the risks should be explained to patients and should be prevented, if possible, by taking all measures to insert devices safely, and diagnosed and managed appropriately.***

Keywords: IUD - intrauterine devices, PID - pelvic inflammatory of disease

1. Introduction

Intrauterine devices (IUD) are highly victorious method of birth control, and also the reversible contraception. It mostly has less than one percent failure rates.1 The implementation of IUD and implants prevaricate between 2009 and 2012 from 8.5% to 11.6% among women those using contraception.2 After the pelvic inspection the physician prescribes an IUD and carefully places the IUD through the cervix in the uterus. IUD also have an attached string that projects through the external cervical. The string can be felt after the periods to check if the IUD is in place. The device can be inserted at any time, albeit many physicians prefer to insert it after cessation of mensuration.3 Mostly is used by the reproductive aged women worldwide which is approximately 14.3%.4 There are various provision of education and training in concern to IUCDs to healthcare providers, which involves nurses and midwives is one perspective to control the barriers that may prevent the uptake of IUDs. Within the first year of use the effectiveness of IUCD as a contraceptive method is approximately 99.2% to 99.8%, which is higher than the shorter term reversible contraceptive methods, such as oral contraceptive pill, within the same time of use.5

1.1 Types of IUDs

Hormonal IUD
These hormonal IUD includes Mirena, which releases levonorgestrel, and is form of hormone progestin. It is more effective at preventing pregnancy than the copper IUD. It also lasts for at least 5 years.

Copper IUD
The copper IUD is most commonly used (such as ParaGard). In the stem of the T - shaped IUD the copper wire is wounded around. These IUD remain in the place for the eons of 10 years and is greatly effective form of contraception.6

1.2 History

Dr. Richard Richter in 1909 in Germany published paper on actual IUD insertions. The ring of the device was made of silkworm gut, with 2 ends which project from the cervical and enable the device to check and to remove. Ernest Graefenberg in the mid 1920s made the silkworm gut with a coiled metal ring which was made up of alloy, copper, nickel and zinc. Albeit The ring of Graefenberg was widely used but considered a risky method in Europe and in the U. S.7 The IUD of Richter was two wound strands of silkworm gut. To assist retrieval and x - ray visualization the loose ends were copper combined with celluloid to prevent damaging the endometrium by combining with thin bronze filament. To cover the cervix the Karl Pust in the mid 1920's progress and used a silkworm thread with a stiff cervical extension, Moreover Ernst Grafenberg also starts working on IUD in the early 1920's. He thus designed a silver and copper filaments ring, known as the famous Grafenberg ring.8

1.3 Generations of Intra Uterine Devices

First Generation: It includes Lippes loop and Saf - T coil which is made up of plastic, the M - device and the Y - device made of stainless steel, the Dalkon shield made of polyvinyl acetate, the copper 7 (Gravigard) and copper - T 200.

Second Generation: It includes the medicated IUDs of 1970s and 1980s consist copper on them. it include deices such as Nova - T (Noncard) and multiload 250. the shape and the amount of copper is the rudimentary of this copper devices.

Third Generation: It includes copper T380A, 380S, 380Ag, multiload 375, copper - safe 300 (Cu - safe 300), copper Fix 330 or Flexigard 330 and levonorgestrel releasing IUD (Levonal) hese are the improved second - generation devices, and some are impregnated with progestogen. Upto 5

years it provides the contraception thus containing levonorgestrel (released at 20 µg/day; Mirena). It is also designed to decrease the incidence of pain, spontaneous expulsion, and bleeding.9

Timing of Insertion

Mostly the copper T380A IUD may be placed during the menstrual cycle, moreover the patent should not pregnant. The LNG - IUDs (14 - 20mcg) should be inserted during the first seven days of menstrual cycle. It is also safe to place after vaginal or cesarean delivery (within 10 minutes after placental separation), albeit there is higher risk of expulsion if the insertion is delayed.1[0] Mostly throughout worldwide the physician prefer to insert the IUD during the menstrual phase.1[1]

1.4 Societal factors affecting utilization of IUDs

Variations in IUD use in the world

IUD are used by 14.3% of women of reproductive age, the women that are using IUD is around b2% whereas in other countries it is N40%. Moreover, the reason is not well documented.1[2]For the control of fertility IUDs and condoms were the only false method until the 1960s. The insertion of an IUD is the second most method of family plaining using worldwide 13.6%), after female sterilization (20.5%), among women of reproductive age who are married or cohabiting (United Nations, 2006). The IUD users are 2 - fold higher in the developing world (14.5%) than the developed world (7.6%).

Service delivery and policy factors affecting prevalence of use

Sometimes the uptake of IUD id mostly affected by the perspective of the clinicians: some of them received the proper training while others may lack the skills. Proper counseling and the safe use of IUD should be advice to women.

Factors that affect IUD use include At the programmed level:

Costs (device cost, its insertion and removal, and the management clinic service of possible side effects); quality of care; providers training and supervision; the facility of access to these services and the geo - graphical dispersal.

Clinical factors affecting utilization of IUDs

The knowledge of women mainly shaped the attitude towards the IUD and her assessment of relative risks and benefits associated with its use. With older IUDs misinformation dominate, and fueled by complications are no longer available.1[3]

1.5 Mechanism of Action

Each type of IUD varies in their potential mechanism of action (inert, copper or hormonal).1[4] In the endometrium IUD induces a local inflammatory reaction and the humoral components are released into the uterine cavity.1[5]

Copper- IUD: This IUD is spermicidal and thus mechanism is the prevention of fertilization through cytotoxic inflammatory reaction. These IUD uses, there is the concentration of copper in cervical mucus which leads to inhibition of sperm motility. There are various endometrial changes, sperm migration, quality, and viability at the level of the endometrium is hindered. Thus, it is believed to be primary mechanism by which the contraception is achieved.1[6]

Hormonal- IUD: It contains a progestin called levonorgestrel. There is a small amount of progestin which is embedded within the vertical arm of the T, is released daily into the uterus.

It helps to prevent pregnancy in three ways:

- The cervical mucus gets thickened up so that the sperm cannot penetrate to fertilize an egg.
- The normal condition of the fallopian tubes gets change so that it gets difficult for an egg to travel to the uterus.
- If the sperm enters the body who uses a hormonal IUD, the sperm development can be negatively affected, the they are not able to survive at all.1[7]

2. Risks of Intra Uterine Devices

Sexually transmitted disease is higher in younger women. There is a little worry about whether the insertion of IUD affects the risk of lower genital tract, leading to pelvic inflammatory of disease (PID) and subsequent infertility. Albeit it shows that the risk of PID is low among IUD users and has not shown that IUDs cause infertility. Also, the women who accept the use of IUD for contraception are potentially at risk for adverse events such as expulsion and perforation, changes in menstrual bleeding pattern related to IUD use or its failure. These risks are greater in younger as compared to older.1[8]Through device insertion the uterine perforation is an uncommon complication, with an incidence of one in 1, 000 insertions. There are very less chances that the device may perforate into bowel or urinary tract albeit through laparoscopy the perforated device can be removed.1[9] Over the past 50 years the relationship between use of an intrauterine device (IUD) and pelvic inflammatory disease (PID).2[0] Due to lower complications, discontinuation and failure the levonorgestrel - releasing intrauterine system may be a better choice than copper IUD.2[1] Over the first six months the new cu IUD users reported decreasing bleeding and cramping.2[2] Upto 15% users remove the device within the first year because of the increased bleeding and pain, still higher percentage of people tolerate these side effects yet retain use of the method.2[3]

3. Perforation

Perforation of the uterus with IUDs was first described in the 1930s. [5, 6] Initially, there was denial that this could happen at the time of insertion, and it was postulated that devices were always forced through the uterine wall by uterine contractions.2[4] from the intrauterine contraceptive device the uterine perforation is the most serious complication. The frequency is 0.05 and 13 per 1000 insertions (average, 1.2/1000) and it depends upon he device placed, the skill of the operator, position of the uterus, and intensity of follow up. Majority of this occurred at the time of insertion. It may be partial, with some potion of the device remaining in the endometrial cavity or the device passing wholly into the

peritoneal cavity.2[5] LNG - IUSs suggests serious outcomes such as peritonitis which is caused by perforation of the uterine wall after insertion are rare.2[6] Serious problems, including pain, abnormal bleeding, bowel or bladder perforation, and fistula formation, may cause by uterine perforation when there is migration of IUDs into the pelvic peritoneal space invading the adjacent organs. In patients with uterine perforation the invasion of momentum, pouch of Douglas, the serosa of the ileum, the bladder, and the rectum has been reported.2[7] The IUD is usually recommended after 6 months of delivery, thus thinning of the postpartum uterus wall is the main reason.2[8] Moreover, IUDs may be the cause of dysmenorrhea along with heavy bleeding with an IUD in place it also reported the ectopic pregnancies.2[9]After the delivery many women request to insert IUD during lactation. Through many literatures it was found that insertion of IUD in breast - feeding women is related with increased of uterine perforation because of uterine contractility and involution.3[0]

4. Expulsion

2 - 10% is the rate of expulsion of the IUD which vary by its type.20 mcg - releasing levonorgestrel intrauterine system or the copper T380Ag IUD assigned to large randomized trial of parous women aged 18 to 38 thus observed highest rate of expulsion use.3[1] Intrauterine device can take place at any time and thus the expulsion rates depends upon timing of placement, type, and mode of delivery.3[2]After insertion if there is immediate discontinuation following immediate aspiration abortion or early abortion occurs as a result ramifications of expulsion of the IUD or removal due to side effects.3[3] After expulsion the reinsertion of device may not be feasible for all women owing to cost, insurance coverage. The data of expulsion of is essential contributor and thus inform of patient data counseling is important.3[4] Their is clear advantage for LNG - IUDs when there is a comparison of efficacy rate between different type of IUDs and among Cu - IUDs, for those having largest total copper area.3[5] The risk of IUD expulsion is higher after medical abortion because of thicker endometria and lower baseline position.3[6] It is unknown fact that whether the together use of menstrual cups and IUDs decreases the contraceptive effectiveness.3[7]IUD expulsion risks may get increased by the use of menstrual cup thus research is necessary to find out the link between menstrual hygiene product use and IUD expulsion.3[8] There are higher rates of early IUD expulsion in those women using menstrual cups or tampons for menstrual protection.3[9]

5. Bleeding Irregularities

The copper containing device mostly causes intermenstrual spotting or heavy or prolonged menstrual bleeding and thus it is main reason for the method discontinuation.4[0] Uterine bleeding includes regular withdrawal bleeding, amenorrhea, irregular spotting/bleeding, or heavy, prolonged bleeding thus it depends upon bleeding profile of contraceptive. It is very important to counsel women regarding their chosen contraception.4[1] 22% and 67% of women reported the irregular bleeding during the first months after the IUD has been placed, which got on reducing by the end of the year. To avoid “bleeding nuisances” proper counseling by doctors regarding the bleeding pattern should be taken. The mechanism involved in this irregular pattern are unclear. The users of LNG - IUS users faced the local effect on the endometrium and reported changes in the endometrial vascularization, which is responsible for reducing mean vascular density and increase the mean vascular area. This increase in sub endometrial vascularization is reported by the women complaining of the side effects (dysmenorrhea and/or irregular bleeding) also the insertion of copper - releasing intrauterine devices (Cu - IUDs).4[2] Women those use progestogen only contraceptive method their irregularities in bleeding pattern is due to atrophic, unstable endometrium. Thus, the evidence for managing the irregular bleeding progestogen - only contraceptive methods are very less.4[3]

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