





Enlightening the Path for Next Generation of Gynaecologists

Dedicated Issue: Contraception



AOGD SECRETARIAT

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From the President's Pen



Welcome to November issue of AOGD Monthly Bulletin. This issue is devoted to Contraception. Last decade had seen lot of advancement in the field of Contraception. Current issue tends to cover latest in the field. Not only information useful to exam gong PGs but also to practising physician. AICOG conference is fast approaching, do send your papers.

Dr Sunesh Kumar President, AOGD

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AOGD Bulletin

From the Secretary's Desk



Dear Friends,

Warm wishes from AOGD Secretariat, AIIMS.

Continuing on the path of enlightenment for the Next Gen Gynecologists, various academic activities were organized in the month of October.

A master class on over active Bladder (OAB) was organized under the aegis of Urogynecology subcommittee, AOGD on 19th October.

Under the aegis of Endoscopy committee, AOGD, a certificate course on Endosuturing was organised on 21st & 22nd October.

A public lecture on "Breast Cancer Awareness" organized under the aegis of Oncology committee AOGD was well attended on 30th October.

For the purpose of public awareness and community outreach on the burning issue of contraception, this current issue on "Contraception" will cover the basic concepts as well as recent advances on this topic.

We look forward to your continued support.

Warm regards,

Dr Vatsla Dadhwal Hon. Secretary

Monthly Clinical Meeting

Monthly Clinical Meet will be held at MAMC & LN Hospital, New Delhi on **Friday, 29th November, 2019 from 04:00pm to 05:00pm**.

From the Editor's Desk



Dr J B Sharma Editor







Co-Editors



Dr Vidushi Kulshreshtha

We are pleased to write the editorial desk for this issue of AOGD Bulletin on special topic of 'contraception', with the satisfaction that previous issue on 'Endoscopic surgery in Gynaecology' ably edited by Prof. KK Roy and team, was very much appreciated by fellow AOGD colleagues as is clear from numerous appreciation phone calls, emails and letters. Population explosion is the single most important factor hindering growth and development of the world as a whole and India in particular. We have to conquer this monster of uncontrolled population explosion for the necessary development of the country as the resources are limited. Even the Honorable Prime Minister accepted this challenge at his red fort address on Independence Day.

In this dedicated issue of "Contraception" we have relevant articles on all aspects of contraception. We have an interesting article on "Oral Contraception Pills" by Dr Swati Agarwal and Dr Anu Handa from LHMC which shall guide our esteemed colleagues about the importance of this most important method of contraception which is highly under-utilized in India. There is need to popularize oral pills in India and to reduce the unmet need of contraception. We also have an interesting article on "Non-Oral Hormonal Contraception" by Dr Jyoti Meena and Dr Garima Patel from AIIMS for the benefit of our esteemed readers.

Intrauterine contraceptive device remains a method of choice for many Indian women and is particularly suited for most Indian rural women as it is a onetime procedure. There is an article on this topic by myself and Dr Rinchan from AIIMS. We have another interesting article on "Postpartum IUCD" by Dr Sunita Malik, Dr Monika Gupta and Dr Harshita from VMMC & Safdarjung Hospital, New Delhi which is very relevant as Government of India is very keen to promote PPIUCD and it's particularly suited for our women. We have a useful article on 'Emergency Contraception' by Dr Garima Patel, Dr Kusum Lata and Dr Vidushi Kulshrestha from AIIMS for the readers. We also have clinically useful article on other relevant topics on contraception like "Contraception in Adolescents" by Dr Niharika Dhiman and Dr Shefali Gupta from LHMC and "Contraception in Elderly Women" by Dr Ruchi Srivastava and Dr Ankita Priya from Noida. We also have interesting and useful article on "Contraception Medical Disorder" by Dr Sandhya Jain and Dr Kanika Kalra from UCMS and on "Post Abortion and Post Delivery Contraception" by Dr Anupama Bahadur and Dr Aditi Jindal from AIIMS, Rishikesh. Dr Rupali Dewan, Dr Sarita Singh and Dr Ankita Jain also enlightens us on "Female Sterilization" which is the most popular terminal method used by Indian women for contraception. We also have an interesting flow chart on "Long-acting Reversible Contraception (LARC)" by Dr Richa Vatsa and Dr Swati Shivhare and Journal scan by Dr Juhi Bharti and Dr Richen Zangmo from AIIMS, New Delhi.

We wish our esteemed readers a happy reading and shall welcome their comments and contributions to further improve the bulletin.

Editor Dr J B Sharma

Oral Contraceptive Pills (OCPs)

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Oral contraception is one of the most popular methods of contraception. It means birth control methods taken orally to delay or to prevent pregnancy. It is a highly effective method if taken correctly and consistently. The first oral contraception method to be marketed was the Combined Oral Contraceptive (COC) pill in year 1960. Ever since the advent of COCs, newer methods of oral contraception in the form of Progesterone Only Pills (POPs), Centchroman and emergency contraception have been developed. It is estimated that approximately 8% of all married women are currently using OCPs globally. However in India the use of oral contraception is low (4%).

Types of OCPs

A. Hormonal

- Combined Oral Contraceptive pills(COC)
- Progesterone Only Pills(POP)
- LNG Emergency Contraception pill (ECP)

B. NON-HORMONAL

• Centchroman (ormeloxifene)

Combined Oral Contraceptive Pills (COCs)

COCs contain both estrogen (Ethinyl Estradiol) and progesterone. They act by inhibiting ovulation. They are divided into four generations based on type of progesterone used:

1st generation: Norethindrone, lynestrenol, Norethisteone

2nd generation: Etonogestrel, Norgestrel

3rd generation: Desogestrel, Gestodene, Norgestodene

4th generation: Drosperinone (potent progestogenic, antimineralocorticoid, anti androgenic)

Many different formulations and brands of COC are available commercially; most are designed to be taken over a 28 day cycle. The user is required to take hormonal tablets for the first 21 days of cycle and the last 7 days are hormone free days where no pills or placebo pills are given. Some new preparation of COCs include 24 days of active hormonal pills , followed by 4 days of placebo (eg: Dronis 20); 84 days of active hormonal pills followed by 7 days of placebo (eg: Seasonale) and even 365 days of active pill of 90ug of Levonorgesterel and 20ug of ethinylestradiol

to provide extended cycle birth control for a full year (eg: Lybrel)

The available COC in public sector in India is (MALA-N) containing LNG 0.15mg and Ethinyl estradiol 30ug which is supplied free of cost (Figure 1). Each strip contain 21 active and 7 iron tablets.



Figurte 1: COCs in govt supply (Mala-N)

When to Start COCs:

A woman can start using COCs any time she wants if pregnancy can be ruled out with certainty. Failure rate with typical use is 8 pregnancy per 100 women year and with perfect use is 0.3 pregnancy per 100 women year.

Situation	Preferable time to start COCs
Regular menstrual cycles	Within 5 days of LMP
Breast Feeding	Any time after 6 months after pregnancy ruled out
Non Breast Feeding	Any time after 4 weeks
After abortion	Immediately or within 7 days (In medical abortion, COCs can be started on the day of misoprostol use or within 5 days after taking it)
After Emergency Contraception	Same day (no need to wait for next period)

Contraindications:

- History of DVT or PE
- · Cerebrovascular or coronary artery disease
- Ca breast or other estrogen dependent neoplasia
- Undiagnosed abnormal genital bleeding
- Known/suspected pregnancy
- · Benign or malignant liver tumor
- Uncontrolled hypertension
- · Heavy smoker
- Migraine with aura
- Complicated diabetes or >20years duration
- Systemic Lupus Erythomatosus (SLE)

Non- Contraceptive benefits:

- Decreased risk of endometrial, ovarian and colorectal cancer
- Regularization of menstrual cycles
- Treatment of menorrhagia, dysmenorrhea, Premenstrual Syndrome (PMS)
- Treatment of pelvic pain of endometriosis
- Treatment of hirsuitism and acne

Side Effects & Management:

Side effects	Management			
Irregular/	• Evaluate for cause			
unexplained	• Reassure			
bleeding	• Instruct to take pill regularly at same time			
	• For short term relief- NSAIDS/hemostatic			
	agents			
	• If still not relief, try different COC or method			
Amenorrhea	• History of regular intake – reassure &			
	continue COC			
	• History of missed pills- rule out pregnancy			
Nausea/ dizziness	Suggest taking at bedtime or with food			
Breast tenderness	Breast support/cold compress/ analgesics			
Acne	Prescribe different formulation of COC			
Weight change	Review diet and counsel			
	• May consider switching to 4 th generation COCs			

Missed Pills:

• Missed 1-2 pills Or Started a new pack 1-2 days late	 Take 2 pills at scheduled time Reassure Very little risk of pregnancy
Missed 3 or more in 1 st or 2 nd week Or Started new pack 3 or more days late	 Take 1 pill ASAP & continue scheduled pill Use backup for next 7 days Emergency Contraception (EC) to be given if history of unprotected sexual intercourse(UPSI) within last 72hrs
• Missed 3 or more in 3 rd week	 Take 1 pill ASAP & finish all pills in pack as scheduled Throw away 7 non-hormonal pills & start new pack next day Use backup for 7 days EC to be given if UPSI within 72hrs.
• Severe vomiting/ diarrhea	 Vomiting within 2 hrs after pill- take another pill ASAP and continue scheduled pills If persists >2 days- instructions for 1-2 missed pills to be followed

Progesterone only Pills (POPS)/ Mini Pills

These pills contain a very low dose of a synthetic progesterone. The progesterone dose in these pills

is less than that in COCs. They have to be taken every day at same time without delay, for maximum effectiveness. These are safe and effective method of contraception and can safely be used in breastfeeding women even before 6 weeks.

They act by thickening of cervical mucus thus preventing fertilization by preventing sperm from reaching the ovum. They may also suppress ovulation but not consistently. Failure rate with typical use is 1-10 pregnancy/100 women years and with perfect use is 0.3-0.9/ 100 women years.

The progesterone in older (traditional) POPs is either levonorgesterel or Noethisterone. The newer POPs contain desogestrel 0.075 mg (CERAZETTE). Traditional POPs should be taken every day at same time or within 3 hours but this window is little wide for desogestrel containing POPs and extends for 12 hours.

The POPs are not incorporated in Government of India (GOI) Contraceptive Basket.

Contraindications:

- Breast cancer
- Undiagnosed vaginal bleeding
- Pregnancy
- Active viral hepatitis
- Severe chronic liver disease

Side Effects & their management:

Side effect	Management
Amenorrhea & Irregular Bleeding	 Reassure If persists – consider evaluation (maybe due to missed pills or reduced absorption due to diarrhea/vomiting; anticonvulsant usage or rifampicin; rule out pregnancy)
Heavy/prolonged bleeding	 Reassure Prescribe hemostatic agents like tranexamic acid with iron If persists- further evaluation
Headache	Prescribe analgesicsIf gets worse- consider evaluationStop POP if develops migraine with aura
Breast tenderness	Breast supportHot/cold compressAnalgesics
Nausea/dizziness	Suggest intake at bedtime/ with food

Missed Pills:

• >3 hours	• Take ASAP
(traditional)	 Keep taking pills as usual
or >12 hours	• Use backup method for next 2 days
(desogestrel)	• Consider EC if history of UPSI within 72hrs
• Severe diarrhea/	• Vomits within 2 hours-take another pill ASAP
vomiting	 Continue scheduled pill as usual
	• If continues-follow schedule of missed pill

Centchroman (Ormeloxifene)

Ormeloxifene is a nonsteroidal non hormonal once a week OCP. It is a Selective estrogen Receptor Modulator (SERM) having weak estrogenic action on some organs (bone) while having strong antiestrogenic actions on uterus and breast.

It is an indigenous product of India and was first discovered by CDRI in Lucknow and has been available for birth control since 1990. It was initially marketed under the trade name SAHELI. Currently it is available in public sector by name of CHHAYA and is the latest edition to the contraceptive basket of GOI (Figure 2).



Figure 2: Centchroman Tablets in Govt Supply (Chhaya)

It is also used for treatment of Dysfunctional Uterine Bleeding(DUB), mastalgia and fibroadenoma. It is a safe and effective contraception and can be taken during breast feeding. It exerts its contraceptive action by causing asynchrony in menstrual cycle between ovulation and development of uterine lining; however exact mechanism is not well defined. Its failure rate with perfect use is 1-2 pregnancy/100 women years and no data on failure rate with typical use is available.

Contrindications:

- Recent/past history of jaundice or active liver disease
- Polycystic ovarian syndrome (PCOS)
- Chronic cervicitis
- Hypersensitivity for the drug
- · Chronic illness like renal disease or TB

When to start and how to use:

Preferably started on day 1 of periods and is given twice weekly on fixed days (separated at least 2 days apart) for 1st three months followed by once a week on 1st pill day. (eg: 1st pill on Sunday followed by next pill on Wednesday f/b Sun-Wed schedule for 3 months f/b weekly dose on Sunday)

Side effects and Management:

The only side effect is delayed menstruation, which usually resolves in 1st three months of use.

Periods may also get scanty over time. Women needs to be counselled and reassured that these side effects are not harmful and will subside on its own. However, before reassuring, a history of accidental missed pill is important to rule out pregnancy. Also, if period is delayed by >15 days, pregnancy should be ruled out.

Missed Pills:

If a pill is missed by 1-2 days and less than 7 days: Take a pill ASAP and normal schedule to be continued and backup will be required till next period.

If pill is missed by more than 7 days: The woman needs to start taking pill like a new user i.e. twice a week for 3 months and then once a week. In addition backup will be required and EC needed if history of UPSI within 72 hours.

Emergency Contraceptive Pills (ECPs)

These are used to prevent pregnancy after unprotected sexual intercourse, contraceptive accidents like condom rupture or missed pills and in cases of sexual assault. They are also known as morning after pill or post coital contraceptive pill.

WHO recommends any of the following oral drugs for Emergency contraception:

- 1. ECP containing Ulipristal acetate taken as a single dose of 30mg.
- 2. ECP containing LNG taken as a single dose of 1.5mg or alternatively LNG taken in 2 doses of 0.75mg 12 hours apart.
- COCs taken as split dose: one dose 100ug of Ethinyl estradiol plus 0.50mg of levonorgesterel (~ 4 tablets of MALA-N) followed by 2nd dose of 100ug of Ethinyl estradiol and 0.50mg of LNG 12 hours later (YUZPE method).

In the national programme, ECP containing only progestin LNG (1.5mg /tablet) is available in GOI contraceptive basket, supplied free of cost under the name of Ezy pill (Figure 3).



Figure 3: ECP in Govt Supply (Ezy pill)

ECPS are not recommended as a contraceptive method for regular use because of higher possibility of failure

as compared to other methods and high incidence of menstrual irregularity. Evidence has shown a failure rate of 1.2% with ECP with Ulipristal acetate and 1.2-2.1% with LNG.

How to use:

Ideally ECP should be taken asap after UPSI within 72 hours (LNG or COCs) or within 120 hours(Ulipristal acetate). The earlier the pill is taken, the lesser are the chances of failure.

Contrindications:

There are no absolute contraindications for the use of ECPs.

Side Effects and Management:

The side effects with ECP are usually minimal and do not need any treatment. The common side effects are nausea and vomiting. If vomiting occurs within 2 hours after taking the pill, the women should take another dose with an anti-emetic. If vomiting continues, she may take the repeat dose by placing the pill high in her vagina.

Follow-up:

Any women taking the ECP should be counselled to choose a regular family planning method and most contraceptive methods can be started on the same day of ECP usage. The women should be told to return if her next monthly bleeding is delayed beyond one week of expected date of cycle or is unusually light as it may be suggestive of a possible pregnancy. Also unusual pain during the next period may suggest possible ectopic pregnancy and the women should be evaluated for that.

Suggested Reading

- 1. Reference Manual for Oral Contraceptive Pills. March 2016. Family Planning Division. Ministry of Health & family Welfare, Government of India.
- Development, updates, and future directions of the World Health Organization. Selected Practice Recommendations for Contraceptive Use. Int J Gynecol Obstet 2017;136: 113–119 -04 January 2017
- 3. Medical eligibility criteria for contraceptive use.5th edition. World Health Organization.2015.
- 4. Family Planning A global handbook for providers. World Health Organization.2018.

Non-Oral Hormonal Contraceptive Methods

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Non-oral hormonal contraceptive methods are highly convenient contraceptive methods with less frequent administration. They avoid the hepatic first pass metabolism and gastrointestinal interference on absorption of hormonal components. This allows use of lower doses, which may reduce the incidence of side effects and risks. They are likely to have a significant impact on the reduction of unintended pregnancy rates.

Non-oral hormonal contraceptive methods can be short acting or long acting:

Long Acting Hormonal Contraception:

- 1. Injectable progestins (DMPA)
- 2. Implants
- 3. Hormonal Intrauterine devices

Short Acting Combined Hormonal Contraception:

- 1. Transdermal patches
- 2. Vaginal rings
- 3. Combined Injectable/ NET-EN

I. Injectable contraceptive methods

They can be long acting reversible contraceptives methods which are administered less frequently than a month or can be short term injectable contraceptives administered once a month or alternate month. Types of injectable contraceptives available are as shown in table 1.

a) Progesterone – Only injectable contraceptives (POIC) is a long acting and an effective method of contraception which can be given intramuscularly or subcutaneously.

MOA: It works primarily by inhibiting ovulation makes cervical mucus thick thus limiting sperm

penetration and changes the endometrium environment and makes it unfavorable for implantation.

Side effects: The major problem associated with the use of this method is irregular bleeding and amenorrhea. Return of fertility is delayed up to 9-10 months after stopping the contraceptive drug. Other side effects are progesterone relatedweight gain, headache and dizziness. It also causes decrease in bone density (FDA prohibits its use beyond 2 years). But it is fully reversible.

1. Depot Medroxy Progesterone Acetate or depot provera is available as a 1ml injection of 150mg of medroxyprogesterone acetate, given intramuscularly in buttocks or upper arm 3 monthly. Its subcutaneous form is also available as depo-subQ (UNIJET) 104mg, given in anterior thigh or abdominal wall. It is less painful and can be administered by self. It is being promoted by government under the name of 'Antara'.

Timing of Insertion:

- i) Interval injection: Injection should be given within first 5 days of menses. One dose is effective for 13 weeks. The next dose should be given within 7 days of due date (within 13 weeks + 7 days).
- ii) Postaborton injection: Injection can be given within 7 days of first /second trimester abortion.
- iii)Postpartum injection: DMPA is WHO MEC3 within 6 weeks of delivery.

Contraindication: DMPA should not in used in patients with breast cancer/history of breast cancer, stroke, ischaemic heart disease, abnormal vaginal bleeding and those with hepatic impairment.

	Duration of	Dose	Preparation available	Failure
	efficacy			rates
Progestin only	3 months/	150 mg/300 mg	DMPA	0.1/HWY
	6 months			
	3 months	104mg	depo-subQ	0.4/HWY
	2 months	200 mg	NET-EN	
Combined	1 month	MDPA 25mg & Estradiol cypionate 5mg	Lunelle, Cyclofem,	O.2/HWY
(estrogen+		Norethindrone ethanate 50mg & Estradiol valerate 5mg	Mesigyna	
progestin)		Dihydroxyprogesterone acetophenide 150mg and estradiol	Deladroxate	
		enanthate 10mg		

 Table 1: Injectable contraceptives

*MDPA: Medroxyprogesterone acetate

- 2. NET-EN or Noristerat is a short term injectable POIC. This progestin has the same mechanism of action as DMPA as well as the same advantages and disadvantages. They can be injected within first 5 days of menses, in postpartum period or postabortal.
- b) Combined injectable contraceptive (CIC's) are short term injectable contraceptive methods containing estrogen as well progesterone. Monthly withdrawal bleeding offers psychological advantage to women. Disadvantage is monthly requirement of injection and the same risks, benefits and contraindication as oral contraception applies to CIC's. The advantage of CIC's over POIC's is better cycle control. Early return in fertility as soon as six weeks after discontinuation.

Implants

Implants are the devices put subcutaneously, releasing hormonal contraceptive over a long period (1-3 yrs or more). Progesterone-only implants are effective long acting reversible contraceptive (LARC) method and have multiple advantages over other reversible methods. These implants consist of hormone-filled capsules or rods which are inserted under the skin of upper arm. The various implants with their doses, duration of action and number of rods inserted are shown in table 2.

MOA: Primarily acts by suppressing ovulation, impedes sperm transmit by thickening the cervical mucus and altering endometrial structure. Annual pregnancy rates are less than 1 percent with all implants.

Side effects: Irregular menstrual cycle is common and most distressing to the patients especially in first year of use. Other side effects include GI side effects, weight gain and breast pain. Rarely there are complications related to implant insertion or removal. No major effect on bone density. **Return of fertility:** There is no delay in return of fertility as the synthetic continuous release hormones in implants have a short half-life.

Timing of Insertion:

- A) Immediate first and second trimester postabortion insertion
- B) Postpartum insertion: Implants are an excellent choice for a breastfeeding woman and should be inserted within 21 days in childbirth.
- C) Interval insertion: Implant inserted in first 5 days after start of menstrual period provides immediate contraceptive effect. A backup method for 7 days is required if inserted beyond 5 days of menses.

The implants need to be inserted and removed through a minor surgical procedure performed by trained personnel. Implants do not provide protection against sexually transmitted infections (STIs).

Missing implant: In case of non-palpable implant, it can be localized with X-ray (radio-opaque implant) /ultrasound (radiolucent). It can be removed in outpatient settings or in operating room depending on the depth of implant.

Contraindications similar to that of DMPA.

Hormonal Intrauterine Devices

Levonorgestrel releasing intrauterine system (LNG-IUS) is a highly effective, long acting reversible contraceptive method. Various available hormonal IUD are shown in table 3.

MOA: The contraceptive effect of LNG-IUS is by profound endometrial, glandular and stromal atrophy and decidualisation effect. There are changes in cervical mucus which prevents accent of sperms, inhibits sperm capacitation and survival.

Timing of Insertion:

A) Interval insertion: It can be inserted within 7 days of menstrual cycle

Implant	Dose	Units	Duration of action	Failure rates
Levonorgestrol:				
1. Norplant (NA)	216mg	6 capsules		0.2/HWY
2. Jadelle	140mg	2 rods	5 years	
3. Sino- implant II	150mg	1 rod		
Etonogestrel : (active metabolite of desogestrol)				
Implanon, (radiolucent)				0.2/HWY
Nexplanon(radio-opaque)	68 mg	1 rod	3 years	
Nesterone:				
Elcometrine	150 mg	1 rod	2years	0.2/HWY
Nomegestrel :				
Uniplant	55mg	1 rod	1 year	0.2/HWY

Table 2: Contraceptive Implants

Туре	Hormone released	Duration of action	Failure rates
LNG IUS			0.2/HWY
Mirena	20µg daily	5 years	
Emily	20µg daily	3 years	
For Nulliparous/			
Teenagers			
Femils, Femilis-slim	20µg daily	5 years	
LNG14- Skyla	14µg daily	3 years	
Frameless-IUD			
Fibroplant	14µg daily	3 years	

Table 3: Levonorgestrel containing Intra uterine device

- B) Post-abortion insertion: Following first trimester surgical abortion or any time of menstrual cycle along with barrier contraceptive measure.
- C) Postpartum insertion: Immediate postpartum IUD insertion (i.e; within 10 minutes after placental delivery in vaginal and cesarean births) is associated with slightly increased risk of IUD expulsion (10-27%). Delayed postpartum insertion associated with increased risk of perforation (though absolute risk low). A follow-up visit should be advised after first menses or 3-6 weeks after insertion.

Side effects: The most significant side effect is menstrual irregularity in the first 4 months after insertion followed by light and short menses and amenorrhea occurs in 20%. The most common reason for discontinuation is break through bleeding.

Overall, complications with IUDs are uncommon and include expulsion (incidence 2-10% within first year), method failure, and perforation (1.4 per 1,000 LNG-IUD insertions).

Contraindication: WHO MEC 3/4: Current breast carcinoma or h/o carcinoma within 5 years, liver diseases, h/o unexplained vaginal bleeding or distorted uterine cavity.

Transdermal Patches

Transdermal contraceptive patches mimics the oral pills and delivers a combination of estrogen and progesterone to the user. They are different from pills in dosing frequency, which is weekly for 3 weeks as compared to daily intake. It avoids the first pass through liver thus cause less side effects. The patch contains 0.75 mg ethinyl estradiol and 6.0 mg of norelgestromin (Ortho Evra) in three layers and delivers 20 μ g ethinyl estradiol and 150 μ g norelgestromin each day. It can be applied on lower abdomen, upper outer arm, buttock, or the upper torso excluding the breast. Newer patch-

Twirla (30 μ g EE+ 120 μ g LNG) is under phase 3 clinical trial.

MOA: The primary mechanism of action is inhibition of ovulation. In addition, the contraceptive patch produces an endometrium that is not receptive to ovum implantation, and cervical mucus which becomes thick and hostile to sperm transport. Tubal and endometrial motility are slowed Failure rates: 0.8-1.3/HWY

Timing of insertion: The patch is to be applied on the same day, but not on the same site once a week for 3 weeks with one patch free week. The women can initiate the application of patch anytime in the cycle if pregnancy is excluded, but if initiated after 5 days of menses a backup method to be used for next 7 days.

Detachment of patch can occur in 5% patients, that too in 1st cycle with inexperienced patients If patch gets detached partially or totally for less than 24 hrs, same patch can be reapplied or replaced with a new patch. If detached for more than 24 hrs, a new patch is used initiating new cycle and new change day.

Side effects: The ovulation suppression, breakthrough bleeding and spotting rates are similar to those of oral contraceptives. The risks and contraindications are similar to that of oral contraceptive pills. Skin reactions at the application site is observed in about 20% patients, which is reason for discontinuation in about 2%.

Vaginal Rings

Vaginal hormonal contraception like the transdermal method avoid the first-pass liver effect and has more stable circulating levels of hormones, greater safety and improved compliance. They contain the lowest dose of estrogen among all combined hormonal pills. The NuvaRing vaginal contraceptive is a flexible, soft, transparent ring which releases 120µg etonogestrel and 15µg ethinyl estradiol per day. Another is Nestorone ring which releases 150 µg of nestorone and 15 µg of ethinyl estradiol per day, it is designed for 13 cycles (1year) of use. The ring is inserted by patient and is worn for 3 weeks with one week off for withdrawal bleeding. There is no specific position to place the ring but should be inserted in normal vagina without any anatomic abnormality or infections. The most common reason for discontinuation is vaginal discomfort, coital problems, or expulsion. If removed or expulsion occurs then to be inserted within 3 hours to maintain the efficacy. When compared to oral contraceptive pills the breakthrough bleeding and spotting rates are lower.

Conclusion

Non-oral hormonal contraceptive methods are safe, effective and convenient method of contraception for all age groups. They offer the advantage of being long-acting and less user dependent, thus improve contraceptive compliance.

Suggested Reading

 Committee on Practice Bulletins-Gynecology, Long-Acting Reversible Contraception Work Group. Practice Bulletin No. 186: Long-Acting Reversible Contraception: Implants and Intrauterine Devices. Obstet Gynecol. 2017;130(5):e251-69.

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Intrauterine Devices

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Introduction

Intrauterine contraceptive device (IUD) is the most common and most popular long acting reversible contraceptive used.

An IUCD can be inserted in any time of the menstrual cycle if the health worker is sure that the woman is not pregnant. Most health care professionals still prefer to insert IUCD within first 7 days of periods, advantage being easy insertion causing less discomfort to the patient and post menstrual insertion also helps in ruling out pregnancy. An IUD can also be inserted in the immediate post partum period and after spontaneous and medically induced first trimester abortions. Back up contraception for 7 days is required if IUD is inserted more than 7 days after menses or abortion. 27% Asian females in reproductive age and 17% in Europe use intrauterine contraceptive device for contraception⁽¹⁾

The first Intrauterine device used in the year 1909 was a ring made up of silkworm gut. Later on Ernest Grafenberg of Berlin came up with the idea of attaching sliver wire to the ring in order to make it visible on X rays⁽²⁾. The first generation IUD devised by Lippes was widely used in the United States in the late 1950's and 60's⁽³⁾.

The invention of copper IUD in 1960s was a breakthrough; it also brought along with it the T shape. Zipper and Howard Tatum stated the T shape would work better in the uterine cavity, they also predicted that the limbs of the T would help reduce the chance of expulsion by holding device in place⁽⁴⁾.

The hormonal IUD was invented with an aim to mitigate the increased menstrual bleeding associated with Copper and inert devices⁽⁵⁾. Currently used hormonal device is the LNG IUD, commonly available as Mirena⁽⁶⁾.

Types of IUDs

First generation: Lippes Loop

Second generation: Copper containing, Cu T 380, Multiload 375, Multiload 250.

Third generation: Progesterone containing

- Microcrystallized progesterone: Progestasert
- Levonorgestrel: Mirena

Fourth generation: frameless IUD⁽⁷⁾

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These are the latest vrsion of IUD, they are small, more adaptable to variations in shape of uterine cavity, flexible and have less expulsion rates. Adequate training is required to learn insertion technique⁽⁷⁾.

1. a) GyneFix 330: It is 3 cm long with 6 copper sleeves. Several copper cylinders are threaded on polypropylene suture. During insertion the knot is pushed 9-10 mm into fundus by special stylet.

b) Mini gynefix: It is maller than Gynefix length being 2 cm with 4 copper sleeves.

2. FibroPlant: LNG-releasing IUD - Here a nonresorbable thread attached to fibrous delivery system. It releases 14 or 20 mcg of LNG/day.

Mechanism of action of Intrauterine device.

Contraceptive effectiveness of intrauterine contraceptive devices is achieved by both a prefertilization spermicidal action and a post fertilization inhibition of uterine implantation; the latter mechanism is how an IUD can act as an emergency contraceptive⁽⁸⁾. Prefertilization foreign body action of the device leads to release of cytotoxic peptides with activation of enzymes leading to Inhibition of sperm motility and capacitation and ultimately phagocytosis of sperms.

Indications and Contraindications: The Medical eligibility criteria for contraceptive use (MEC) provide guidance regarding which clients can use contraceptive methods safely. See Table 1 for WHO MEC 2015.

Technique of IUCD insertion

All patients who express interest in an IUD should be counseled regarding alternative forms of contraception. Following this conversation, informed consent should be obtained from the patient. Both the levonorgestrel-releasing intrauterine systems and the copper T380A IUD have patient information included within IUD packaging; this should be provided to the patient, ideally at a visit prior to IUD insertion.

Before insertion the woman should be counseled well regarding expectations with IUD placement and further use. She should also be informed that mild pain with insertion is common. With the levonorgestrelreleasing intrauterine systems, many women experience cramping for days to weeks following insertion. Additionally, levonorgestrel-releasing IUD users should be informed that although daily spotting may occur following insertion, periods usually become lighter over the news 3 months. Amenorrhea has been reported in as many as 70% of women after 2 years of use⁽⁹⁾. With the copper T380A IUD, bleeding may initially increase which usually settles in the first three months post insertion. Normal periods continue owing to the nonhormonal mechanism of action with Copper IUD⁽¹⁰⁾.

Cervical inspection and bimanual examination is mandatory. Prophylactic antibiotics are not recommended for IUCD insertion. Standard practice of cleansing the cervix must be followed. No touch technique is the preferred method of insertion to reduce the risk of infection. Routine follow up is advised after 4 weeks of insertion after which women are advised to feel for the thread after each menses and to come back if they have any complaints.

IUD for Emergency Contraception

The copper IUD is safe and effective for use as an emergency contraceptive if inserted within 5 days of unprotected intercourse. The failure rate is 0.1%, which is significantly lower than Yuzpe method. Further, it is advantageous as it will continue to provide effective long-term reversible contraception for 3 to 10 years from the time of insertion depending of the type used⁽¹¹⁾.

Complications

Complications from IUD placement are relatively rare. The most common complication is IUD expulsion, which occurs in approximately 2-10% of cases. Patients should be encouraged to feel for their IUD strings on a regular basis at home to ensure correct placement. Placement in the immediate postpartum period is associated with a higher expulsion rate than delayed postpartum insertion⁽¹²⁾. Similarly, insertion immediately following first and second trimester spontaneous or elective abortion is also associated with a higher expulsion rate than delayed insertion⁽¹³⁾. There are, however, numerous advantages to postprocedural and postpartum insertion, which may outweigh the risk of expulsion

Method failure is an exceedingly uncommon complication of IUD use. The copper T380A IUD has a 1-year failure rate of 0.8%⁽¹⁴⁾. When pregnancy does occur following IUD placement, the pregnancy is more likely to be ectopic⁽¹⁵⁾. The World Health Organization and the U.S. Food and Drug Administration both recommend IUD removal if pregnancy occurs.

Pregnancies that persist with an IUD in place are associated with high risk of complications, including spontaneous abortion and septic abortion⁽¹⁶⁾.

Another uncommon complication of IUD placement is uterine perforation, which occurs in 0.1% of cases⁽¹⁷⁾. Severe pain or loss of resistance with sounding for IUD insertion is signs of perforation. If perforation is suspected, the procedure should be stopped and postponed. The patient's vital signs should be assessed to identify and signs of hemorrhage. If any of these signs are evident, the patient should be transported to an emergency facility rapidly.

Rarely, a patient may experience a vasovagal episode as a result of cervical or uterine manipulation. If this occurs, the procedure should be stopped and patient's condition managed appropriately.

Missing IUD thread: First thing to do in such a case is to rule out pregnancy by history, examination and a pregnancy test if required. Sometimes the strings are seen curled up inside the cervix on examination, which can be brought out with the help of a cytobrush⁽¹⁸⁾. If the strings are not visible, an ultrasound is advised to rule out expulsion or perforation. If IUD is not localized in the endometrial cavity on ultrasound, an X ray abdomen must be offered to rule out perforation, which if found will need a laparoscopy to locate and remove the misplaced IUD. IUD may be impacted in the uterine myometrium. If blind removal fails in such cases, a hysteroscopy-guided removal should be done.

Special Situations; WHO MEC 2015⁽¹⁹⁾:

Puerperal sepsis and immediate post septic abortion:

Insertion of an IUD may substantially worsen the condition.

Past Ectopic Pregnancy

The absolute risk of ectopic pregnancy is extremely low due to the high effectiveness of IUDs. However, when a woman becomes pregnant during IUD use, the relative likelihood of ectopic pregnancy is greatly increased.

Hypertension

There is theoretical concern about the effect of levonorgestrel (LNG) on lipids. There is no restriction for copper-bearing IUDs (Cu-IUDs).

Deep Vein Thrombosis/Pulmonary Embolism

The LNG-IUD may be a useful treatment for

menorrhagia in women on chronic anticoagulation therapy.

Current and History of Ischaemic Heart Disease

There is theoretical concern about the effect of LNG on lipids. There is no restriction for Cu-IUDs.

Stroke

There is theoretical concern about the effect of LNG on lipids. There is no restriction for Cu-IUDs.

Severe Dysmenorrhoea

Dysmenorrhoea may increase with Cu-IUD use. LNG-IUD use has been associated with reduction of dysmenorrhoea.

Cervical Cancer (awaiting treatment)

There is concern about the increased risk of infection and bleeding at insertion. The IUD will likely need to be removed at the time of treatment but, until then, the woman is at risk of pregnancy.

Breast cancer: breast cancer is a hormonally sensitive tumour. Concerns about progression of the disease may be less with LNG-IUDs than with combined oral contraceptives or higher-dose progestogen-only contraceptives (POCs).

Endometrial Cancer

There is concern about the increased risk of infection, perforation and bleeding at insertion. The IUD will likely need to be removed at the time of treatment but, until then, the woman is at risk of pregnancy.

Ovarian Cancer

The IUD will likely need to be removed at the time of treatment but, until then, the woman is at risk of pregnancy.

Uterine Fibroids

Without distortion of the uterine cavity: Women with heavy or prolonged bleeding should be assigned the category for that condition.

With distortion of the uterine cavity: Pre-existing uterine fibroids that distort the uterine cavity may be incompatible with insertion and proper placement of the IUD.

Anatomical Abnormalities

Distorted uterine cavity: In the presence of an anatomic abnormality that distorts the uterine cavity, proper IUD placement may not be possible.

Pelvic inflammatory disease (PID)

IUDs do not protect against STI/HIV/PID. In women at low risk of STIs, IUD insertion poses little risk of PID. Current risk of STIs and desire for future pregnancy are relevant considerations.

Tuberculosis

Pelvic: Insertion of an IUD may substantially worsen the condition.

Liver Tumours

There is no evidence regarding hormonal contraceptive use among women with hepatocellular adenoma. Given that COC use in healthy women is associated with development and growth of hepatocellular adenoma, it is not known whether other hormonal contraceptives have similar effects.

Thalassaemia, Sickle Cell Disease, Iron-Deficiency Anaemia

There is concern about a risk of increased blood loss with Cu- IUD

To conclude, women should be encouraged to make informed choices for themselves after a complete knowledge about all available contraceptive. Health care professionals should help the women in decision making rather than thrusting upon anything on her.

Table 1. WHO Medical Eligibility Criteria for contraceptive use⁽¹⁹⁾.

CONDITION	CU IUD	LNG IUD
PREGNANCY	4	4
AGE a) Menarche to < 20 years b) > 20 years	2 1	2 1
PARITY a) Nulliparous b) Parous	2 1	2 1
 POSTPARTUM (including caesarean section) a) < 48 hours including insertion immediately after delivery of the placenta 		
i) breastfeeding ii) non-breastfeeding b) ≥ 48 hours to < 4 weeks c) ≥ 4 weeks d) Puerperal sepsis	1 1 3 1 4	2 1 3 1 4
POST-ABORTION* a) First trimester b) Second trimester c)Immediate post-septic abortion	1 2 4	1 2 4

PAST ECTOPIC PREGNANCY*	1	1		STROKE* (history of	1
HISTORY OF PELVIC SURGERY	1	1		cerebrovascular accident)	1
SMOKING a) Age < 35 years b) Age \geq 35 years i) < 15 cigarettes/day	1	1		KNOWN DYSLIPIDAEMIAS WITHOUT OTHER KNOWN CARDIOVASCULAR RISK FACTORS	1
ii) ≥ 15 cigarettes/day OBESITY a) ≥ 30 kg/m ² BMI b) Menarche to < 18 years and ≥ 30 kg/m ² BMI	1 1 1	1 1 1 1 1		 VALVULAR HEART DISEASE a) Uncomplicated b) Complicated (pulmonary hypertension, risk of atrial fibrillation, history of subacute bacterial endocarditis) 	1 2
MULTIPLE RISK FACTORS FOR ARTERIAL CARDIOVASCULAR DISEASE (such as older age, smoking, diabetes, hypertension and known dyslipidaemias)		2		 a) Positive (or unknown) antiphospholipid antibodies b) Severe thrombocytopenia c) Immunosuppressive treatment 	I 1 3 2
 a) History of hypertension, where blood pressure CANNOT be evaluated (including hypertension in pregnancy) b) A d e quately controlled hypertension, where blood pressure CAN be evaluated c) Elevated blood pressure levels (properly taken measurements) 	1	2 1 2		 d) None of the above HEADACHES* a) Non-migrainous (mild or severe) b) Migraine i) without aura age < 35 years age > 35 years ii) with aura, at any age 	1 1 1 2 2
 i) systolic 140–159 or diastolic 90–99 mm Hg ii) systolic ≥ 160 or diastolic ≥ 100 mm Hg d) Vascular disease 		22		EPILEPSY DEPRESSIVE DISORDERS VAGINAL BLEEDING PATTERNS	1
DEEP VEIN THROMBOSIS (DVT)/ PULMONARY EMBOLISM (PE)* a) History of DVT/PE b) Acute DVT/PE c) DVT/PE and established on	1 1	2 3 2		 a) Irregular pattern without heavy bleeding b) Heavy or prolonged bleeding (includes regular and irregular patterns) 	1 2 1 1
 anticoagulant therapy d) Family history (first-degree relatives) e) Major surgery i) with prolonged immobilization 	1 1	1 2		UNEXPLAINED VAGINAL BLEEDING (suspicious for serious condition) Before evaluation	I 4
ii) without prolonged immobilization	1	1		ENDOMETRIOSIS	2
f) Minor surgery without immobilization	1	1		BENIGN OVARIAN TUMOURS (including cysts)	1
KNOWN THROMBOGENIC MUTATIONS (e.g. factor V Leiden; prothrombin mutation; protein S, protein C, and antithrombin deficiencies)	1	2		SEVERE DYSMENORRHOEA* GESTATIONAL C TROPHOBLASTIC DISEASE a) Decreasing or undetectable β-hCG levels	2
SUPERFICIAL VENOUS DISORDERS a) Varicose veins	1	1		b) Persistently elevated β-hCG levels or malignant disease CERVICAL ECTROPION	4
b) Superficial venous thrombosis CURRENT AND HISTORY OF	1 2	I	С	CERVICAL INTRAEPITHELIAL NEOPLASIA (CIN)*	1
ISCHAEMIC HEART DISEASE*	3				

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С

С

C

CERVICAL CANCER* (awaiting	Ι	C	Ι	С
treatment)	4	2	4	2
BREAST DISEASE*				
a) Undiagnosed mass b) Benign	111		211	
breast disease c) Family history of	11		43	
cancer d) Breast cancer				
i) current				
ii) past and no evidence of current				
disease for 5 years				
ENDOMETRIAL CANCER	Ι	C	Ι	С
	4	2	4	2
OVARIAN CANCER	Ι	С	Ι	С
	3	2	3	2
UTERINE FIBROIDS				
a) Without distortion of the uterine	1		1	
cavity				
b) With distortion of the uterine	4		4	
cavity				
ANATOMICAL				
ABNORMALITIES*				
a) Distorted uterine cavity (any	4		4	
congenital or acquired uterine				
abnormality distorting the uterine				
cavity in a manner that is incompatible				
b) Other abnormalities (including				
cervical stenosis or cervical			2	
lacerations) not distorting the				
uterine cavity or interfering with				
IUD insertion				
PELVIC INFLAMMATORY	Ι	C	Ι	С
DISEASE (PID)*				
a) Past PID (assuming no current risk	1	1	1	1
factors for STIs)				
1) with subsequent pregnancy	2	2	2	2
PID current	4	2	4	2
	4	2	4	2
S'Ils	1	C	1	С
a) Current purulent cervicitis or chlamydial infection or gonorrhoea				
b) Other STIs (excluding HIV and	4		4	
hepatitis)	2	2	2	2
c) Vaginitis (including Trichomonas	$\frac{2}{2}$	2	$\frac{2}{2}$	2
vaginalis and bacterial vaginosis)	2/3		2/3	
d) Increased risk of STIs				
	Ι	C	Ι	C
HIGH RISK OF HIV		2	2	2
ASYMPTOMATIC OR MILD	2	2	2	2
HIV CLINICAL DISEASE (WHO				
STAGE 1 OR 2)				
SEVERE OR ADVANCED HIV	3	2	3	2
CLINICAL DISEASE (WHO				
STAGE 3 OR 4)				

TUBERCULOSIS* a) Non-pelvic	I 1	С	Ι	C
a) Non-pelvic	1			
	1	1	1	1
a) Pelvic	4	3	4	3
MALARIA	1		1	
DIABETES				
a) History of gestational disease	1		1	
b) Non-vascular disease	1		2	
i) non-insulin-dependent	1		2	
ii) insulin-dependent	1		2	
c) Nephropathy/retinopathy/	1		2	
neuropathy	1		2	
d) Other vascular disease or diabetes	1		2	
of > 20 years' duration				
THYROID DISORDERS	1		1	
GALL BLADDER DISEASE	1		1	
HISTORY OF CHOLESTASIS*				
a) Pregnancy-related	1		1	
b) Past-COC related	1		2	
VIRAL HEPATITIS				
a) Acute or flare b) Carrier	1		1	
c) Chronic				
CIRRHOSIS				
a) Mild (compensated)	1		1	
b) Severe (decompensated)	1		3	
LIVER TUMOURS*				
a) Benign i) focal nodular hyperplasia			2	
ii) hepatocellular adenoma	1		3	
b) Malignant (hepatoma)			3	
ANAEMIAS			5	
THALASSAFMIA*	2		1	
SICKLE CELL DISEASE*	2		1	
IDON DEEICIENCY ANA EMIA*	2 2		1	
IKUN-DEFICIENCY ANAEMIA*	2		1	
ANTIMICROBIAL THERAPY				
a) Broad-spectrum antibiotics				
b) Antifungals	1		1	
c) Antiparasities				
d) Ritampicin or ritabutin therapy				

I: Initiation

C: Continuation

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Forthcoming Events

- "Update in Gynaecologic Oncology" on 13th November, 2019 (3:00pm 5:00pm) at AIIMS under the aegis of Oncology Committee AOGD.
- CME on "Tackling Obstetric Dilemmas" on 16th November, 2019 (1:00pm 4:30pm) at The Surya under the aegis of FOGSI Medical Disorders in Pregnancy Committee & AOGD.
- A CME on Obstetric Emergencies organised by Department of O&G ESI Basaidarapur under aegis of Safe Motherhood Committee AOGD is to be held at ESI PGIMER Basaidarapur on 16th November (1.30pm - 5.00 pm). For more information contact Dr Taru Gupta Organising Secretary +91 95603 21212
- Next Monthly Clinical Meeting on 29th November, 2019 (4:00-5:00 pm) at MAMC & LNJP Hospital.

PPIUCD: An Effective Method of Postpartum Contraception

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Rationale for Postpartum Family Planning

In India 61% of births occur before the recommended birth to birth interval of 36 months. Early resumption of sexual activity coupled with early and unpredictable ovulation leads to many unwanted pregnancies in the first year postpartum. Studies have shown that pregnancies which occur within 24 months of a previous birth have a higher risk of adverse outcomes like abortions, premature labor, postpartum hemorrhage, low birth weight babies, fetal loss and maternal death.

The unmet need for family planning in first year postpartum is 65%. Moreover, in developing countries particularly, women who once go back home after delivery do not return for even a routine postpartum check-up, leave aside contraception. This is may be due to lack of education and awareness, social pressure, and non-access to facilities nearby.

Only 26% of women use contraception in first year postpartum. Thus, immediate postpartum family planning services need to be emphasized wherein the woman leaves the hospital with an effective contraception in place. Increase in hospital deliveries provides an excellent opportunity to sensitize women and provide effective contraception along with delivery services. An intrauterine contraceptive device (IUCD) has several advantages for use in postpartum period as it is an effective, long term reversible contraception, is coitus independent, and does not interfere with breast feeding

The Contraceptive Choices in Postpartum Period

Postpartum period is one of the crucial times as morbidity and mortality rates are quite high during this period and also the women are exposed to unintended pregnancy.

The postpartum period is defined as the first six weeks after the birth of a child during which the woman's body has largely returns to its pre-pregnancy state. The "extended postpartum period" includes the first 12 months after birth.

It is further classified as follows:

Immediate Postpartum – Post-placental and within 48 hours after delivery

This is an ideal time to educate and counsel a woman on exclusive breastfeeding as a contraceptive method. Counseling on future fertility, birth spacing or limiting intentions, and provision of appropriate family planning methods like IUCD, sterilization should also be provided in this period.

Early Postpartum - up to 7days

Postpartum Sterilization can be performed within this time period. Messages on Lactational Amenorrhea Method (LAM) should be reinforced.

Extended Postpartum - 6 weeks to 1 year

Spacing methods like IUCD and other methods as per the Medical Eligibility Criteria (MEC) can be provided. Laparoscopic/ minilap tubal ligation can also be performed during this period.

Post-Partum Intra Uterine Contraceptive Devices (PPIUCDs)

Recently, the global community experienced a resurgence of interest in post partum intra uterine contraceptive devices (PPIUCDs) and as a result, programmatic experience has expanded. Globally, more women are delivering in facilities, which provide increased opportunities for postpartum family planning (PPFP), including PPIUCD services. The Copper T 380A intra-uterine contraceptive device (IUCD) is a highly effective, non-hormonal method that can be safely used by all women regardless of breastfeeding status during the postpartum period. According to the World Health Organization Medical Eligibility Criteria, an IUCD can be inserted in the 48 hours postpartum, referred to here as a postpartum IUCD (PPIUCD), or after six weeks following a birth.¹

A 2010 Cochrane review concluded that PPIUCDs were a safe and effective contraceptive method. The public health benefits from PPIUCDs stemmed from the women's increased accessibility to PPIUCDs following facility births, as PPIUCDs could be offered at health facilities after childbirth. This, in turn, decreased opportunity and other costs incurred by clients who may otherwise have to return to facilities to access contraceptive services.²

Intrauterine device (IUD) placement within 10 min after delivery of the placenta is an appealing strategy for increasing access to postpartum IUDs because it does not require a separate postpartum visit. The American College of Obstetricians and Gynecologists (ACOG) strongly encourages the practice of immediate postpartum provision of long-acting reversible contraception (LARC).³

Timing of PPIUCD insertion

1. Immediate Postpartum

- **Postplacental:** Insertion within 10 minutes after expulsion of the placenta following a vaginal delivery on the same delivery table.
- **Intracesarean:** Insertion that takes place during a cesarean delivery, after removal of the placenta and before closure of the uterine incision.
- Within 48 hours after delivery: Insertion within 48 hours of delivery and prior to discharge from the postpartum ward.
- 2. **Post-abortion:** Insertion following an abortion unless there is no infection, bleeding or any other contraindications.
- 3. Extended Postpartum/Interval: Insertion any time after 6 weeks postpartum

The IUCD should NOT be inserted from 48 hours to 6 weeks following delivery because there is an increased risk of infection and expulsion.

PPIUCD Insertion Procedure⁴

- 1. Rule out conditions which prevent insertion of IUCD like rupture of membranes for more than 18 hours, chorioamnionitis and unresolved postpartum hemorrhage.
- 2. Visualize cervix by inserting a Sims speculum in the vagina and depressing the posterior wall of the vagina.
- 3. Gently clean cervix with antiseptic solution two times using two separate cotton swabs with Povidone Iodine or Chlorhexidine. Wait for two minutes to allow the antiseptic to work.
- 4. Gently grasp the anterior lip of the cervix with the ring forceps upto the first lock (The same ring forceps that was used to clean the cervix can be used).
- 5. Grasp IUCD with Kelly's forceps in the sterile package using a no-touch technique. It should be held just on the edge of the Kelly's forceps so that it can be easily released from the instrument when opened.



- 6. Apply gentle traction on the anterior lip of the cervix using the ring forceps and insert IUCD into lower uterine cavity. Avoid touching the walls of vagina.
- 7. Once the Kelly's forceps is in the lower uterine cavity, lower the ring forceps that is holding the anterior lip of the cervix. Move the left hand to the woman's abdomen and push the entire uterus superiorly (upward). This is to straighten out the angle between the vagina and the uterus, so that the instrument can easily move upward toward the uterine fundus.
- 8. Gently move Kelly's forceps upward towards the fundus following the curve of the uterine cavity. Keep the instrument closed so that the IUCD is not dropped accidentally in the mid-portion of the uterine cavity.
- 9. Confirm that the end of Kelly's forceps has reached the fundus and tilt the forceps slightly inwards. When it reaches the uterine fundus, the provider will feel resistance and will also feel the thrust of the instrument at the fundus of the uterus with her left hand which is placed on the abdomen.
- 10.Open Kelly's forceps and release the IUCD at the fundus. Sweep placental forceps to side wall of the uterus. Stabilize uterus (using base of hand against lower part of body of uterus). Slowly remove Kelly's forceps from uterine cavity, keeping it slightly open. Take particular care not to dislodge the IUCD as forceps are removed.
- 11.Counter traction is applied to stabilize the uterus while the instrument is being withdrawn and until it is completely out of the uterus.
- 12.Examine the cervix to ensure there is no bleeding. If IUCD is seen protruding from cervix, remove and reinsert. It is important to check that the IUCD is not visible at the cervical os. If it is visible, or if the strings appear to be very long, then the IUCD has not been adequately placed at the fundus and the chance of spontaneous expulsion is higher. If it appears that the IUCD is not placed high enough, the provider can use the same forceps to remove the IUCD and repeat steps of insertion using aseptic

procedures.

- 13.Provide the woman with written post insertion instructions and IUCD card
 - Inform her about the IUCD side effects and normal postpartum symptoms.
 - Tell the woman when to return for IUCD followup/PNC/ newborn checkup.
 - Emphasize that she should come back any time she has a concern or experiences warning signs.
 - Inform her about the warning signs regarding IUCD.
 - Explain how to check for expulsion and what to do in case of expulsion.
 - Assure the woman that the IUCD will not affect breastfeeding and breast milk.
 - Ensure that the woman understands the postinsertion instructions.

Give a IUCD card to the client with the following information in writing:

- Type of IUCD inserted
- Date of IUCD insertion
- Month and year when IUCD will need to be removed or replaced
- Date of postpartum follow-up visit
- Where to contact if she has problems or questions about her IUCD

Mode of action

The CuT-380A is effective for 10 years of continuous use. There are 0.6 to 0.8 pregnancies per 100 women in first year of use. The contraceptive effect is due to interference with the ability of sperm to survive and ascend the fallopian tubes to the site of fertilization. It also inhibits ovum transport and fertilization and stimulates a sterile foreign body reaction in endometrium potentiated by copper.

Advantages of PPIUCD placement

- Convenience; saves time and additional visit.
- Safe because it is certain that woman is not pregnant at the time of insertion.
- High motivation (woman and family) for a reliable birth spacing method.
- No risk of uterine perforation because of the thick wall of the uterus.
- Reduced perception of initial side effects (bleeding and cramping).
- · Reduced chance of heavy bleeding, especially

among lactational amenorrhea method (LAM) users, since they are experiencing amenorrhea.

- No effect on amount or quality of breast milk.
- Effective method for contraception provided before discharge from hospital.
- Saves time as performed on the same delivery table for postplacental/intracesarean insertions. Additional evaluations and separate clinical procedure not required.
- Need for minimal additional instruments, supplies and equipment.
- Convenience for clinical staff; helps relieve overcrowded outpatient facilities thus allowing more women to be served.

Limitations of PPIUCD

- Increased risk of spontaneous expulsion. While rates of IUD expulsion after postpartum insertion are slightly higher than after interval or later insertion, the benefits of providing highly effective contraception immediately after delivery outweigh this disadvantage.⁵
- Rates of perforation and infection for postpartum IUD use appear to be similar to or even lower than those associated with interval insertion

Problems Encountered After Immediate PPIUCD Insertion

- Changes in menstrual bleeding patterns
- Cramping or pain
- Infection
- IUCD String problems
- Partial or Complete IUCD expulsion
- Pregnancy with an IUCD in place
- Lost to follow-up
- · Removal requests from the clients

Effective Counselling

Counseling should be done with the woman, and if she prefers, with her husband and/or mother-in-law. Women should be ideally counseled in the antenatal period for immediate PPIUCD insertion. If not done, counselling can also be done during admission, early labor, prior to cesarean section or on the first postpartum day.

However, she should NOT be counseled for the first time about immediate PPIUCD during active labor as she may not be able to make an informed choice due to stress of labor. **Post Insertion Counseling-** Woman should return after six weeks for IUCD check-up or come back any time if she has any concern or experiences any warning sign or if the IUCD is expelled.

Thus, gain the trust and confidence of your client and help her choose the best method for her and her needs. Explain what she needs to know and follow up on her questions and decision making process.

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Calendar of Monthly Clinical Meetings 2019-20

Months	Name of the Institute
29 th November, 2019	MAMC & LN Hospital
27 th December, 2019	Sir Ganga Ram Hospital
31 st January, 2020	Dr RML Hospital
28 th February, 2020	UCMS & GTB Hospital
27 th March, 2020	LHMC
24 th April, 2020	Apollo Hospital

AOGD Bulletin

Contraception for Adolescent

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Introduction

Adolescent pregnancy is defined as pregnancy under the age of 20 years. Most adolescents begin their sexual activity without adequate knowledge about sexuality or contraception or protection against STIs/HIV. Latest data suggests that teen pregnancy in India is high with 62 pregnant teens out of every 1,000 women.¹As per the 2016 National Family and Health Survey (NFHS)-4 in India, 8% of women age 15-19 have begun childbearing; 5% of women have had a live birth and 3% of women are pregnant with their first child.

Why Adolescents need Contraceptive Methods

Adolescent marriages are very common in rural areas; the couple is less likely to use contraception than adults. For unmarried adolescents it is sometimes impossible to access contraceptives resulting in unintended pregnancy. Whether married or unmarried, substantial numbers of adolescents experience the negative health consequences of early, unprotected sexual activity - unintended pregnancy, unsafe abortions, pregnancy-related mortality and morbidity and STIs/HIV. They also face serious social and psychological consequences.

Barriers to contraceptive use among adolescents

- I. Barrier in **obtaining** contraceptive methods
 - Non availability
 - Inability to pay for services
 - Fear of judgemental attitudes of providers
 - Limiting contraceptive use to condoms, wrongly believing that long acting hormonal methods and intrauterine devices are inappropriate for adolescent girls.
- I. Barrier in using contraception
 - The unexpected and unplanned nature of sexual activity

- Fear of opposition from partner or parents
- Pressure to have children soon after marriage.
- Stigma surrounding contraception.
- Misconceptions about the immediate and long term side effects of contraceptive methods on their health and on their future ability to bear children.
- Poor understanding of how contraceptives methods work and how they should be used; adolescents often use them incorrectly.
- Inconsistent use of contraception. Sporadic sex or infrequent sex is often cited as the reason adolescents do not use methods consistently.

Providing Adolescents with Contraceptive Services

A trusting relationship between provider and patient, a holistic approach while consulting and counselling regarding contraceptive options and provision of resources to increase access are the key components of adolescent health care.

Confidentiality is very crucial especially in case of adolescents to improve contraception use. A recent survey of teenagers found that the primary reason they don't use contraception is the fear that their parents will find out.²

A comprehensive history of their personal psychosocial circumstances, a thorough sexual health history, along with screening for pregnancy and STIs, promote safer sex practices, as well as counsel and provide suitable contraceptive options. The CDC suggests taking a sexual history that encompasses the 5 Ps: Partners, Practices, Protection from STDs, Past history of STIs, and **P**revention of pregnancy.³ The initial step towards counselling adolescents is to develop a rapport with them in a supportive and non-judgemental environment, where confidentiality is ensured. Counselling needs to be directed at both males and females and should cover responsible sexual behaviour. Male adolescents should be encouraged to share the responsibility for contraception and STI/HIV prevention with their female partners.

Modern contraceptives are very effective when used correctly. While adolescents may choose to use any contraceptive method available to them, some may be more appropriate for a variety of social and behavioural reasons. For example, using a method that does not require a daily regimen, such as oral contraceptive pills do, may be a more appropriate choice for an individual.

The information provided should address the following issues:

- a. Effectiveness of the method
- b. Information on protection against STIs/HIV
- c. Common side-effects of the method
- d. Potential health risks and benefits of the method
- e. Information on return to fertility after discontinuing use of the method.
- f. Where the method can be obtained and how much it costs.
- g. Emergency contraception routinely should be included in discussions about contraception.

Discussions about contraception begin with information on the most effective methods first. The health providers should be aware of the most common misperceptions about contraceptive methods and be prepared to address them. Adolescents right of refusal for initiating or discontinuing a method should be addressed by health provider. An adolescent patient should never be forced to use a method chosen by someone other than herself, including a parent, guardian, partner, or health care provider. The WHO medical eligibility criteria are same for adolescent age group as for any other adult women; however cultural and social practices influence the use of these contraceptive methods.

After a method is chosen, it is also important to discuss correct use of the method and follow-up information, such as signs and symptoms that would necessitate a return to the clinic.

It is important to remember that even if married, adolescents may have other special information needs. They may be particularly concerned about their return to fertility after discontinuing use of a method.

For unmarried adolescents it is important to discuss abstinence or non-penetrative sexual activity as options, even with those who have already had sexual intercourse so that individuals can delay sexual activity until they are older, and thus be better able to deal with its social, psychological and physical implications.

Contraceptive Methods for Adolescents

1. Long-acting reversible contraceptives

Long-acting reversible contraceptives (LARC) are the most effective forms of contraception available and are the first-line choice owing to high continuation rates that eliminate the daily adherence challenge, as well as being reversible and maintaining high satisfaction rates. They include progestin implants and intrauterine devices (IUDs).⁴

The IUDs include the Cu-T 380A, and the levonorgestrel intrauterine contraceptive system. **Effectiveness:** The failure rate of LNG IUS and Cu-T 380A is 0.2 and 0.8 pregnancies respectively per 100 women in the first 12 months of use.

Return of fertility: With either type of IUD there is no delay in the return of fertility following removal.

Side effects / Disadvantages: The most important side-effects experienced with copper-bearing IUD use are increased menstrual bleeding and pain. It does not protect against STIs.

Benefits: No daily regimen. The noncontraceptive benefits of LNG IUS include reduced dysmenorrhoea, reduction in menorrhagia and associated iron-deficiency anaemia, and development of amenorrhoea.

Correct use -Ideal candidates for IUDs are in long-term mutually monogamous relationships and do not have unexplained vaginal bleeding.

Contraindications: Active or recent PID or active gonorrhoea, *chlamydia*, or purulent cervicitis; pregnancy and distorted uterine cavity.

Progestin Implants are another type of LARC. The two main types of progestogenonly implants are available: Levonorgestrel implants (Norplant) and Etonogestrel implant (Implanon). Norplant consists of six small silastic capsules that are inserted under the skin of the upper inner arm. Each capsule contains 36 mg of levonorgestrel; effective for five years. Implanon is a flexible plastic rod about the size of a matchstick, inserted in the inner upper arm, continually releasing etonorgestrel for three years. Implants are ideal for adolescents who prefer a method that does not require regularly scheduled adherence and who desire an extended length of protection.

Effectiveness: The failure rate for Implanon as well as Norplant is impeccably low at 0.1 pregnancies per 100 women years.⁴

Return of fertility: immediate upon removal.

Side effects / Disadvantage: Irregular vaginal bleeding, usually within the first 3–6 months following insertion, which can deter adolescents from its use is the major side effect. Others though not common include emotional lability, weight gain, headache, and acne. It does not protect against STIs.

Benefits: Its high effectiveness, long duration and easy compliance are all important advantages. As it contains no estrogen and releases small daily amounts of levonorgestrel, the safety profile of Norplant is better than that of COCs. The longterm safety, benefits and medical eligibility criteria are all similar to those for POPs.

Progestin Injections: DMPA, also known by the brand name Depo-Provera is a long-acting progestin that is given as a single injection every 12 weeks using a dose of either 150 mg delivered intramuscularly.

Effectiveness: The failure rate is 0.3 per 100 women in the first 12 months of use.

Return of fertility: delayed by 4-6 months from the last injection.

Side effects/disadvantages: One major side effect is irregular bleeding patterns that occur once commenced, which have been reported to be as high as 30 per cent among users. Others are loss of bone mineral density with long-term use, which does resolve once discontinued, breast tenderness, headaches, dizziness, hair loss and acne. It does not protect against STIs.

Benefits: include improvement in dysmenorrhea and protection against iron-deficiency anemia. DMPA may be safely recommended for adolescents who are lactating.⁵ The longterm protection from benign breast disease and endometrial cancer, and the reduction in frequency and severity of epileptic seizures, and decreasing sickle cell disease crisis are other benefits acne.

Follow up: Because of bone-mineral density changes, the use of these injectables may require special, as yet undefined, follow-up or management in adolescents from menarche to 18 years.

2. Combined Oral Contraceptive Pills (COCs)

There are different formulations of the COCs available, with the compositions of hormones varying slightly to help target specific areas such as weight and acne, which can be chosen to best suit the teenager. Mostly adolescents are prescribed a COC containing 30 to 35 μ g of ethinyl estradiol and a progestin, such as levonorgestrel or norgestimate.

Effectiveness: When typically used, failure rates is between 6–8 pregnancies per 100 women in the first 12 months of use.

Return of fertility: Rapid. The effects are completely reversible and with no negative effect on long-term fertility.

Side effects/ Disadvantages: Nausea, dizziness, mild headache, breast tenderness, mood changes and breakthrough bleeding may occur in some which usually subside within the first three months of use. The most serious adverse event associated with COC use is the increased risk of thromboembolism. The baseline incidence of venous thromboembolism in adolescents is up to 1 per 10000 woman-years per year. The disadvantages include the need to take the pill every day (preferably at the same time each day); and the lack of protection against STIs.

Benefits: Some non-contraceptive benefits such as regularity of the menstrual cycle, relief from menorrhagia and dysmenorrhoea, relief from mittelschmerz, use in PCOS, possible improvement of acne, and prevention or improvement of anaemia, may be of particular interest to adolescents.

Contraindications: COCs have few contraindications in healthy female adolescents. They should not be prescribed for patients with severe and uncontrolled hypertension (systolic pressure $\geq 160 \text{ mm Hg}$ or diastolic pressure $\geq 100 \text{ mm Hg}$); ongoing hepatic dysfunction; complicated valvular heart disease; migraines

with aura or focal neurologic symptoms; complications of diabetes (ie, nephropathy, retinopathy, neuropathy, or other vascular disease); complicated solid organ transplantation; or thromboembolism or thrombophilia (eg, factor V Leiden mutation; antiphospholipid antibody syndrome; or protein C, protein S, or antithrombin 3 deficiency). Although smoking should be discouraged, it is not a contraindication to COC use in teenagers and young adults.¹⁰

Follow up: A routine follow-up visit 1 to 3 months after initiating COCs is useful for addressing persistent adverse effects or adherence issues.

3. Vaginal Ring

NuvaRing is a non-biodegradable, flexible and transparent vaginal ring which releases 15 μ g ethinyl estradiol and 120 μ g etonogestrel (the active metabolite of desogestrel) daily. Visual aids should be provided to the user to make them understand their own anatomy and the placement of the ring. Vaginal rings can be used safely along with tampons. The acceptance of vaginal rings is seen to be more than COCs however the adherence to this method is very low.

4. Trans-dermal Patch

Evra, a trans-dermal contraceptive patch contains 6 mg norelgestromin (the active metabolite of norgestimate) and 0.75 mg of ethinyl estradiol. It can be placed on the abdomen, buttock, upper outer arm or upper torso (excluding the breast). A new patch is placed once a week for three weeks followed by 1 week off the patch, during which a withdrawal bleed usually occurs. Each weekly patch releases 150 μ g of norelgestromin and 20 μ g of ethinyl estradiol into the bloodstream daily.

The failure rates for typical use are 9%. The patch has comparable efficacy, benefits, and drug interactions as other combined methods, but provides a simpler regimen. Side effects of the patch are similar to other combined methods, with the addition of local adverse effects, such as dislodged patches and hyperpigmentation, contact dermatitis and other skin irritation, and concerns about the visibility and appearance of the patch makes it less acceptable for adolescent population. **Contraindications** to vaginal ring and trans dermal patch include prescence or risk of thromboembolism, known or suspected carcinoma of the breast, endometrium or other known or suspected oestrogen-dependent neoplasia, abnormal liver function related to acute or chronic hepatocellular disease, hepatic adenomas or carcinomas, undiagnosed abnormal genital bleeding.

5. Progestin only pills

POPs, are also known as "mini-pills", and commonly used formulations contain : Desogestrel 75 μ g or Norethisterone 350 μ g. POPs are markedly less effective than other progestin-only methods, including the progestin-containing IUD, the progestin implant, and injectable progestin. Therefore, they are not typically recommended as a first-choice contraceptive in healthy adolescents. The progestogene only pill is generally reserved for lactating adolescents.

6. Barrier contraception

The most common and effective type of barrier contraception is the male condom. It acts as a mechanical barrier and also prevents STI prevention thus all sexually active adolescents should be encouraged to use condoms, regardless of whether an additional contraceptive method is used.

Effectiveness: Typical failure rate is 14 pregnancies per 100 women. The failure rates are higher, especially in adolescents versus adults. They should be used with LARC or other hormonal contraceptives (Dual Method).

Disadvantages: coitus dependant method.

Benefits: The greatest advantages are the accessibility and cost, use without prescription. It confers additional benefit of protection against STIs. It also involves males in the responsibility of contraception.

7. Other methods

Female condom, diaphragm, cervical cap and sponge are not the preferred contraceptive method for adolescent because of their low efficacy and acceptance. These methods do not provide protection against STIs.

8. Emergency contraception

This method is administered in the immediate time period following unprotected sexual intercourse to prevent pregnancy. Different include selective progesterone treatments receptor modulator (ulipristal acetate 30mg), levonorgestrel-only regime (Plan B), and highdose combined pill (Yuzpe), as well as the copper intrauterine device. Access to emergency contraception is just as important as the efficacy of these methods, as the success will decrease with time elapsed from unprotected sexual intercourse. Adolescents must be made aware of the different methods available and where to source them. Although there are no medical conditions that restrict the use of ECPs other than pregnancy they should not be used as a regular or frequent method of contraception.

Benefits: The only benefit of ECP use is the reduced risk of an unwanted pregnancy following unprotected intercourse. Emergency contraception has a special role for adolescent girls and women who are subjected to sexual violence, to prevent unwanted pregnancies. There access to ECPs need to be increased by training healthcare providers and also by ensuring easy availability of ECPs. All adolescents are eligible for ECP, without restriction on repetitive use.

Follow up: A follow-up visit within three to four weeks of use is recommended to rule out possible pregnancy and to discuss any subsequent problems when using a continuous contraceptive. Advance prescription for EC should be a part of routine adolescent care. The sometimes sporadic and unplanned nature of adolescent sexual behaviour, counselling and advance provision of EC should be a part of anticipatory guidance.

Adolescents who are Coerced Into Having Sex

Adolescents who have been subjected to sexual coercion and abuse will require special care and support. Emergency contraception should be made available in such circumstances. Health-care providers need to be sensitive to these issues and must be aware of how to access the health and social services that these adolescents may need.

Special Population

Adolescents with Disabilities: Sexuality and sexual health care needs are often overlooked in those having physical disability, developmental disability, and chronic illness. Contraceptives for menstrual control and hygiene may be needed for those with severe physical disabilities or cognitive impairment and also for those on certain anticonvulsants and antipsychotics which may influence the neuroendocrine system, leading to abnormal bleeding.34 Menstrual control and suppression is commonly achieved with COCs, transdermal patches, DMPA, and levonorgestrel IUDs. Continuous or extended cycles of COCs are a common approach. Permanent methods like endometrial ablation, sterilisation and hysterectomy are often not required.

Adolescents with Obesity: The preferred method of choice is LARC. COCs and DMPA can cause increase in weight again and undesirable side effects, hence are not the first choice. The efficacy of hormonal contraceptive (Patch, COCs, rings) is less in adolescent weighing more than 90 kgs. Morbidly obese adolescents often opt for bariatric surgery, post-surgery there is an improvement in fertility and it is desirable not to conceive during the next 12-18 months. Associated nausea and vomiting with these surgeries can further reduce the efficacy of hormonal contraceptives. It is recommended that IUCD should be placed at the time of bariatric surgery.

Adolescents with HIV: Condoms are the preferred method of barrier contraception in these cases because of their demonstrated ability to decrease HIV transmission. Spermicides and diaphragms are contraindicated among HIV-positive women because of the potential for increased risk of genital lesions and potential increased risk of HIV transmission associated with nonoxynol-9. The risk of HIV acquisition or transmission is not increased by IUDs and they are safe and effective for HIVinfected individuals. A COC preparation containing ethinyl estradiol >30 µg should be prescribed to adolescents receiving ART. Ritonavir containing regimen may decrease contraceptive ART effectiveness by decreasing contraceptive steroid concentrations. Barrier method should be used as a dual methodalong with IUCD or COCs.

Conclusion

Substantial numbers of adolescents face serious health and social consequences due to unwanted pregnancy. Poor access to and use of contraception is a key contributory factor. Thus contraception in adolescents is an important and as health providers we must consider the entire clinical picture when approaching each individual to ensure the most suited method is chosen. To meet the needs and fulfil the rights of adolescents, countries should eliminate medical and social restrictions to the provision of contraception to adolescents, and support and enable adolescents to obtain contraceptive methods that are appropriate to their needs and preferences through delivery mechanisms that are acceptable to them.

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Congratulations !!

Dr Anita Rajorhia for correctly answering the Crossword and Pictorial Quiz of October issue

Answer: October Issue

Crossword Down

- 1. Sliding
- 2. Sweetspot
- 3. Chimney

Ac	ross
I.	Se

- I. Seven II. Adhesion III. Palmer IV. Office
- V. Hilum
- VI. Semm

Pictorial Quiz

- 1. Wandering Fibroid
- 2. Laparoscopic Morcellation of Myoma

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Events Held

 "Master Class on over Active Bladder (OAB)" on 19th October, 2019 at Safdarjung Hospital under the aegis of Urogynaecology Subcommittee.











 Exclusive panel discussion on "Gestational Diabetes Mellitus" on 16th October, 2019 at Surya under the aegis of Reproductive Endocrinology Committee AOGD & DGF



 CME on "Adolescent Health Problems & PCOS" at Hetel Crown Plaza, on 18th October, 2019 Luders the aegis of AOGD Reproductive Endocrinology Committee along with DGF North West.



 Certificate Course on Endosuturing on 21st & 22nd October, 2019 at UCMS & GTB Hospital under the aegis of Endoscopy Committee AOGD



• Monthly Clinical Meeting on 25th October, 2019 at ESI, Basaidara Pur Hospital, New Delhi.



 Public Lecture on "Breast Cancer Awareness" on 30th October at GTB Hospital under the aegis of Oncology Committee AOGD.







Emergency Contraception

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Emergency contraception (EC), also known as postcoital contraception or morning after pill, is used to prevent pregnancy after an unprotected or inadequately protected act of sexual intercourse. It is intended for occasional or backup use and not as a primary contraceptive method for routine use. Unfortunately easier access has led to its misuse as a primary method to prevent unwanted pregnancy by uninformed couples. Also many women are unaware of emergency contraception, misunderstand its use and safety, or do not use it when a need arises. EC is indicated when no contraceptive was used or a contraceptive was used incorrectly or a contraceptive was used correctly but was immediately observed to have failed.

Although oral emergency contraception was first described in the medical literature in the 1960s, the U.S. Food and Drug Administration (FDA) approved the first dedicated product for emergency contraception in 1998. Since then, several new products have been introduced.

ECs are not dangerous under any known circumstances or in women with any particular medical conditions. In particular, the following conditions are NOT contraindications to ECPs: young age, obesity, personal or family history of venous thromboembolism, prior or current breast cancer, prior ectopic pregnancy, breastfeeding, migraine headaches, cardiovascular disease, liver disease, diabetes, hypertension, and prior ECP use in the same menstrual cycle.

Methods of emergency contraception include:

Levonorgestrel (progestin only emergency contraceptive pill):

Levonorgestrel (**LNG**) is a synthetic progestogen and is available as progestin only emergency contraceptive pill. It is given both as single dose (1.5 mg LNG) or split dose regimen (two doses of 0.75 mg taken 12 hours apart). It is promoted by Government of India under the National Family Programmme, available as 'Ezy pill'. Various brands are also easily available as over the counter drugs. LNG is labeled for use up to 72 hours after unprotected sex but its efficacy decreases with time. However, recent studies have shown moderate efficacy when the first dose is taken up to 5 days after sexual intercourse². Mechanism of action: If taken before the preovulatory luteinizing hormone surge has started, LNG can inhibit the surge, impeding follicular development and maturation and/ or the release of the egg itself. Therefore, inhibits ovulation.

Drug interaction:

Drug interactions while using LNG are same as OCPs. Thus, efficacy of LNG may be reduced while using drugs like rifampicin, griseofulvin, certain anticonvulsant drugs and certain antiretroviral drugs. Therefore, if the LNG ECP regimen is selected, some experts recommend taking double the dose (3 mg LNG).

Being hormonal contraceptive pill, obesity may decrease the efficacy of pill. Studies have shown that LNG EC may be less effective in overweight (body mass index [BMI] 25–29.9 kg/m²) or obese women (BMI of 30 kg/m² or greater).

Precaution after using pill: Any regular contraceptive method can be started immediately after the use of LNG emergency contraception, but the woman should abstain from sexual intercourse or use barrier contraception for 7 days.

Ulipristal Acetate

Ulipristal is a SPRM (selective progesterone receptor modulator) and FDA approved as a emergency contraception pill since 2010. It is sold under the brand name of Ella one. A single dose of 30 mg is effective within 5 days of unprotected intercourse. In case vomiting occurs within 3 hours of intake, a second dose is recommended.

Mechanism of action: It is a Progesterone receptor modulator. By binding to the progesterone receptors it stops the pre-ovulatory surge of luteinising hormone, therefore prevents ovulation.

It also inhibits tubal function thus causing desynchronization between the zygote itself and the fallopian tube. Ulipristal does not prevent implantation of a fertilized egg into the uterus.

Drug interaction:

Ulipristal and levonorgestrel should not be used together for emergency contraception because Ulipristal may decrease the efficacy of LNG. Ulipristal metabolism involves cytochrome P450 3A4 and concomitant use of inducers of this enzyme, such as phenytoin and carbamazepine, is not recommended as these drugs will reduce the plasma concentration of Ulipristal and may reduce its efficacy. Therefore, patients taking these drugs should be encouraged to use IUD as EC.

Obesity may decrease the efficacy of hormonal contraceptive pills. However, compared to other hormonal ECs, Ulipristal is preferred for women with a BMI ≥ 25 Kg/m² not desiring intrauterine device.

There are no contraindications for use of Ulipristal as emergency contraception. Some studies have shown that the drug is excreted in breast milk, therefore breastfeeding mother should feed the baby immediately before taking the tablet and then express and discard the milk for the next 36 hours².

Precaution after using pill: The U.S. Selected Practice Recommendations for Contraceptive Use, 2013 advise that any regular contraceptive method can be started immediately after the use of Ulipristal acetate emergency contraception, but the woman should abstain from sexual intercourse or use a barrier method of contraception for 14 days or until her next menses, whichever comes first. However, subsequent to the publication of the U.S. Selected Practice Recommendations for Contraceptive Use, 2013, the FDA changed the Ulipristal acetate labeling to include a new warning about its use with hormonal contraceptives and a recommendation to delay initiating hormonal contraception until no sooner than 5 days after intake of Ulipristal acetate

Comparison with Levonorgestrel: Ulipristal regimen is at least as effective as the levonorgestrel regimen when used within 72 hours after sex. And no decline in efficacy of the ulipristal regimen is present within 5 days after sex. Failure rate of LNG is 2.2% whereas it is 1.3% for Ulipristal.

Combined Hormonal Regimen

It is the oldest method of emergency contraception but the combined hormonal regimen is the least effective of the four ECP regimens. The recommended regimen is called Yuzpe regimen. It consists of one dose of 100 mcg ethinyl estradiol plus 0.5 mg levonorgestrel followed by a second identical dose 12 hours later. The combined hormonal regimen is not currently marketed anywhere, but it can be made up from many brands of widely available oral contraceptive pills. This regimen may be useful in settings where none of the dedicated products are available. We have low dose OCPs Mechanism of action: This combination of estrogen and progesterone pill prevents ovulation.

Side effects: The combined estrogen-progestin regimen has a significantly higher rate of nausea than the Ulipristal acetate and levonorgestrel regimens. Also causes breast tenderness, dizziness and abdominal discomfort. Irregular bleeding can occur which resolves without treatment.

Copper IUD

It is the most effective emergency contraception available currently. Insertion of a copper IUD should be performed as soon as possible after unprotected or inadequately protected sexual intercourse. It is effective when placed up to 5 days after sexual intercourse and, in some studies, was used up to 10 days afterward without failure. Once inserted, it provides long term contraception.

Mechanism of action: Copper IUCD prevents implantation of the fertilized embryo, therefore is effective upto 5 days of unprotected intercourse.

Drug interaction:

Usually copper IUCD has no drug interaction unlike, other hormonal contraception. The efficacy of the copper IUD is not affected by body weight.

It the best emergency contraception, has no drug interaction and also provides long term regular contraception.

Side effects: Copper IUD insertion carries a risk of uterine perforation of approximately 1/1,000, is associated with uterine cramping, and may cause increased duration of menstrual flow or dysmenorrhea.

Mifepristone

Mifepristone (also known as RU-486) is antiprogestogen drug. As a emergency contraception it is recommended in a single dose of 10-50 mg. It is effective upto 120 hrs of last coital act and has an effect on the endometrium; therefore, can both inhibit implantation and induce abortion. Cochrane review 2017 concludes that mid-dose mifepristone (25 mg to 50 mg) were more effective than both LNG and Yuzpe regimen. But it is available as dedicated ECP products in only a few countries, including China, Vietnam, and Russia.

Table 1: Option for emergency contraception¹

Method	Dose	Effective upto (hours after unprotected intercourse)	% of pregnancies prevented	Remarks
Ulipristal Acetate (SPRM)	Single dose of 30 mg	Upto 120 hrs	99% to 100%	 Next period may be delayed Should be avoided in breastfeeding mothers.
LNG (Progestin-only ECPs)	Single dose of 1.5 mg or 0.75 mg given twice 12 hrs apart	Upto 72 hrs	59% to 94%	 Both doses are equally effective LNG more effective than Yuzpe regimen with less side effects
Combined ECPs (Estrogen plus Progesterone)	 100 mcg EE plus 500 mcg LNG in each dose, given twice, 12 hrs apart 30 mcg EE OCPs- use 3-4 tablets repeated twice 20 mcg EE OPCs – use 5 tablets repeated twice 	Upto 72 hrs	47% to 89%	• More side effects due to high dose of estrogen
Copper IUD (most effective) LNG IUS not recommended		Upto 120 hrs	99%	Provides continued contraception after initial event.

* Ethinyl estradiol

Summary

Emergency contraception provides backup to individuals at risk of an unwanted pregnancies. Ulipristal has the best efficacy among the hormonal emergency contraception, but currently not marketed as emergency contraception in India. Overall IUCD is most effective of all and should be promoted because it provides long term contraception too.

It should be noted that all hormonal contraception works by inhibiting ovulation. Therefore, if taken on the day of ovulation or after ovulation, they are not effective.

Side effects: Use of hormonal emergency contraception causes a delay of menses by more than 7 days. Some women experience irregular bleeding or spotting after taking ECPs. Bleeding alterations due to ECPs are not dangerous and will resolve without treatment.

Other minor side effects like nausea, dizziness, headache, abdominal pain can occur. These side effects are more with the used of Yuzpe regimen.

A pregnancy test should be ordered if there is no menstrual period within 21 days of using emergency contraception. Also patient should be explained the risk of pregnancy is substantially higher if the woman has subsequent unprotected sex acts in the same menstrual cycle. If failure happens and woman becomes pregnant, studies have shown no effect on existing pregnancies. Also they do not increase the risk of ectopic pregnancy (the incidence is same as general population).

In India, awareness about emergency contraception is low, not only among the public but also among healthcare providers. Studies show not only lack of awareness among couples regarding the available method of family planning but also lack of willingness to use the available methods as well as a lacunae in the capabilities of reproductive healthcare system in delivering the services.

Suggested Reading

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Contraception in Elderly

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Menopause is defined as the permanent cessation of menstruation for a period of 1 year. The term 'perimenopause' has been replaced with 'menopausal transition', which begins with menstrual cycle irregularity and ends with menopause. It is the time of reproductive ageing with progressive loss of follicular activity. During this time, ovulatory cycles are interspersed with anovulatory cycles and conception can occur unexpectedly. The average age of menopause in Indian women is 46.2 ± 4.9 years, whereas perimenopause begins by the age of $44.69 \pm$ 3.79 years⁽¹⁾.

Women above the age of 40 years require effective contraception because the medical risks of unintended pregnancies are far greater for these women as compared to their younger counterparts. Further, the risk of chromosomal anomaly in the fetus increases markedly with increase in maternal age. The 2013 National Survey of Sexual Attitudes and Lifestyles (NATSAL) research project in UK showed that 1 in 5 pregnancies were conceived when the mother is aged 40 years or older. So the most effective contraception should be recommended for such women to decrease the incidence of unwanted pregnancies. Also, perimenopausal symptoms may respond to hormonal contraceptives. All options for birth control should be explained to them, along with the risks and benefits, so these women can make an informed choice.

The WHO has grouped contraceptives as per their effectiveness. The top-tier methods provide contraception for the longest duration with minimal user motivation. It includes – IUCDs, implants, female sterilisation and vasectomy.

Intra uterine devices may be Copper containing IUDs (eg: Cu T 380 A) or a progesterone coated IUD (Mirena) that contains 52 mg Levonorgestrel. Copper containing IUDs can be used in perimenopausal women till menopause. They are associated with minimal systemic side effects and can be used in women with comorbidities. However, some women may complain of heavy or irregular menstrual cycles after insertion. These menstrual changes are usually self-limiting and counselling is required to prevent early discontinuation. If the bleeding pattern persists, then investigation is required to exclude pathology.

LNG IUS causes progressive amenorrhea and reduces

the menstrual blood loss. This is its most important benefit in perimenopausal women who experience heavy and irregular bleeding. It is an excellent alternative to surgery in such patients. LNG IUS has no risk of venous thrombosis and is free from systemic side effects. However, it is contraindicated in women with known/suspected breast cancer.

Progesterone containing implants are inserted subdermally in the inner aspect of upper arm. Around 20% women have amenorrhea after insertion, however an equal number of women have the device removed within the first year due to irregular bleeding⁽²⁾.

Tubal sterilization for women and vasectomy for male partners are also options for elderly couples who have completed their family. Older women are more likely to be motivated to accept sterilisation. It has the additional benefit of reducing the risk of ovarian cancer. It can be done by laparoscopy, mini laparotomy or hysteroscopically. Hysteroscopic sterilization is less invasive than laparoscopic techniques and can be used in women with comorbidities, or previously scarred abdomen.

Depo Provera (DMPA 150 mg) is the most commonly used injectable contraceptive. Amenorrhoea is seen in around 30% of women during the first 3 months and in 55% by 1 year⁽³⁾. This feature can be beneficial to women who experience irregular bleeding in the perimenopausal period.It also decreases the risk of ovarian and endometrial carcinoma^(4,5). The main side effect of Inj. DMPA is loss of bone density. This can be worrisome for perimenopausal women, as they will be shortly entering menopause, which is associated with accelerated bone loss. In 2004, FDA issued a black-box warning that DMPA "should be used as along-term birth control method, i.e. >2 years, only if other birth control methods are inadequate."ACOG recommends to "exercise caution" in prescribing DMPA for perimenopausal women⁽⁶⁾.

Combined hormonalcontraceptives (CHCs) are available in three formats: combined oral contraceptive (COC) pills, the transdermal patch, and the vaginal contraceptive ring. Combined oral contraceptive pills in women over 40s offer many benefits in the form of decreasing the risk of postmenopausal hip fractures and regularising menses in women with AUB. They also decrease the long term risk of ovarian and endometrial cancer. Evidence says that OCP can relieve vasomotor symptoms in perimenopausal women thus improving the quality of life⁽⁷⁾. However, these pills have an increased risk of arterial and venous thromboembolism. COC with low dose estrogen $(\leq 30 \text{ µg})$ should be used as first line preparations for women older than 40 years due to the potentially lower risks of venous thromboembolism, cardiovascular diseaseand stroke as compared to the high dose preparations. Healthy women, who are normotensive, non-diabetic and non-smokers, and without any risk factor for cardiac disease can continue COC until the age of 50-55 years⁽⁶⁾. Women who smoke should be advised to stop combined hormonal contraceptives at 35 years as at this age the increased risk of mortality associated with smoking starts to become clinically significant⁽⁸⁾. As per ACOG, the benefits of combined oral contraceptives must be balanced against the cardiovascular risk factors. Because of this risk, the use of COCs should be individualized in women older than 35 years⁽⁶⁾.

Progesterone only pills – These can be considered as a good option in elderly females, as the thromboembolic and metabolic side effects associated with COC are absent. It can therefore be used in women who smoke and in those with comorbidities. It can also be used in women suffering from migraine with aura. However, studies have demonstrated an increased risk of breast cancer in women using POP. Irregular bleeding is the most common side effect encountered. Another limitation is that it does not improve hot flushes, like the combined pill.

Barrier methods are safe to use until menopause. It is a good alternative in women who have infrequent sexual intercourse. Estrogen creams should not be used with condoms as they cause breakage and increase the failure risk. Male contraception – many contraceptive methods have been developed for males, but only condoms and sterilisation are approved and licensed. These may be suitable for couples where medical comorbidities prevent the use of hormonal methods in females.

Although, no contraceptive methods are contraindicated based on age alone, age is an important determinant of cardiovascular disease. When deciding whether to stop contraception, the medical risk must be weighed against the risk of an unintended pregnancy.

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Contraception in Medical Disorders

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Within no time India will surpass China as the most populous country in the world, the brunt of which is unimaginable. The side effects of over-population like unemployment, economic crisis, poverty are well known. India has the highest rate of unwanted pregnancies and unsafe abortions rank third in the list of leading causes of maternal mortality. WHO data suggests that simply reducing the number of unintended pregnancies can reduce maternal mortality by 60%. Thus, contraception does not remain a matter of 'choice' anymore; it has become a dire necessity.

Classification of Contraceptives

For ease of understanding, various contraceptives methods have been clubbed into following broad categories:

- Copper based IUCD
- Progesterone Only Contraceptives
 - Progesterone only pills
 - LNG-IUD
 - DMPA
 - Implants
- Combined Hormonal Contraceptives
 - oral
 - patch
 - vaginal ring
 - injectable

Medical Eligibility Criteria for Contraceptives

Choice of contraceptive requires customization according to the preference of the couple, efficacy, failure rates, adverse effects and contra-indications of the contraceptive etc, especially so in cases of concurrent medical disorders. An understanding of how various contraceptive devices interact with medical conditions leading to altered efficacy or worsening of the underlying disease is important in selecting the right method.

For this purpose, WHO has laid down 'Medical Eligibility Criteria' for contraceptive usage according to which contraceptive methods are placed into four numbered categories for each medical condition.

MEC1: A condition for which	MEC2: A condition where	
there is no restriction for	the advantages of using the	
the use of the contraceptive	method generally outweigh the	
method	theoretical or proven risks	
MEC3 : A condition where	MEC4: A condition which	
the theoretical or proven	represents an unacceptable	
risks usually outweigh the	health risk if the contraceptive	
advantages of using the method	method is used.	

Category 1 & 2 imply that the method can be safely used in that medical condition. Category 3 & 4 contraceptives should not be used. This article is a ready reckoner for the status of various contraceptive methods in commonly encountered medical conditions.

I. Cardiovascular Diseases

Pregnancy is associated with marked cardiovascular and hemodynamic adaptations. There is a hormonally mediated increase in blood volume, red cell mass, and heart rate which results in a major increase in cardiac output. In a diseased heart, this means a lot of stress and leads to decompensation of the preexisting cardiac disease. Where pregnancy is not contra-indicated, contraception is crucial to avoid/ delay the morbidity caused by unwanted pregnancies and to allow counseling and optimal timing of pregnancy, thereby improving outcomes. Salient points to consider regarding contraception are:

Copper-IUD

- It is overall the most preferred contraceptives in cardiovascular diseases (MEC1).
- Instrumentation during insertion may precipitate vaso-vagal syncope, should thus be performed in fully-equipped settings.
- Transient bacteremia from vaginal organisms is also seen during insertion. Prophylactic antibiotics are recommended.

Progesterone Preparations

- Cause only a small increase in the risk of cardiovascular events.
- Increase the risk of atherosclerosis
- Do NOT increase risk of arterial and venous thrombo-embolism
- DMPA and NET-EN have hypo-estrogenic effects, reduce HDL levels and the effects persist for some time after discontinuation.

Combined Hormonal Contraceptives

- In women with multiple risk factors for CVD, use of CHCs may increase the risk of cardiovascular events to an unacceptable level
- CHCs cause fluid retention and increase in plasma angiotensinogen
- COC increase risk of stroke, acute MI, and peripheral arterial disease
- Discontinuation improves BP control
- Increase the risk of arterial and venous thromboembolism
- Can safely be used in known dyslipidaemias without other known CVD risk factors. Routine screening is not appropriate because of rarity of conditions and high cost of screening. Known severe genetic lipid disorders may warrant further clinical consideration.

Medical Condition	Cu-IUD	Progesterone Preparations	Combined Hormonal Contraceptives
Multiple risk factors for CVD	MEC1	POP, LNG, LNG-IUS: MEC2 DMPA, NET-EN: MEC3	MEC3/4
Hypertension			
Adequately controlled	MEC1	MEC1 DMPA, NET-EN: MEC2	MEC3
• SBP (140-159) or DBP (90-99)	MEC1	MEC1 DMPA, NET-EN: MEC2	MEC3
• SBP (>160) or DBP (>100)	MEC1	MEC2 DMPA, NET-EN: MEC3	MEC4
Vascular Disease	MEC1	MEC2 DMPA, NET-EN: MEC3	MEC4
History of Gestational Hypertension	MEC1	MEC1	MEC2
 Valvular Heart Disease and Congenital Heart Disease Uncomplicated complicated by Pulmonary Hypertension, Endocarditis, Fibrillation 	MEC1 MEC2	MEC1 MEC1 LNG-IUS: MEC2	MEC2 MEC4
Ischemic Heart Disease (history of/current), Stroke and TIA	MEC1	Initiation: MEC2 Continuation: MEC3	MEC4
Varicose Veins	MEC1	MEC1	MEC1
Superficial Venous Thrombosis	MEC1	MEC1	MEC2
 Deep Vein Thrombosis History of DVT Acute DVT History of DVT in first degree relative Major surgery with prolonged immobilization Major surgery without prolonged immobilization Minor surgery without prolonged immobilization 	MEC1 MEC1 MEC1 MEC1 MEC1 MEC1	MEC2 MEC3 MEC1 MEC2 MEC1 MEC1	MEC4 MEC4 MEC2 MEC4 MEC2 MEC1
Dyslipidemia	MEC1	MEC2	MEC2

II. Neurological Disorders

Copper-IUD

• Overall most preferred contraceptives in neurological disorders (MEC1)

Progesterone Preparations

- Can be used safely in non-migrainous headaches provided the diagnosis is accurate. There is concern that severe headaches may increase with use of NET-EN, DMPA and implants.
- Safe to use in epilepsy, but concurrent use with anti-convulsants requires knowledge of drug interactions (Refer to Section VII)

• Do not increase depressive symptoms in women with depression compared with baseline

Combined Hormonal Contraceptives

- Women with a history of migraine who use COCs are about 2–4 times as likely to have an ischaemic stroke as non-users with a history of migraine
- Among women with migraine, women who also had aura had a higher risk of stroke than those without aura
- COC use did not increase depressive symptoms in women with depression compared to baseline or to non-users with depression

- Safe to use in epilepsy, but concurrent use with anti-convulsants requires knowledge of drug interactions (Refer to section VII)
- No data on bipolar disorder or postpartum depression is available.

Condition	Cu-IUD	Progesterone Preparations	Combined Hormonal Contraceptives
Non-migranous (mild or severe)	MEC1	MEC1	Initiation: MEC1 Continuation: MEC2
Migraine without aura	MEC1	POP Initiation : 1 Continuation: 2 Rest: MEC2	I C <35 yrs
Migraine with aura (at any age)	MEC1	Initiation : MEC2 Continuation : MEC3	MEC4
Epilepsy	MEC1	MEC1	MEC1
Depressive disorders	MEC1	MEC1	MEC1

III. Endocrine disorders

Copper-IUD

• These methods have little effect on short-term or long-term diabetes control (e.g. HbA1c levels), haemostatic markers or lipid profile. Safe to use in diabetes (gestational, uncomplicated and complicated)

Progesterone Preparations

- Limited and inconsistent evidence regarding the development of non-insulin-dependent diabetes among users of POCs with a history of gestational diabetes.
- Have little effect on short-term or long-term diabetes control

• DMPA and NET-EN have hypo-estrogenic effects and reduce HDL. These effects may persist for some time after discontinuation.

Combined Hormonal Contraceptives

- Do not increase the risk of development of noninsulin-dependent diabetes in women with a history of gestational diabetes
- Have a limited effect on daily insulin requirements and no effect on long-term diabetes control (e.g. haemoglobin A1c levels) or progression to retinopathy
- In complicated diabetes however, decision for use should be made depending on the severity of the condition.

Medical Condition	Cu-IUD	Progesterone Preparations	Combined Hormonal Contraceptives
Simple Goitre	MEC1	MEC1	MEC1
Hypothyroid	MEC1	MEC1	MEC1
Hyperthyroid	MEC1	MEC1	MEC1
History of Gestational Diabetes	MEC1	MEC1	MEC1
Insulin and non Insulin dependent diabetes (uncomplicated)	MEC1	MEC2	MEC2
Complicated Diabetes (Retinopathy/ Neuropathy/ Nephropathy) or diabetes of >20 years duration	MEC1	MEC2 DMPA/NET-EN: MEC3	MEC3/4

IV. Gastro-intestinal Disorders

Copper-IUD

• Safe to use in most gastro-intestinal disorders.

Progesterone Preparations

- History of cholestasis either during pregnancy or past COC has a theoretical but undocumented increased risk of cholestasis with POC use.
- Do not influence either progression or regression of focal nodular hyperplasia.
- There is no evidence for use in hepatocellular adenoma

Combined Hormonal Contraceptives

- Increase the risk of gall bladder disease and worsen pre-existing disease.
- · History of cholestasis either during pregnancy

or past COC use predicts an increased risk of cholestasis with COC use.

• There is limited evidence for use in active hepatitis. In chronic hepatitis, COC use does not increase the rate or severity of cirrhotic fibrosis, nor does it increase the risk of hepatocellular carcinoma.

- Do not influence either progression or regression of focal nodular hyperplasia.
- There is no evidence for use in hepatocellular adenoma.

Medical Condition	Cu-IUD	Progesterone Preparations	Combined Hormonal Contraceptives
Gall Bladder Disease			
a) Symptomatic			
 h/o cholecystectomy 	MEC1	MEC2	MEC2
Medically treated	MEC1	MEC2	MEC3
• Current	MEC1	MEC2	MEC3
b) Asymptomatic	MEC1	MEC2	MEC2
History of Cholestasis			
Pregnancy Related	MEC1	MEC1	MEC2
Past COC Related	MEC1	MEC2	MEC3
Viral Hepatitis			
• Acute	MEC1	MEC1	Initiation: MEC3 /4
			Continuation: MEC2
Chronic or Carrier	MEC1	MEC1	MEC1
Cirrhosis			
• Mild (Compensated)	MEC1	MEC1	MEC1
• Severe (Decompensated)	MEC1	MEC3	MEC4
Liver Tumours			
Focal Nodular Hyperplasia	MEC1	MEC2	MEC2
Hepatocellular adenoma	MEC1	MEC3	MEC4
• Malignant	MEC1	MEC3	MEC4

V. Gynecological Malignancies

Copper-IUD

- Womenusing an IUD following uterine evacuation for a molar pregnancy are not at increased risk of developing post-molar trophoblastic disease
- IUDs may hasten the progression of Cervical Intra-epithelial Neoplasia.
- There is concern about the increased risk of infection, bleeding and perforation at insertion in patients with cervical and endometrial cancer.

Progesterone Preparations

- Do NOT increase the risk of developing postmolar trophoblastic disease
- Cervical ectropion is not a risk factor for cervical cancer, and there is no need for restriction of POC use
- POPs can be used safely in CIN, but long-term DMPA use (≥ 5 years) may increase the risk of carcinoma in situ and invasive carcinoma. They may even worsen an existing carcinoma cervix.

• Breast cancer is a hormonally sensitive tumour, and the prognosis of women with current or recent breast cancer may worsen with POC use.

Combined Hormonal Contraceptives

- Do NOT increase the risk of developing postmolar trophoblastic disease.
- No need for restriction of CHC use in cervical ectropion.
- Long term use (>5 years) may increase the risk if carcinoma in situ and invasive carcinoma of cervix.
- Increased risk of breast cancer among women with either a family history of breast cancer or breast cancer susceptibility genes is NOT modified by the use of combined oral contraceptives. However, being a hormonally sensitive tumour, prognosis of women with current or recent breast cancer may worsen with CHC use.
- COC use reduces the risk of developing endometrial and ovarian cancer.

Medical Condition	Cu-IUD	Progesterone Preparations	Combined Hormonal Contraceptives
Gestational Trophoblastic Disease a) Decreasing or undetectable β-hCG levels b) Paraistantly, elevated β hCC levels or	MEC3	MEC1 LNG-IUS: MEC3	MEC1
malignant disease	MEC4	MEC1 LNG-IUS: MEC4	MEC1
Cervical Ectropion	MEC1	MEC1	MEC1
Cervical Intra-epithelial Neoplasia(CIN)	Cu-IUD : MEC1	POP: MEC1	MEC2
		DMPA/NET-EN/LNG/ETG/ LNG-IUS: MEC2	
Cervical Cancer	Initiation : MEC4	POP: MEC1	MEC2
(Awaiting treatment)	Continuation : MEC2	DMPA/NET-EN/LNG/ETG: MEC2	
		LNG-IUS: Initiation : MEC4 Continuation : MEC2	
Breast Disease			
A) Undiagnosed breast mass	Cu-IUD: MEC1	MEC2	MEC2
B) Benign Breast Disease	MEC1	MEC1	MEC1
C) Family History of Breast Cancer	MEC1	MEC1	MEC1
Breast Malignancy			
A) Current Breast Disease	MEC1	MEC4	MEC4
B) Past and no evidence of current disease in past 5 years	MEC1	MEC3	MEC3
Endometrial Cancer	Initiation: MEC4	MEC1	MEC1
	Continuation: MEC2	LNG-IUS	
		Initiation: MEC4	
	MEGI	Continuation: MEC2	MEGI
Benign Ovarian Tumors	MECT	MECI	MECI
Ovarian Cancer	Initiation: MEC3	MECT	MECT
	Continuation: MEC2	LING-IUS: Initiation: MEC3	
		Continuation: MEC2	

VI. Sexually Transmitted Infections & Pelvic Inflammatory Disease

Intra-uterine device (including LNG IUS)

- In women with current STI and PID, Cu-IUD should not be inserted. For continuation, treat the STI with appropriate antibiotics. There is no need for removal of IUD.
- In women with other STI, vaginitis and women with increased risk of STIs, IUD insertion may further increase the risk of PID. Decision to insert depends on individual susceptibility and risk behaviour.
- In HIV/AIDS, there is no increased risk of overall complications or infectious complications. But IUD users with advanced infection should be closely monitored for pelvic infection. Risk of sexual transmission from female to male is also

not increased. IUD users with severe or advanced HIV clinical disease should be closely monitored for pelvic infection.

Progesterone Preparations

- There may be an increased risk of chlamydial cervicitis among DMPA users at high risk of STIs. For other STIs, there is either evidence of no association between DMPA use and STI acquisition or too limited evidence to draw any conclusions. There is no evidence for other POCs
- Most studies suggest no association between use of POCs and progression of HIV.

Combined Hormonal Contraceptives

• Evidence suggests that there may be an increased risk of chlamydial cervicitis among COC users at high risk of STIs. For other STIs, there is either evidence of no association between COC use and

STI acquisition or too limited evidence to draw any conclusions.

• Most studies have found no association between use of COCs and progression of HIV. Hormonal

contraceptives do not affect plasma viral load.

• All hormonal contraceptives can be safely used in STIs & PID.

Medical Condition	Cu-IUD	Progesterone Preparations – DMPA_NE_POPs_LNC/ETC	Combined Hormonal
	LNG IUS	DIMIA, NE, I OI S, ENG/EIG	Contraceptives
a) Current purulent cervicitis or chlamydial infection or gonorrhoea	Initiation: MEC4 Continuation: MEC2	MEC1	MEC1
b) Other STIs (excluding HIV and hepatitis)	MEC2	MEC1	MEC1
c) Vaginitis (including Trichomonas vaginalis and bacterial vaginosis	MEC2	MEC1	MEC1
d) Increased risk of STIs	MEC2/3	MEC1	MEC1
HIV/AIDS	Asymptomatic/Mild HIV: MEC2	MEC1	MEC1
	Severe or advanced HIV Clinical disease: MEC2/3		
Pelvic Inflammatory Disease			
a) Past PID with subsequent pregnancy	MEC1	MEC1	MEC1
b) Past PID without subsequent pregnancy	MEC2	MEC1	MEC1
c) Current PID	Initiation : MEC4 Continuation : MEC2	MEC1	MEC1

VII. Drug Interactions

Intra-uterine devices (including LNG-IUD)

• ANTI-MICROBIALS:

- No pharmacokinetic interactions with *broad* spectrum antibiotics, anti-fungals, anti-parasitic drugs and rifampicin/rifabutin therapy (MEC1).

• ANTI-RETROVIRAL THERAPY

- No known interactions between ART and IUD use but in HIV/AIDS as a condition is classified as follows with regards to IUD use:
 - o Asymptomatic/Mild HIV: MEC2
 - o Severe or advanced HIV Clinical disease: MEC2/3
- ANTI-CONVULSANTS:
 - Anti-convulsants do not interfere with the contraceptive effectiveness of IUDs (MEC1).

Progesterone Preparations

• ANTI-MICROBIALS:

- No pharmacokinetic interactions with *broad spectrum antibiotics*, *anti-fungals*, *anti-parasitic drugs* (MEC1).
- *Rifampicin and rifabutin* reduce the effectiveness of POCs except DMPA.

o DMPA: MEC1

o NET-EN & LNG: MEC2

o POP: MEC3

• ANTI-RETROVIRAL THERAPY:

- No known interactions with *nucleoside reverse transcriptase inhibitors (NRTIs)* and *integrase inhibitors* (**MEC1**).
- *Non-nucleoside RTIs* (Efavirenz & Nevirapine) reduce the effectiveness of POCs (MEC2). Action of DMPA is unaltered by these drugs and hence DMPA belongs to MEC1 when used with NNRTIs. No such interactions with Etravirine and rilpivirine (MEC1).
- *Protease inhibitors* reduce the effectiveness of POCs (MEC2) except DMPA (MEC1).

• ANTI-CONVULSANTS:

- Concurrent Use with anticonvulsants like phenytoin, carbamazepine, barbiturates, topiramate, oxcarbazepine is not harmful but reduces the effectiveness of POCs (MEC2/3) except DMPA (MEC1).
- No interaction with lamotrigine (MEC1)

Combined Hormonal Contraceptives

• ANTI-MICROBIALS:

- No pharmacokinetic interactions with *broad spectrum antibiotics*, *anti-fungals*, *anti-parasitic drugs* (MEC1).
- *Rifampicin and rifabutin* reduce the effectiveness of COCs. This effect is more with rifampicin than rifabutin (**MEC3**).

• ANTI-RETROVIRAL THERAPY:

- No known interactions with *nucleoside reverse transcriptase inhibitors (NRTIs)* and *integrase inhibitors* (**MEC1**).
- *Non-nucleoside RTIs* (Efavirenz & Nevirapine) reduce the effectiveness of CHCs (**MEC2**). No such interactions with Etravirine and rilpivirine (**MEC1**).
- *Protease inhibitors* reduce COC Progestin levels (MEC2).

• ANTI-CONVULSANTS:

- Concurrent Use with anticonvulsants like *phenytoin, carbamazepine, barbiturates, topiramate, oxcarbazepine* is not harmful but reduces the effectiveness of CHC. When

a COC is chosen, a preparation containing a minimum of 30 μ g of ethinyl estradiol (EE) should be used (**MEC3**).

- Levels of *lamotrigine* decrease significantly during COC use and increase significantly during the pill-free interval. (MEC3)

WHO MEC at your fingertips!: WHO Contraception Tool Application for your smartphone

This tool provides a comprehensive collection of recommendations on the initiation and continuing use of nine common types of contraceptive methods in medical conditions. Emergency contraception is also included as part of the "Additional information" section. The link for download is shared below:

For android users: https://play.google.com/store/apps/ details?id=com.who.mecwheel

For apple users: https://apps.apple.com/us/app/ medical-eligibility-criteria/id1439446129?ls=1



Post Abortion and Post Delivery Abortion

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Introduction

Post partum family planning is the initiation and use of contraceptive method in the first six weeks postpartum following delivery, with the aim to prevent unintended pregnancy. Post abortal family planning is the initiation and use of contraception within 48 hours after an abortion, before fertility returns. In most women fertility returns two weeks after an abortion.

The provision of family planning is important for women in the postpartum and post-abortion periods because fertility can return surprisingly quickly after giving birth if not breast-feeding, or after having an abortion. In some cases, women have become pregnant before having their first menstruation following a delivery or abortion, and often the pregnancy is unwanted and may end up with a further abortion. Unfortunately, a large number of women who wish to delay or prevent future pregnancies receive little or no information on effective family planning methods during the postpartum or post-abortion period, including how or where to obtain family planning methods, and how soon they should be started. The majority of women receiving abortion or post-abortion care do not want to become pregnant again in the near future. It is because of these issues that it is important for you to know the family planning needs of women during this critical period.

Post partum and post abortal family planning counselling should include:

- Discussion about contraceptive needs, taking into account reproductive goals and protection against sexually transmitted infections.
- Information and counselling about methods, their effectiveness, and side effects.
- Short and long-term contraceptive method choices.
- Assurance of contraceptive re-supply.
- Access to follow-up care.

Family Planning Options Postpartum:

The best choice of contraception for postpartum women are:

- Lactation amenorrhoea method (LAM)
- Diaphragm
- Male and Female condoms
- Spermicides

- Intrauterine device (IUD)
- Male and female sterilisation
- Natural family planning methods

The alternative choice includes:

- Progesterone- only pills
- Injectables (DMPA, NET-EN)
- Implants (Implanon)
- The less preferable method include:
- Combined oral contraceptive pills
- Monthly injectables (Mesigyna, Cyclofem)

For breastfeeding women, non-hormonal methods are the best choice and can be safely used. They do not interfere with a woman's ability to breastfeed, or the quality and quantity of breastmilk and there is no adverse effect on infant growth and development. Progestin-only oral contraceptive methods are the next best choice, and are considered a suitable method for breastfeeding women six weeks after childbirth. This method has been shown not to affect breastmilk secretion and breastfeeding or infant growth and development.It is recommended that progestinonly methods be provided after the first six weeks postpartum. However, some find it more convenient to begin these methods immediately after delivery, since no adverse effects on the infant or breastfeeding have been observed.Combined oral contraceptives are less frequently recommended for breastfeeding mothers, because they are known to decrease breastmilk secretion by inhibiting the secretion of prolactin. However, it is an option if the mother is no longer breastfeeding, or breastfeeding less frequently six months after childbirth.

Family Planning options post abortal:

Abortions account for approximately 8% of maternal mortality in India and family planning could prevent 90% of maternal mortality associated with unsafe abortions. Since women receiving abortion services at a facility usually do not return for family planning services even though they do not want to become pregnant again in the near future, immediate post abortion period when the woman is still at the facility or in contact with the health care provider is the opportune time to provide family planning counseling and services. Counselling is a critical component in providing quality post-abortion family planning services and involves communication between a service provider/ counselor and a client. It helps the client to understand the essential concepts of family planning, to have options for contraceptive methods and to choose a method based on her needs and preference. The service provider/counselor should explain the characteristics, use (how it works), side effects and effectiveness of the available methods and should aid/support the woman in selecting the contraceptive method which best suits her.

The postabortal counselling should summate the following messages:

She should wait at least 6 months before trying to conceive again.

Fertility returns quickly - within 10 to 11 days after first trimester abortion or miscarriage and within 4 weeks after a second trimester abortion or miscarriage.

She can choose from available family planning methods that can be started at once.

If a woman decides not to use contraceptives at this time, providers can offer information on all available methods.

To avoid infection, she should not have intercourse until bleeding stops.

Post-abortion family planning methods should start immediately since ovulation can occur as early as eleven days post-abortion. 75% of women will have ovulated within four to six weeks post-abortion. There is no contraindication to use any contraceptive method in post abortal period. Women should be screened for any contraindication to a particular contraceptive method. Appropriately used family planning methods include:

Condoms (which also prevent STI's and HIV)

Oral contraceptives

IUD's

Injectable hormonal contraceptive devices

Implants

Contraceptive methods used in postabortal and postpartum period:



Family Planning Methods	Advantages	Limitations	Contraceptive
Condoms	 Only method that protects against both pregnancy and STIs, HIV No hormonal side effects Used as a temporary or back up method Can be used without seeing a health care provider 	 Some people may have allergy to latex Require correct use with every act of sex 	Fairly effective, Failure rate: 2 pregnancies/ 100 women*

Combined Oral Contraceptives (COCs)	 Can be provided by all health workers Does not interfere with sexual activity Immediate return to fertility on discontinuation 	 Must be taken every day Re-supply must be available Not suitable for women, who is breast-feeding her baby of less than 6 months old Not suitable for women with certain medical illnesses Medications like Rifampicin, Dilantin, and GriseofulvinR have drug interactions and lower the effectiveness of OCPs Changes in menstrual bleeding like lighter bleeding, dizziness, nausea, headaches, and breast tenderness 	Highly effective. Failure rate: < 1 pregnancy/100 women (0.3/100)*, when no pills are missed
Progestin only Pills (POP)	 Can be provided by all health workers Does not interfere with sexual activity Immediate return to fertility on discontinuation Suitable for women below six weeks post-partum and breast feeding 	 Less effective for women not breast feeding Must be taken every day Re-supply must be avaible Not suitable for women with certain medical illnesses Changes in menstrual bleeding like lighter bleeding, dizziness, nausea, headaches, and breast tenderness 	Breast feeding women: Failure rate: 1 pregnancy/100 women (.3/100)*, when no pills are missed less effective in non-breast feeding women: Failure rate: < 1 pregnancy/100 women (.9/100)*, when no pills are missed
Centchroman	 Can be used safely by lactating mothers Does not require daily action and does not interfere with sex. Taken orally twice a week in first 3 months and then once a week Can be provided by non-medical staff Immediate return of fertility on discontinuation No hormonal side-effects 	 Prolongation of menstrual cycle Requirement of regular supply Cannot be provided to women with Polycystic ovarian disease, cervical hyperplasia, Tuberculosis, renal disease, clinical evidence of jaundice/ liver disease and severe allergic states 	Fairly effective. Failure rate: 1.63 Pregnancy/100 women (1.63/100)
Injection DMPA	 Does not interfere with sexual activity Suitable for women after six weeks post-partum and breast feeding 	 Client must return for injection every 3 months May cause irregular bleeding, spotting and amenorrhea Return of fertility after stopping Inj DMPA takes an average of 4 to 6 months longer than with most other reversible methods. This means women can become pregnant on average 7-10 months after their last injection Reversible reductions in bone density, but users are not likely to have more fractures 	Highly effective. Failure rate: <1 pregnancy/100 women (0.3/100)*, when women take injections on

IUCD	 Effective as soon as it is inserted Long term contraception, effective for 5 years (IUCD Cu 375) or 10 years (IUCD CU 380A) Immediate return to fertility on removal Does not require daily action and does not interfere with sex 	 Increased menstrual bleeding and pain during the first few months Trained provider needed for insertion and removal Cannot be provided to women with current pelvic infections 	Highly effective. Failure rate: <1 pregnancy/ 100 women (0.6/100)*
Female Sterilization	 Permanent method Immediately effective No long term side effects No interference with sex 	 Woman must understand that it is a permanent method and reversal is difficult Permanence of the method increases the importance of adequate counseling and fully informed consent. Slight possibility of wurgical complications 	Highly effective. Failure rate: <1 pregnancy/ 100 women (0.5/100)*
Male Sterilization (Vasectomy)	Permanent method No interference with sex Enables man to take responsibility for preventing pregnancy	Not immediately effective. Cauple must use another FP method for at least the first 3 months. Semen analysis should be done after 3 months to confirm absence of sperms	Highly effective. Failure rate: <1 pregnancy/ 100 woen (0.5/100)*

Medical Eligibility Criterion for various hormonal contraceptive methods :

- 1. Combined hormonal contraceptive methods :
 - In breast feeding women: < 6 weeks- Category 4
 ≥ 6 weeks to < 6 months- Category 3
 - ≥ 6 months postpartum- Category 2
- 2. Progesterone only contraceptive (POC) and levonorgesterol IUD :
 - In breast feeding women : < 6 weeks Category 2
 ≥ 6 weeks Category 1
- 3. Injectable progesterone:
 - In breast feeding women: < 6 weeks Category 3
 ≥ 6 weeks Category 1

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Female Sterilization: Revisited

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Female sterilization dates back to 19th century, with the first tubal ligation performed in 1880 by Lungren in Ohio. Almost 50 years later, in 1936, the first laparoscopic tubal ligation was performed by Bosch in Switzerland⁽¹⁾. It is a popular, safe, highly effective and permanent method of contraception. Around 4.1 million women (37.3%) get sterilized annually in India, while acceptance of other contraceptives are, 1.7% for IUCD, 3.1% for oral pills and 5.2% for condoms⁽²⁾. It is a preferred contraception by most of the Indian women due its comfort of one time visit and no need for a lifetime follow up, it also provides a monitory incentive of 400 rupees to the client and 200 rupees for the motivator. The low failure rate of 0.5/HWY makes it even more popular. Thus, in the long run it turns out to be the most economical contraceptive method and suitable for the masses. To further enhance its acceptance, the acceptors are covered under Family Planning Indemnity Scheme launched in 2013 (discussed later).

Who can do it - Laparoscopic sterilization can be performed by a gynaecologist (DGO, MD, MS) and surgeons (MS) trained in lap sterilization whereas minilap services can be provided by trained MBBS doctor who has been performing it for the last 3 years in a public or accredited private health facility. Training is provided by empanelled trainers approved by QACs (Quality Assurance Committee)^(3,4,5).

Where it can be done -

A health care institute with

- OT facility,
- · autoclave and disinfection techniques,
- preop area and recovery room
- availability of doctor who can perform the procedure⁽³⁾.

Client selection- Criteria for eligibility of the candidate;⁽¹⁾ Should be 'ever married',⁽²⁾ between 22-49 years of age,⁽³⁾ couple has a child above the age of 1 year (unless medically indicated),⁽⁴⁾ candidate or partner has not undergone sterilization procedure in the past,⁽⁵⁾ sound state of mind to be able to understand the implications of the procedure. In case of mentally ill candidates certified by psychiatrist, statement is given by the legal guardian/spouse regarding the soundness of mind⁽³⁾.

Detaile	T an an an in the initial	Minilan
Details	Laparoscopic training	мппар
Nature of Trainees	Team comprising Gynaecologist/Surgeon (of 3 years' standing) who is already performing or who is trained in Minilap, and OT Nurse and OT Technician	Medical Officers, Nurses, and OT Technician (if needed)
Duration	12 working days	12 working days
Content of Training	 Pre- and post- sterilization counselling Selection of cases Clinical procedures, including post-operative management Recognition and management of complications Infection-prevention measures Management/ maintenance of equipment 	 Pre- and post- sterilization counselling Selection of cases Clinical procedures, including post- operative management Recognition and management of complications Infection-prevention measures Management/ maintenance of equipment
Reference Material for Training	Standards for Female and Male Sterilization, published by MOHFW, GOI. In addition, trainers may recommend other texts.	Standards for Female and Male Sterilization, published by MOHFW, GOI. In addition, trainers may recommend other texts.
Training Centres	State-identified centres	State-identified centres
Number Trained per Course	One team consisting of 1 Surgeon, 1 Staff Nurse, 1 OT Technician	2–3

The role of counselling: It has a crucial role. All candidates are required to give written, informed consent. They need to be informed regarding all available forms of family planning techniques and given a basket of choice. If they choose sterilization, its implications, complications including failure, side effects and benefits should be explained to the candidate in their own language. It is important to dispel the myths related to procedure ie.the said procedure has no effect on sexual performance, client's day to day activities, provides no protection against sexually transmitted infections. Consent of the spouse is not required for sterilization but it is a good clinical practice to get the husband's signature⁽⁴⁾. Reversal of this procedure is possible but it is a major operation and there is no guaranteed success. Unmarried or nulliparous women, have the right to choose sterilization as a family planning procedure⁽⁴⁾,

but they should be counselled about the permanency of sterilization and the availability of alternative, longterm, highly effective methods.

Timing of the Procedure:

- **1. Interval sterilization** performed within 7 days of the menstrual period i.e in the follicular phase of menstrual cycle and at least 42 days after delivery
- **2. Post-partum** done after 24 hours upto 7 days of delivery.
- **3. Sterilization with medical termination of pregnancy (MTP)** can be performed concurrently.
- 4. Sterilization following spontaneous abortion (post abortal)

Tubal ligation with second-trimester abortion and in the post-partum period should not be done laparoscopically^(3,4).

Preop Assessment includes documentation of patient particulars, medical history, physical examination and lab investigations. It is important to document the date of patient's last menstrual period to rule out pregnancy and for this purpose they are called in the immediate post menstrual period. There are no absolute contraindications for female sterilization (except current active infection of the genital tract, current Ca cervix, ovary or endometrium, current DVT or stroke in which the procedure is to be delayed till patient is treated)⁽³⁾.

Asepsis is to be maintained strictly. The usual aseptic techniques are followed like surgical scrubbing, cleaning OT after each procedure, painting and draping the patient and using sterilized instruments (autoclaving, high level disinfection). In settings with high patient load, a surgical scrub should be performed every hour or at least after 5 cases and reusable gloves/ instruments should be dipped in 0.5% chlorine solution for 10 minutes before using them again⁽³⁾.

Preop Requirements for the client: Patient should not have liquids and solids at least 4 and 6 hours respectively, prior to surgery. She needs to empty her bowel on the morning of surgery and evacuate bladder prior to surgery. An attendant should accompany the patient to the hospital. Premedication, if required, can be given the night before to allay anxiety (Tab. Alprazolam 0.25 to 0.50 mg or Tab. Diazepam 5 to 10 mg). Parts are prepared by trimming hairs, shaving is not required⁽³⁾.

Medical Eligibility Criteria⁽⁶⁾ D (Delay • Gallbladder disease with symptoms Active viral hepatitis procedure) • Severe iron-deficiency anemia (hemoglobin less than 7 g/dl) • Lung disease (bronchitis or pneumonia) Systemic infection or significant gastroenteritis Abdominal skin infection • Undergoing abdominal surgery for emergency or infection, or major surgery with prolonged immobilization S (Special Severe cirrhosis of the liver cases requiring • Hyperthyroidism • special Coagulation disorders (blood does not clot) arrangement) • Chronic lung disease (asthma, bronchitis, emphysema, lung infection) Pelvic tuberculosis • HIV with advanced or severe clinical disease (see Female Sterilization for Women With HIV. below) Lupus with positive (or unknown) antiphospholipid antibodies, with severe thrombocytopenia, or on immunosuppressive treatment HIV Accept: HIV positive status or on antiretroviral • (ARV) therapy can safely undergo female sterilization • Delay: HIV-related illness present. • Special arrangements are needed for woman with advanced or severe clinical disease. No candidate should be denied/forced to have ligation because of retropositive status.

twice with iodine containing solution and then sterile drapes are applied. Local anaesthesia is the *anaesthesia of choice*– lignocaine, maximum 3mg/kg body weight. Other drugs can be used for iv sedation and analgesia, if required, include pethidine 0.5 to 1 mg/kg + Promethazine 0.3–0.5 mg/kg; or Pentozocine 0.5 mg/kg + Promethazine.

General anaesthesia may be required in rare cases with LA allergy, uncooperative or morbidly obese patient. Monitoring of vitals is done intraoperatively. Uterine manipulator may be used for anteversion of the uterus. Once in the abdominal cavity, note is made of condition of uterus and adnexa. Firstly,tubes are identified bilaterally by tracing till the fimbrial end then they are ligated in the isthmic region (2-3 cm from cornu).In case recanalization may be required in future, reversal is better in the isthmic region. Skin incision is closed with nonabsorbable/absorbable suture followed by aseptic dressing⁽³⁾.

Technique

Perioperatively an intravenous line is secured. Patient is laid supine on operating table. Parts are cleaned

Sterilisation technique^(1,3,4,5)

 Minilaparotomy – Supine position → LA with or without iv sedation → Transverse/longitudinal skin incision which is less than 5cm, incision in infraumbilical (postpartum cases) or suprapubic (interval) \rightarrow tubes ligated by Modified Pomeroy's technique(preferred; any technique acceptable) \rightarrow excision of 1 cm tubal segment sent for HPE \rightarrow Crushing/cautery avoided \rightarrow closure of abdomen.

- Laparoscopic ligation Trendelenburg position→ 1* port and pneumoperitoneum with verees needle→ gradual insufflation → 2* port creation and insertion of instruments→ ligation using falope's rings (preferred, cautery- alternative) → haemostasis checked → gradual desufflation and removal of all instruments → closure of ports and aseptic dressing.
- *Transvaginal* is an obsolete method which involved ligation and excision of tubes via colpotomy.
- *Transcervical method* is experimental. It involves hysteroscopic occlusion of the tubes by physical or chemical methods (for example Essure).
- *Newer Methods for tubal occlusion include* hysteroscopically placed insert, chemically induced occlusion (with Quinacrine) and transcervical polidocanol foam (sclerosing agent)⁽⁷⁾.

Postop Care

Vitals monitored. Patient discharged after 4 hours if vitals stable, passed urine, can drink, walk and talk,she is ready for discharge. Patient is discharged with a relative and with the discharge summary indicating the name of the institution, date and type of surgery, method used, date and place of follow-up and postop. medications and instructions. Sexual activity may be resumed after a week. First post op. visit should be after 48 hrs for general assessment, second visit for stitch removal after 7 days, following this she must come after first period. Sterilization certificate can be collected a month after surgery after she resumes her menses⁽³⁾.

Complications

Immediate: Nausea, vomiting, bleeding, injury to pelvic/abdominal viscera, pain, vasovagal attack, reaction to drugs, uterine perforation, cardiorespiratory depression, while **delayed** complications are wound sepsis, hematoma, incisional hernia, ileus and tetanus⁽³⁾.

Ligation failure, is a possible complication, which may be due to improper application of ring,application on structures other than fallopian tube, spontaneous recanalization. All such cases need to be reported. Ectopic pregnancy to be ruled out and MTP followed by re-sterilization done⁽³⁾.

National Family Planning Indemnity Scheme (NFPIS), *Revised 2013*⁽⁸⁾

	Claims arising out of Sterilization Operation	Amount (Rs.)
А	Death at hospital/within seven days of discharge	2,00,000
В	Death following Sterilization (8th-30th day from discharge)	50,000
С	Expense for treatment of Medical Complications	25,000
D	Failure of Sterilization	30,000
Е	Doctors/facilities covered for litigations upto 4 cases per year including defence cost	2,00,000 (per case)



Diagram 1: Laparoscopic view showing the uterus with bilateral



Diagram 2: Laparoscopic tubal ligation using falope's rings loaded onto the laparocator



Diagram 3: Essure (Hysteroscopic) tubal occlusion

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Routine Ultrasound * Interventional Procedures * Color Doppler 3D and 4D Ultrasound Phone : 011-24336450, 24336390 **Consultation By Appointment**

- Appointments are available from 8.30 a.m. to 11.00 a.m. and 2.40 p.m. to 6.30 p.m. These need to be booked about 20 days in advance.
- Patients who urgently need a same day study are accommodated between 08.15 a.m. & 1.15 p.m. (Subject to a maximum of 15 patients). This involves considerable waiting, especially if there is no medical emergency.
- Emergencies should discuss on the phone when possible.
- The clinic is closed on Saturday & Sunday.
- Ovulation studies are done between 8.15 a.m. & 8.30 a.m.
- Telephone calls for appointments are attended to by the receptionists. This is from 8.30 a.m. to 6.00 p.m. only, from Monday to Saturday.
- No reports will be delivered after 6.30 p.m. and on Sundays.

AOGD Bulletin

Long Active Reversible Contraceptives

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Injectable contraceptives-

Progestin only injectables: -Depo Medroxy Progesterone Acetate (DMPA) 150 mg, Microcrystalline suspension, 3 monthly

– Norethisterone Enanthate (Net-En) 200 mg • In oil • 2 monthlyCombined: Lunelle, Cyclofem, Mesigyna, Deladroxate With progestin only injectables, failure rate is approximately 0.2 %. They can be injected I/M within first 5 days of menses, in postpartum, or postabortal period

• Combined injectable contraceptives have 0 to 0.2 % failure rate at one year of use. They are injected deep I/M on monthly basis (every 28-33 days)

Intrauterine contraceptive devices

IUCD is a reversible birth control device placed in the uterine cavity for contraception

Types of IUCD:

- Inert (non medicated): First generation IUCDs; Lippes loop, Margulis spiral, Soonawala Z
- Copper releasing IUCDs: Second generation IUCDs; CuT 200, Multiload 250, CuT 375, CuT 380
- Hormone releasing IUCDs: Third generation IUCDs; Progestasert, Levonorgestrel intrauterine system (Mirena)
- Fourth generation IUCDs: Frameless IUCD, Gynefix (copper), Fibroplant (LNG)

Mechanism of action-

- The mechanism of action of IUCDs is production of an intrauterine environment that is spermicidal
- Non medicated IUCDs- Chemical and cellular changes in endometrium (aseptic inflammation)
- Copper IUCDs
 - Chemical and cellular changes in endometrium
 - Increased tubal motility
 - Impaired sperm ascent
 - Prevent passage of sperms through cervical mucus by making it thick, scanty, and hostile
- Prevent implantation through enzymatic interference
- Levonorgestrel IUCDs
 - Prevent implantation secondary to effect of local action of progestogen on endometrium
 - Prevent passage of sperms through cervical mucus by making it thick, scanty, and hostile
 - Prevents ovulation and luteal phase activity

LNG IUCDs-

Risks-

- Irregular bleeding common in the initial 3-4 months of use.
- About 25% of users become amenorrhoeic after the 2nd year of use

Benefits -

- Improvement in dysmenorrhoea.
- Used for treatment of HMB
- Reduced incidence of PID.
- · Reduces risk of endometrial carcinoma

Side effects- Copper IUCDs

- Irregular PV bleeding (IMB / spotting)
- Dysmenorrhea
- HMB
- Can introduce infection to the upper genital tract (cervicitis) PID
- Perforation less than 1/1000
- Expulsion
- 50% of pregnancy as a result of failure are ectopic pregnancy

Implants-

- The pregnancy rate is 0.2 pregnancies per 100 woman-years of use
- Implants have an immediate contraceptive effect when inserted within first 7 days of menstrual cycle, but when insertion is after day 7, a backup method of contraception in necessary for at least 3 days
- Minor side effects include weight gain, mastalgia, galactorrhea, acne, ovarian cysts (simple cysts)

Implant	Name	Units	Duration of action
Levonorgestrel	Norplant	6 capsules	5 years
	Jadelle	2 rods	
	Sino-implant II	1 rod	
Etonogestrel	Implanon, Nexplanon	1 rod	3 years
Nesterone	Elcometrine	1 rod	2 years
Nomegestrel	Uniplant	1 rod	1 year



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Direct vs. standard method of insertion of an intrauterine contraceptive device: insertion pain and outcomes at 6 months Aurore Bastin, Alexandre Scanff, Stephane Fraize, Jean-Christophe Hild, Maela Le Lous, Vincent Lavoue, Yannick Ruelleand Samah Chaaban

Objectives: The direct method of IUCD insertion is a procedure designed to cause less pain during insertion. It was first reported in 2005 and differs from the standard method of insertion recommended by IUCD manufacturers. In France, the direct method is well known and used by experienced practitioners, but it has never been evaluated against the standard method of insertion. This study compares the direct method with the standard method in terms of pain experienced during insertion and the side effects and satisfaction rates over 6 months.

Methods: A prospective observational study was conducted in France between June and December 2016 to compare the direct and standard methods of IUCD insertion.

Results: The study included 535 women: 281 in the direct method group (DM group) and 254 in the standard method group (SM group). Women in the DM group reported less pain. This difference was assessed by multilevel multivariate analysis (-8.3mm, 95% confidence interval (CI) -14.3, -2.3). There was no difference in the occurrence of infection (1.4% vs. 2.8%; p 1/4 .366) and 6-month continuation rates (89.4% vs. 89.2%; p 1/4 .936). Satisfaction rates at 6 months were higher in the DM group (93.6% vs. 87.4%; p 1/4 .019).

Conclusions: The results of the study suggest that the direct method of IUCD insertion is associated with less pain and does not increase the risk of adverse effects. Widespread adoption of the direct method could improve women's comfort and lead to a higher uptake of the IUCD as a method of contraception.

Comments

Intrauterine contraceptive devices (IUCDs), including the copper-bearing intrauterine device (IUD) and the levonorgestrel-releasing intrauterine system (LNG-IUS), are highly effective methods of long-term contraception and are associated with low complication rates. This observational study shows significantly less pain during insertion of IUCD with the direct method compared with the standard method, and also fewer adverse effects till 6 months of insertion. The direct method of insertion, also known as the 'torpedo method' involves the introduction of the inserter up to the internal cervical os (marked by resistance or an insertion depth of 3–4 cm), without passing through it, after which the device is propelled into the uterine cavity. In contrast the standard method involves the placement of the inserter up to the uterine fundus.

The reasons for less paincan be the insertion technique itself, since the IUCD passes through the internal cervical os without the inserter with a greater diameter, and the physical contact of the fundus by the IUCD at placement is less severe with the direct method compared with the standard method. Additionally the direct method involves less uterine manipulation and is less time taking than the standard method, which again contributes to less pain. The most painful steps in an IUCD insertion procedure are holding the anterior lip of cervix with tenaculum or vulsellum and inserting a uterine sound, both of which can be omitted when performing a direct insertion. Use of the direct method may thus reduce the need for pre and post procedure analgesics and the women are less likely to have painful memories of previous insertion techniques, thus more chances of continuing with IUCD on a long term basis.

Contraception

Available online 23 October 2019

Reasons for discontinuation of contraception among women with a current unintended pregnancy in 36 low and middle-income countries

S. Bellizzi, P. Mannava, M. Nagai, H.L. Sobel

Objectives: To explore the reasons for discontinuation of the last contraceptive method used in women with a current unintended pregnancy.

Study Design: A retrospective analysis using contraceptive calendar data from Demographic and Health Surveys from 36 low- and middle-income countries including India was conducted from 2005 through 2014. The prevalence of contraception utilization and the contribution of each reason for contraceptive discontinuation was calculated, at country level as well as for the pooled dataset, for 10901 women aged 15-49 before the current unintended pregnancies.

Results: Unintended pregnancies ranged from 5.5 % of all pregnancies in the Kyrgyz Republic to 60.0 % in Colombia and Peru. In Central Asian and in six African countries, over 80% of women with a current unintended pregnancy had not used any contraceptives in the previous five years. Use of long-acting modern methods remained consistently low across all countries. Among women who last used a traditional method, 83.8% discontinued due to failure. Among women who last used a long-acting modern method, 40.2% discontinued because of side effects.

Conclusions: More than 65.0% of women with an unintended pregnancy in 36 low and middle-income countries were either non-users or using traditional methods. An additional 31.2% were using short-acting modern methods. Long-acting methods would have prevented the overwhelming majority of unintended pregnancies.

Comments:

The present study identified that unintended pregnancies are the consequence of a wide range of factors including non-use of contraception, contraceptive discontinuation, contraceptive failure and inconsistent and incorrect use of contraception.

Health care professionals need to support use of suitable methods and identify early when women are having concerns about the method they are using. We should provide other available options to the women if they are experiencing adverse effects with the method they have been using before. Also, health workers need to be armed with the correct information and be ready to help women to choose the most suitable method from the beginning and support correct usage. Consistent use of contraceptive method with proper counseling might help prevent unintended pregnancies and associated complications.

AOGD Bulletin

Clinical Proceedings of AOGD Clinical Meeting held at ESIC-PGIMSR Basaidarapur, New Delhi on 25th October, 2019

A Rare Case of Endometrial Stromal Nodule

Taru Gupta, Aanchal Sablok, Shreya Banerjee

A 30 year old married nulliparous lady eager to conceive presented with complaints of heavy menstrual bleeding and secondary dysmenorrhea both lasting for 1 year duration. Abdominopelvic examination revealed a large 16 weeks size regularly enlarged uterus and imaging revealed a large soft to firm mass arising from posterior wall of the uterus of size 8X10 with unremarkable adnexa. With provisional diagnosis of leiomyoma uterus, abdominal myomectomy was done. Post-operative period was uneventful. Histopathological evaluation of the mass revealed an endometrial stromal nodule. Follow up evaluation was unremarkable.

Conclusion

There is no reliable pre-operative diagnostic procedure for this entity. It had a clinical and radiological picture mimicking that of a leiomyoma uterus. Keeping in mind the extremely benign nature of the condition, tumour resection can be carried out in patients eager to conceive whereas hysterectomy is the treatment of choice for patients with completed families.

Nulliparous Massive Uterovaginal Prolapse with Multiple Non-Healing Ulcers

Gupta P, Solanki D, Agarwal U

Abstract: Nulliparous prolapse constitutes 1.5-2% of all uterovaginal prolapse. The management of such a prolapse poses various challenges with concerns regarding future fertility, uterine preservation and treatment of complications. This report describes the management of a 35 year old nulligravida, with long standing complete (4^o) UV prolapse for past 10 years, which had become irreducible for last 6 months and developed multiple decubitus ulcers. She was admitted at a tertiary care centre, where conservative management was done according to the protocols, but with limited success with regards to the ulcers. Thereafter, she was planned for conservative Purandre's sling surgery after ruling out malignancy. Her post-operative period was uneventful, and on followup examination, the ulcers had healed, with no recurrence of prolapsed, and patient was satisfied with the outcome.

Rare case of ACTH independent Cushings syndrome – a Diagnostic Dilemma

Leena Wadhwa, Sanjana N Wadhwa

A 24 year old unmarried girl presented to gynaecology OPD with oligomenorrhea followed by 5 month amenorrhea with weight gain, facial puffiness and striae over abdomen. On clinical examination she had centripedal obesity, moon facies, buffalo hump, broad dehiscent purple striae and proximal myopathy. She also had hypertension. On presentation she was being managed as PCOS and had been prescribed combined oral contraceptive pills. Ultrasonography revealed a tubular uterus with normal ovaries. Serum total and free testosterone, 17 OHP, thyroid profile, pooled prolactin and DHEAS were found to be normal. Basal serum cortisol was however elevated. ONDST followed by LDDST had unsuppressed cortisol levels. An ACTH was ordered which was found to be low.

This was followed by CECT adrenals which revealed a well defined right adrenal mass. A diagnosis of cortisol secreting adrenal adenoma was made and patient planned for surgery. 24 hours urinary catecholamines and VMA were found to be elevated. A pheochromocytoma secreting cortisol or an adrenal tumor co-secreting catecholamines and cortisol was suspected but on confirmatory testing plasma catecholamines and fractionated metanephrines were found to be normal.

She underwent an adrenalectomy and histopathology report confirmed an adrenocortical adenoma.

This case highlights the importance of signs and symptoms in making a proper diagnosis and planning treatment.

The Maze of Knowledge

Richa Vatsa

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CROSSWORD



Across

- 1. Immediate postpartum IUD insertion is defined as insertion within _____ minutes after placental delivery
- 2. Which is fourth generation IUD ____
- 3. Rate of ______ bleeding is increased with extended cycle hormonal contraceptives compared with that of traditional cyclic contraception.
- 4. Permanent method for female contraception other then tubal ligation is _____
- Which emergency contraception is preferred for women with a BMI >/ 25Kg/m2 not desiring intrauterine device _____
- 6. DMPA is available by the name ______ under family planning programme of government of India.
- 7. Non-steroidal non hormonal once a week OCP is _____

Down

- I. Window period for all POP except Cerazette is _____ hours.
- II. Which third generation IUD contains Microcrystallized progesterone as active hormone ingredient?
- III. Ormeloxifene is available by the name ______ under family planning programme of government of India.

PICTORIAL QUIZ

Figure 1: Implant



Q1. Identify the DeviceQ2. Failure rate of the Contraceptive Method



Figure 2: essure

- Q1. Identify the Device
- Q2. At what time should HSG be done to see the completeness of the procedure



Figure 3: Frameless IUD

- Q1. Identify the Device
- Q2. In which patient populations this device is preferred to traditional IUCDs

Watsapp your answers to **9211656757.** Names of first three correct entries will be mentioned in the next issue

Refer page 30 for previous answer key.

Association of Obstetricians & Gynaecologists of Delhi

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