"THE OBSGYN NOOK"
(CONTRACEPTIVE UPDATES)
DEPT OF OBSTETRICS AND GYNAECOLOGY
ARMED FORCES MEDICAL COLLEGE

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Dear Readers,

This gives me immense pleasure and pride to release the Platinum Jubilee special issue of our "The OBSGYN Nook" information booklet featuring a revamped format and an innovative concept. The team, henceforth, has decided to publish updated information about a particular theme of a specific topic, which is less discussed and talked about, yet is of paramount importance while providing holistic patient care.

This quarter ending, we have adopted the theme of "Contraception in special group of patients" with specific gynae problems. To name a few, contraception for cases of AUB, peri menopausal ladies, cancer survivors, third gender group, ladies above 35 years, adolescent age group etc. By catering to these diverse groups, we aim to ensure inclusive and personalized care for all. To make it a bit more interesting we have also included certain relevant and important diverse information related to contraception, after extensive literature search. This includes, the role of artificial intelligence (AI) in contraception, dispelling myths surrounding intrauterine contraceptive devices (IUCDs), the importance of postpartum intrauterine contraceptive devices (PPIUCD), emergency contraception, management of a missed pill, OCP in athlete, etc.

We believe that this comprehensive approach will not only update practitioners' knowledge but also ignite their curiosity to explore further. The post graduate students will get additional information and will feel comfortable while answering questions related to recent advances pertaining to this subject. We have also fostered this platform for our talented residents to unleash their creativity and harness their writing skills by assisting them in crafting captivating write-ups on carefully chosen topics related to contraception. The response has been overwhelmingly enthusiastic, and we are proud to announce that we are now publishing their content for all to enjoy.

I thank all the authors for their valuable contribution and making our dream come true on ***1st July 2023*** - ***National Doctors' Day***. Wishing you a happy and insightful reading experience. May this resource provide you with the latest updates, empower postgraduate students with additional knowledge and enhance your ability to respond to inquiries about recent advances in contraception.

Jai Hind.

ARTIFICIAL INTELLIGENCE IN FAMILY PLANNING

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INTRODUCTION

Artificial intelligence (AI) can play a significant role in various aspects of family planning by enhancing decision-making, improving accessibility to information and services, and aiding in the development of personalized solutions. Advent of AI in our clinical practice is one of the most significant milestones in the healthcare industry.

APPLICATION OF AI IN CONTRACEPTION

A few ways by which AI can be applied in the field of family planning are as follows:

- **PREDICTIVE ANALYTICS:**

AI can analyze large amounts of data, such as demographic information, health records, and socio-economic factors, to predict fertility trends and identify high-risk populations. These insights can help policymakers and healthcare providers develop targeted interventions and allocate resources more effectively.

- **CONTRACEPTIVE RECOMMENDATIONS:**

AI algorithms can analyze individual health data, including medical history, lifestyle factors, and genetic information, to provide personalized contraceptive recommendations. This can help individuals make informed decisions about contraception methods that align with their specific needs and health profiles. Popular mobile applications like “Contraception” App developed by CDC assist healthcare providers with recommendations when they counsel women, men, and couples about contraceptive method choice and use.

- **NATURAL LANGUAGE PROCESSING (NLP):**

NLP techniques enable AI systems to analyze and understand human language. This capability can be used to develop tools that interpret and extract relevant information from medical records, research papers, and patient input, facilitating more efficient and accurate decision-making by healthcare professionals.

- **HEALTH INFRASTRUCTURE PLANNING:**

AI can help in forecasting the demand for family planning services, identifying areas with inadequate access, and optimizing the distribution of resources. This can assist policymakers in designing and implementing effective strategies to improve access to contraception and reproductive healthcare.

- **VIRTUAL ASSISTANTS AND CHATBOTS:**

AI-powered virtual assistants and chatbots can provide accurate and personalized information about contraception, reproductive health, and family planning methods. They can answer questions, offer guidance, and connect individuals with appropriate healthcare providers or clinics.

- **MOBILE APPS AND REMINDERS:**

Mobile applications equipped with AI capabilities can offer personalized reminders for contraceptive use, fertility tracking, and appointment scheduling. These apps can also provide educational content, track menstrual cycles, and send notifications for fertility windows using data such as basal body temperature, cervical mucus consistency, and menstrual symptoms, thus empowering individuals to manage their reproductive health effectively. Examples include Clue, Flo, Glow, Planned Parenthood Direct, MyPill, and Lady Pill Reminder.

- **REMOTE MONITORING AND TELEHEALTH:**

AI-enabled devices and applications can monitor fertility cycles, track contraception usage, and provide real-time feedback or reminders. Telehealth services can leverage AI to enable remote consultations, allowing individuals to access family planning advice and support from the comfort of their homes.

- **TARGETED INTERVENTIONS:**

AI can help identify populations at higher risk of unplanned pregnancies or limited access to family planning services. By analyzing various factors like socioeconomic data, geographical locations, and health indicators, AI can enable program managers to target interventions more effectively and allocate resources where they are most needed.

- **DATA ANALYSIS AND MONITORING:**

AI algorithms can process and analyze large amounts of data from various sources, including surveys, health records, and social media, to identify patterns, trends, and barriers related to family planning. This information can guide program managers in developing evidence-based interventions and monitoring the impact of their initiatives.

- **SUPPLY CHAIN MANAGEMENT:**

AI can optimize the supply chain for contraceptives and reproductive health commodities. By analyzing historical usage patterns, population trends, and logistical factors, AI algorithms can help ensure an adequate supply of contraceptives, reduce stockouts, and streamline distribution to remote areas.

- **CONCLUSION**

It's important to note that while AI can offer valuable support, it should always complement human expertise and ethical considerations. Privacy, data security, and cultural sensitivities should be carefully addressed to ensure AI applications in family planning are safe, effective, and respect individual rights and choices.

ADOLESCENT CONTRACEPTION

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INTRODUCTION

Adolescent age group is the most vulnerable section of society which is prone to unintended pregnancies both in developed & developing countries. The magnitude of this problem can be estimated from the fact that adolescents (15-19yrs) contribute to 16% of total fertility in India. Besides pregnancy, unprotected sex exposes adolescents to STIs & RTIs. Sexual curiosity & experimentation is a very normal developmental aspect of adolescence which needs to be addressed with open mind. Adolescent Friendly Health Services (AFHS) which impart knowledge about safe sex in this vulnerable age group is of paramount importance.

BARRIER TO ADOLESCENT CONTRACEPTION:

01 • Issues related to adolescent development

02 • Reluctance to acknowledge one's sexual activity

03 • Difficulty in planning events in advance

04 • Living in moment

05 • Confidentiality issues

06 • Lack of awareness & misconceptions

There is no evidence that use of OCPs in pubertal sexually active girls impair growth & development of reproductive system. COCs & DMPA have been associated with slower accrual of BMD & increased fracture rates in some studies. These barriers can be overcome by providing AFHS & effective counselling. Adolescents should be strongly encouraged to postpone or delay initiation of sexual activity.

ABC strategy to be discussed with teenagers involved in sexual activity.

A Abstinence

B Be faithful

C Use contraception/condoms

CHOICE OF ADOLESCENT CONTRACEPTION

Double protection i.e. effective protection against unwanted pregnancy & effective protection against STIs is the norm in adolescents. Except for male & female sterilization, all methods appropriate for healthy adults are applicable to post pubertal adolescents. It is more likely that a young patient will adhere to a method if they had been well informed & have had input into decision.

Various methods of contraception in adolescents are-

01 Barrier Methods-Male Condom, Female Condom& Vaginal Spermicide

02 Hormonal Contraception-COCs, POPs, Injectables Like DMPA, Vaginal Ring (Nuvaring) &Trans-dermal patches

03 Long- Acting Reversible Contraceptives (LARC) – IUDs(both CuT &LNGIUS) & Progestin Implants(Implanon)

04 Emergency Contraception-Unplanned & impulsive sexual activity is a common feature of this group. So, they should be informed about emergency contraception. LNGIUS 1.5mg given within 72 hrs of unprotected intercourse is the most common method of emergency contraception. The other alternative is Ethinyl estradiol 100mcg. However, it should not be advocated as a routine.

FOLLOW UP

Frequent follow up is important to maximise compliance and should include

1 Periodic examination

2 Reassessment for contraception method

3 STI surveillance

4 Cervical cytology screening

At every visit, use of condom at each sexual intercourse must be advised & reinforced.

CONCLUSION

01 Encourage sexual abstinence as part of comprehensive sexual education

02 Determinants of adolescent contraception are requirement of double protection

03 Dual contraception (use of condom plus another form of contraception) is likelymost appropriate

SAFETY ISSUES OF CONTRACEPTIVES FOR WOMEN OVER 35 YEARS

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INTRODUCTION

There are many Birth Control Options available currently, but these require individualisation as per the women depending on her desire for future fertility and her age. With more and more women achieving financial independence, there is an ever-changing role being played by today's women in society. This is not only empowering the women socially but also putting a greater professional responsibility leading to a conscious decision to delay fertility and conception beyond 30 years of age. Hence, birth control methods for elderly women beyond 35 years of age and those with medical conditions have become an increasingly important topic of concern. It becomes important to discuss the suitability and safety of each of these contraceptive methods in this age group to avoid unintended pregnancies. Since decades it was the oral contraception that was routinely prescribed but lately there are diverse options available for women. Because of the concerns regarding increased risk of venous thromboembolism, cardiovascular complications, poor compliance, the long-acting progesterone only contraceptives with one time use are going to be the way forward in contraception.

According to international guidelines, age is not an independent contraindicating factor for contraceptive methods. The nonhormonal and progestin-only methods are safe for women with any medical contraindication for estrogens. For women who are using hormonal contraceptives, onset of menopause can be assumed at age 55. The fecundity has been variably reported from 0.2 for women less than 35 years of age, compared with 0.12 for women 35–40 years and 0.06 for women over 40 years. All unintended pregnancies in ladies beyond 35 years involves higher obstetrical risks and its prevalence among women aged 35 years or more is up to 31.3%. Hence in this scenario with larger health risks involved, it is imperative to weigh the risks and benefits before beginning with any form of contraception.

SPECIAL CONSIDERATIONS ABOUT METHOD OF CHOICE IN ELDERLY WOMEN ABOVE 35 YEARS AS PER WHO

Combined hormonal methods that includes COC s, monthly injectables, combined patch, combined vaginal ring)	**Progestin-only methods that** includes progestin-only pills, progestin-only injectables, implants	**Emergency contraceptive pills** Can be used by women of any age, including those who cannot use hormonal methods on a continuing basis.	**Female sterilization and vasectomy**
a. Women >35 yrs who smoke, regardless of how much, should not use COCs, the patch, or the combined vaginal ring.	a. For women who cannot use methods with estrogen.		a. May be a good choice for older women and their partners who know they will not want more children.
b. Women age 35 and older who smoke 15 or more cigarettes a day should not use monthly injectables.	b. During use, DMPA decreases bone mineral density slightly increasing the risk of developing osteoporosis and bone fractures, after menopause. WHO has concluded that this decrease in bone mineral density does not place age or time limits on use of DMPA.		b. Some women may have conditions that may cause delay, or require caution for female sterilization
c. Women age 35 or older should not use COCs, monthly injectables, the patch, or the combined vaginal ring if they have migraine headaches (whether with migraine aura/ not).			

Intrauterine device that includes copper-bearing IUDs and LNG-IUDs	**Fertility awareness methods**	**Male and female condoms, diaphragms, spermicides, cervical caps,and withdrawal**
a. Expulsion rates fall as women grow older and are lowest in women over 40 years of age.	a. Lack of regular cycles before menopause makes it more difficult to use these methods reliably	a. Protect older women well because of women's reduced fertility in the years before menopause.
b. Insertion may be more difficult due to tightening of the cervical canal.		b. Affordable and convenient for women who may not have sex often.

US ELIGIBILITY CRITERIA FOR CONTRACEPTIVE USE IN WOMEN ABOVE 35 YEARS OR WITH A MEDICAL CONDITION

Condition	Category					
	Cu IUD	Levonorgestrel releasing IUD	Implant	DMPA	POP	CHC
Postpartum(Breastfeeding) a)21 to <30 days postpartum With other risk factors for VTE (e.g., age ≥35 years, previous VTE, thrombophilia, immobility, transfusion at delivery, peripartum cardiomyopathy, BMI ≥30 kg/ M2, postpartum haemorrhage, post-caesarean delivery, preeclampsia, or smoking)	-	-	Benefits outweigh risks	Benefits outweigh risks	Benefits outweigh risks	Unacceptable risk
Postpartum (non breast-feeding women) 21–42 days postpartum With other risk factors for VTE (e.g., age ≥35 years, previous VTE, thrombophilia, immobility, transfusion at delivery, peripartum cardiomyopathy, BMI ≥30 kg/ M**2**, postpartum haemorrhage, post caesarean delivery, preeclampsia, or smoking)	-	-	No restriction	No restriction	No restriction	Unacceptable risk

Condition	Category					
	Cu IUD	Levonorgestrel releasing IUD	Implant	DMPA	POP	CHC
Smoking (age >35 years)						
i. < 15 cigarettes per day	No restriction	No restriction	No restriction	No restriction	No restriction	Risks outweigh benefits
Ii > 15 cigarettes per day	No restriction	Unacceptable risk	Unacceptable risk	Unacceptable risk	Unacceptable risk	Unacceptable risk
Multiple risk factors for atherosclerotic cardiovascular disease (e.g., older age, smoking, diabetes, hypertension, low HDL, high LDL, or high triglyceride levels)	No restriction	Benefits outweigh risks	Benefits outweigh risks	Risks outweigh benefits	Benefits outweigh risks	Risks outweigh benefits / Unacceptable risk
Obesity (BMI ≥30 kg/m2)	No restriction	No restriction	No restriction	No restriction	No restriction	Benefits outweigh risks
Hypertension a. Adequately controlled hypertension	No restriction	No restriction	No restriction	Benefits outweigh risks	No restriction	Risks outweigh benefits
b. Elevated blood pressure levels (properly taken measurements)	No restriction					
i) Systolic 140–159 mm Hg or diastolic 90–99 mm Hg	No restriction	No restriction	No restriction	Benefits outweigh risks Risks outweigh	No restriction No restriction	Risks outweigh
ii) Systolic ≥160 mm Hg or diastolic ≥100 mm Hg	No restriction	Benefits outweigh risks	Benefits outweigh risks	Benefits Risks outweigh benefits	Benefits outweigh risks	Benefits Unacceptable risk
c. Vascular disease		Benefits outweigh risks	Benefits outweigh risks			Unacceptable risk
Diabetes a)Nonvascular disease	No restriction	Benefits outweigh risks	Benefits outweigh risks	Benefits outweigh risks	Benefits outweigh risks	Benefits outweigh risks
b)With vascular disease	No restriction	Benefits outweigh risks	Benefits outweigh risks	Risks outweigh benefits	Benefits outweigh risks	Unacceptable risk
Stroke	No restriction	Benefits outweigh risks	Benefits outweigh risks	Risks outweigh benefits	Benefits outweigh risks	Unacceptable risk
Current/ past ischemic heart disease	No restriction	Benefits outweigh risks	Benefits outweigh risks	Risks outweigh benefits	Benefits outweigh risks	Unacceptable risk
Unexplained vaginal bleeding (suspicious for serious condition) before evaluation	Unacceptable risk	Unacceptable risk	Risks outweigh benefits	Risks outweigh benefits	Benefits outweigh risks	Benefits outweigh risks
Endometrial hyperplasia	No restriction	No restriction	No restriction	No restriction	No restriction	No restriction
Endometrial cancer	Unacceptable risk	Unacceptable risk	No restriction	No restriction	No restriction	No restriction
Ovarian cancer	No restriction	No restriction	No restriction	No restriction	No restriction	No restriction
Endometriosis	Benefits outweigh risks	No restriction	No restriction	No restriction	No restriction	No restriction
Benign ovarian tumors (including cysts	No restriction	No restriction	No restriction	No restriction	No restriction	No restriction

UK ELIGIBILITY CRITERIA FOR USE OF CONTRACEPTION AMONG ELDERLY WOMEN

LNG-IUS (MIRENA®)

This is the progesterone only IUD that helps in a regular release of progesterone – levonorgestrel. LNG-IUS may confer a protective effect against ovarian and endometrial cancer. Current guidance contraindicates use of a LNG-IUS for women with previous or current breast cancer. Evidence suggests there is little or no increased risk of venous thromboembolism or myocardial infarction associated with the use of a LNG-IUS. The Faculty of Sexual and Reproductive Health care (FSRH) supports the extended use of a Mirena® 52 mg levonorgestrel intrauterine system (LNG-IUS) for contraception until the age of 55 if inserted at age 45 or over, provided it is not being used as the progestogen replacement therapy (component of hormone HRT) for endometrial protection.

NEXPLANON

This progesterone only implant lasts for 03 yrs. This is the most effective form of contraception available with a 0.05% failure rate and there is no age restriction to its use. There are episodes of spotting/ no periods with this form of contraception. The progestogen-only implant (IMP) is not associated with increased risks of venous thromboembolism (VTE), stroke or myocardial infarction (MI) and has not been shown to affect bone mineral density (BMD). The available evidence suggests no significant increase in risk of breast cancer. Evidence is too limited to inform whether there is any association between use of the ENG-IMP and risk of ovarian, endometrial or cervical cancer.

DEPOT MEDROXYPROGESTERONE

Currently two DMPA contraceptive injections in common use in the Depo Provera®/DMPA/Antara and Sayana Press. It may cause irregular cycles, irregular ovulation and irregular bleeding episodes. Studies indicate that DMPA may have a potentially protective effect on risk of endometrial or ovarian cancer. Women using DMPA experience initial bone loss due to the hypoestrogenic effects of DMPA. There is limited evidence regarding stroke and MI risk for women using DMPA. There is possibly a weak association between current use and breast cancer. Women of all ages using DMPA should be reviewed every 2 years to assess the benefits and risks of use. Women over 50 should be counselled on alternative methods of contraception.

PROGESTERONE ONLY PILLS

Formulations either include desogestrel (DSG), norethisterone or levonorgestrel (LNG). Women using a DSG pill are more likely to become anovulatory. Women can be informed that the progestogen-only pill (POP) is not associated with increased risks of VTE, stroke or MI and has not been shown to affect BMD. One consideration over 40 is the potential for altered bleeding patterns. The available evidence does not support an association between breast cancer and POP use.

BARRIER CONTRACEPTIVES

Barrier methods include male condoms, female condoms, diaphragms, and cervical caps. There are no age restrictions to the use of barrier methods and there are few contraindications. Barrier methods often have high effectiveness in women over 40 due to declining fertility and more consistent usage.

• CONCLUSION

The contraceptives as per WHO, categorised as the "top-tier" methods with respect to effectiveness are the copper IUDs, progestin IUDs, progestin implants and sterilization. They are preferred only after weighing the risk and benefit concerns. These methods are associated with failure rates of less than 1% with typical use in the first year of use. However, because of decreasing fertility, contraceptive failure rates are lower among the elderly women and hence less effective, short-acting methods such as oral contraceptives or coitally dependent methods (male and female condoms, diaphragms, emergency contraception) may also be acceptable. It is the responsibility of the provider to tailor contraceptive options to the woman's needs and to guide her in selecting the best method for the lady rather than prescribing a single method. Furthermore, providers need to follow the medical philosophy, 'first, do no harm' on some occasions when a woman's medical condition was too 'high risk' for contraception, and hence should avoid any form of contraception in such situations. Voluntary informed choice of contraceptive methods is an essential guiding principle to the successful use of contraceptive methods.

PERIMENOPAUSAL CONTRACEPTIVES

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INTRODUCTION

Perimenopause is a phase of late reproductive age in a lady scientifically called as menopausal transition. It begins with menstrual cycle irregularity and extends up to 1 year after permanent cessation of menses, with a wide age range from 42 to 58 years, average age of onset is 47 years and typically spans from 4 to 7 years.

Contraception during perimenopause is a very important issue towards women health care as unplanned pregnancy can have tremendous detrimental effect on the health of perimenopausal lady.

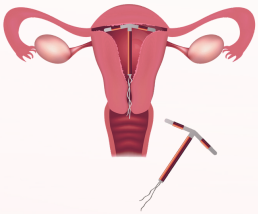
CONTRACEPTIVE OPTIONS :

01 BARRIER METHODS:

Condoms, cervical cap, spermicides and diaphragm are the barrier methods that many perimenopausal women use with confidence and good adherence. Since these methods are coital-dependent and require correct and consistent use. Failure rate is around 15–20% in young women and there are no comparable results in the perimenopausal group. Barrier methods may be more effective in perimenopausal women than in younger women as most of them are accustomed to this method.

02 COPPER INTRAUTERINE DEVICE:

The copper IUD especially CuT380A offers highly-effective long-acting reversible non-hormonal contraception appropriate for many perimenopausal women. For women with oligo menorrhea or infrequent menses it can be a cost-effective contraceptive that has been demonstrated to be safe and effective far beyond its approved duration of 10 years. Failure rates of intrauterine copper devices range from 0.6 to 0.8 per hundred women years.



03 EMERGENCY CONTRACEPTION:

In addition to the copper IUD, there are two oral emergency contraceptive options currently available without a prescription. emergency contraception is approved for use within 72 h of unprotected intercourse and dosage is 0.75 mg two doses 12 hours apart. **Ulipristal acetate** for use within 5 daysis given as 30 mg single dose. When used within 72 hours Ulipristal acetate is as effective as levonorgestrel in preventing pregnancy with result of 1.8% of women becoming pregnant compared to 2.6% .

04 COMBINED HORMONAL METHODS:

Combined oral contraceptive pill, transdermal patch, and vaginal ring constitute the combined hormonal methods that contain both estrogen and progesterone. Almost all these methods use synthetic estrogen like ethinyl estradiol (EE) with the dose varying from 10 to 35 mcg daily in the pill, 15 mcg daily in the vaginal ring, and 20 mcg daily in the transdermal patch.

There are many benefits of combined hormonal methods in perimenopausal women like improved bleeding pattern, especially in ladies with irregular or heavy menses. Additional health benefits of oral contraceptives are management of dysmenorrhoea, risk reduction of ovarian and endometrial cancer, increased bone density, and decrease in incidence of functional ovarian cysts.This method of contraception can provide symptomatic relief for perimenopausal women complaining of hot flushes or vaginal dryness as well. Prescription of combined hormonal contraception should be avoided in women with medical contraindications and smokers.

05 PROGESTERONE ONLY PILL:

Progesterone only pill works primarily by thickening cervical mucus unlike combined hormonal contraceptives which prevent ovulation. It is a highly effective contraception in the perimenopausal population with the failure rate of only 0.3 per 100 woman-years in women over age 40. It does not provide exogenous estrogen which may have adverse effect on the elderly ladies but has a disadvantage of irregular bleeding pattern that can result in high rates of discontinuation.

06 INJECTABLE PROGESTINS:

Injectable progestins like depot medroxy progesterone acetate (DMPA) are approved for subcutaneous (105 mg) administration monthly or intramuscular (150 mg) administration every 12 weeks for contraception, with its prompt use pregnancy rate is 0.3 percent only. It has protective benefits against ovarian and endometrial carcinoma.

07 LONG-ACTING REVERSIBLE CONTRACEPTION (LARC):

Implant like Implanon is a highly effective method of contraception with a lowest failure rate of 0.01%. This flexible single rod sub dermalimplant releases approximately 67 mcg of etonogestrel daily in the initial part and decreases gradually to 30 mcg daily after about 2 years.

08 LEVONORGESTREL INTRAUTERINE SYSTEM (LNG-IUS):

It contains 52 mg levonorgestrel which is effective for 5 years initially it releases 20 mcg of levonorgestrel daily. It is a popular choice for contraception amongst perimenopausal ladies and the failure rate is only 0.1% per year. It is a preferred method of contraception by 45% of women seeking contraception as per the large prospective study when the barriers like cost and access were removed. One of the greatest advantages of the LNG-IUS is that the system can be used to provide endometrial protection in menopause. In addition to providing highly effective contraception and endometrial protection in the setting of estrogen therapy or hyper estrogenic state, the LNG-IUS has been demonstrated to treat heavy menstrual bleeding as well.

• CONCLUSION

Perimenopausal contraception is a very important aspect of health care of women who are in the transition phase towards menopause, as unplanned pregnancies can be detrimental to these elderly ladies. A reliable contraception needs to be initiated or continued during this transition phase which may be nearly a decade. Many hormonal and non-hormonal contraceptive options are available for perimenopausal age which can be selected safely depending upon medical condition. Progestin only contraceptives especially LNG IUS is a preferred method of contraception during this age as it provides many non contraceptional benefits for conditions like fibroid uterus and AUB. It also provides protection against ovarian and endometrial cancers in addition to improving the quality of life.

CONTRACEPTIVES IN ABNORMAL UTERINE BLEEDING(AUB)

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INTRODUCTION

Abnormal uterine bleeding (AUB) refers to uterine bleeding of abnormal quantity, duration or schedule and is a common gynaecologic concern in reproductive age females. Treatment depends on cause but may include nonhormonal or hormonal medications or a procedure like hysteroscopy, myomectomy, or hysterectomy.

Hormonal contraceptives have been a corner stone for the treatment of AUB, the beneficial impact has been long recognised by clinicians. For patients who use effective contraception; OCPs are a good choice to provide hormonal therapy for AUB. Hormonal therapy (estrogen /Progestin contraceptives, a long acting progestin releasing intrauterine devices (LNG-IUS) is often tried in women who also want contraception. Oral contraceptives have been a cornerstone for the treatment of anovulatory, dysfunctional uterine bleeding. This therapy suppresses endometrial development, re-establishes predictable bleeding patterns and decrease menstrual blood flow. Standard cyclic progestin treatment regimens do not reliably suppress the HPO axis and so they will not prevent random ovulation and are not contraceptive.

CONTRACEPTIVES IN AUB

01 COMBINED ESTROGEN/PROGESTIN ORAL CONTRACEPTIVES (COCs) :

used cyclically or continuously can control abnormal uterine bleeding due to ovulatory dysfunction. A gradual but progressive decrease in the volume and duration of flow and improvement in associated dysmenorrhoea can be expected and are reassuring. COCs can be expected to decrease bleeding upto 40% and are preferentially monophasic drug of choice for cyclic intakes. Also extended regimes are equally effective for AUB. Patient should be informed that stopping the hormone regimen will be followed by withdrawal bleeding. Failed estrogen progestin treatment indicates the need for additional diagnostic evaluation.

02 LEVONORGESTREL RELEASING IUD (LNG-IUS)

is an attractive option for ovulatory women with heavy menstrual bleeding. For contraceptive purposes the device is approved for 05 years but lasts for 07 years and perhaps up to 10 years. Menstrual blood loss can be reduced by 75 -95 % due to progestin induced decidualization of the endometrium and relieves dysmenorrhoea. Beyond the first few months following insertion of LNG-IUS during which time irregular spotting is not uncommon, almost two-thirds of users develop scant to absent menses. LNG-IUS is an ideal approach for managing AUB in women at risk for endometrial pathology, poor intolerance of systemic progestin regimens and in those where estrogen use may be contraindicated.

03 DEPOT -MEDROXYPROGESTERONE ACETATE (DMPA)

(150 mg intramuscularly every 03 months) can be a useful option for those who cannot take estrogen – progestin contraceptives. However, depot progestin treatment has no place in the acute management of abnormal bleeding. Episodic breakthrough bleeding is relatively common with DMPA.

04 NUVARING

is a vaginal combined steroid contraceptive which are contained crystal of etonorgestrel and ethinyl estradiol can control heavy menstrual bleeding as effective as OCPs. `

• CONCLUSION

So above contraceptives can be effectively used to reduce heavy menstrual bleeding in AUB.

POSTPARTUM CONTRACEPTION

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INTRODUCTION

Postpartum contraception plays a crucial role in women's reproductive health, helping them make informed choices about family planning and preventing unintended pregnancies. It is important to provide women with comprehensive information and guidance on the available options to ensure their postpartum well-being.

01 LACTATIONAL AMENORRHEA METHOD (LAM):

LAM, based on exclusive breastfeeding, provides a natural form of contraception. The hormonal changes associated with breastfeeding suppress ovulation and, consequently, the return of menstruation. It is recommended for women who exclusively breastfeed, experience amenorrhea, and have infants who are less than six months old. However, once these criteria are no longer met, alternative contraceptive methods should be considered.

02 BARRIER METHODS:

Barrier methods, such as condoms and diaphragms, offer immediate contraception and have no systemic adverse effects. They act as physical barriers, preventing sperm from reaching the cervix and fertilizing an egg. While effective when used correctly and consistently, adherence is essential. Users should be educated on proper usage to maximize effectiveness.

03 PROGESTIN-ONLY PILLS (POPs):

Progestin-only pills, commonly known as mini-pills, contain a single hormone (progestin) and provide reliable contraception during the postpartum period. POPs are particularly suitable for breastfeeding women as they do not affect milk production. It is recommended to start POPs within 48 hours postpartum and taking them daily without skipping doses. It is vital to inform women about the importance of strict compliance to maximize effectiveness.

04 COMBINED ORAL CONTRACEPTIVES (COCs):):

Combined oral contraceptives contain both estrogen and progestin. While highly effective, COCs come with additional non-contraceptive benefits such as cycle control and reduced menstrual blood loss. However, COCs containing estrogen pose an increased risk of thromboembolism, especially in the immediate postpartum period. COCs should be initiated after six weeks postpartum or later to minimize this risk while still maintaining contraceptive efficacy. Not recommended during lactation as it leads to decrease milk volume.

05 PROGESTIN-ONLY INJECTABLE CONTRACEPTIVES:

Progestin-only injectable contraceptives, such as depot medroxyprogesterone acetate (DMPA), offer long-acting contraception with a high level of effectiveness. These injections, administered once every 12-14 weeks, are suitable for postpartum women even during lactation. However, it is essential to inform women about the potential side effects such as menstrual irregularities and changes in bone mineral density. Providing thorough counseling and education can help women make informed decisions.

06 LONG-ACTING REVERSIBLE CONTRACEPTIVES (LARCS):

LARCs, including intrauterine devices (IUDs) and contraceptive implants, are among the most effective postpartum contraceptive options. Copper IUDs can be inserted immediately postpartum, while hormonal IUDs and implants can be inserted after four weeks. LARCs provide long-term contraception, allowing women to delay or space pregnancies according to their preferences. It is important to counsel the patients regarding the advantages, potential side effects, and appropriate usage of LARCs.

RECOMMENDATION

Considering the individual needs and circumstances of women, long-acting reversible contraceptives (LARCs) emerge as a top recommendation for postpartum contraception. LARCs, including IUDs and contraceptive implants, offer highly effective and long-lasting contraception without the need for daily adherence. They provide the desired flexibility for women, allowing them to plan their pregnancies according to their preferences. Moreover, LARCs have excellent safety profiles and do not interfere with breastfeeding, making them suitable for immediate postpartum use.

• CONCLUSION

Postpartum contraception holds significant importance in ensuring women's reproductive health and promoting family planning. By exploring different methods of contraception and considering their advantages and considerations, healthcare providers can assist postpartum women in making informed decisions. Long-acting reversible contraceptives (LARCs) are an effective and convenient option for postpartum contraception. Through comprehensive counseling and education, women can select the most suitable method that aligns with their preferences, thereby promoting their overall well-being and enabling optimal family planning.

MYTHS AND MISCONCEPTIONS ASSOCIATED WITH IUCD

Col Sanjay Kr Sharma
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INTRODUCTION

An IUCD (Intrauterine Contraceptive Device), also known as an intrauterine device or IUD, is a small, T-shaped device that is inserted into the uterus to provide long-term contraception. It is one of the most effective forms of reversible contraception available. There are two types of IUCDs available- Copper containing IUCD and Hormonal IUCD. IUCDs are highly effective, and they are reversible i.e., fertility typically returns soon after removal. However, there are many myths and misconceptions associated with IUCDs.

MYTHS AND MISCONCEPTIONS ASSOCIATED WITH IUCD

Some of the common myths and misconceptions associated with IUCDs are as follows:

01 IUCDs ARE NOT ABORTIFACIENTS

Abortifacients are substances or methods that cause the termination of an existing pregnancy. However, IUCDs work primarily as a contraceptive by preventing fertilization of the egg or inhibiting sperm movement, and they do not induce abortions. Copper IUCDs work by creating an environment within the uterus that is toxic to sperm, preventing them from reaching and fertilizing the egg. They also affect the movement and viability of sperm. Hormonal IUCDs release progestin into the uterus, which thickens the cervical mucus, inhibiting sperm movement and viability and makes the uterus less receptive to implantation. These mechanisms prevent fertilization and do not cause abortions.

02 LEVONORGESTREL RELEASING IUD (LNG-IUS)

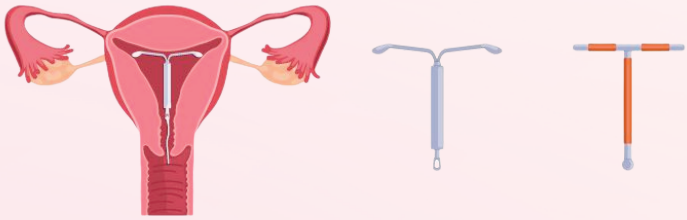
is an attractive option for ovulatory women with heavy menstrual bleeding. For contraceptive purposes the device is approved for 05 years but lasts for 07 years and perhaps up to 10 years. Menstrual blood loss can be reduced by 75 -95 % due to progestin induced decidualization of the endometrium and relieves dysmenorrhoea. Beyond the first few months following insertion of LNG-IUS during which time irregular spotting is not uncommon, almost two-thirds of users develop scant to absent menses. LNG-IUS is an ideal approach for managing AUB in women at risk for endometrial pathology, poor intolerance of systemic progestin regimens and in those where estrogen use may be contraindicated.

03 AN INCREASED RISK OF INFECTION & IUCD

Rather than the presence of the IUCD itself. This risk of infection can be further minimized by following proper insertion procedures and ensuring sterile techniques.

04 IUCDS DO NOT INCREASE THE RISK OF ECTOPIC PREGNANCY AND CAN BE USED BY WOMEN WITH A PREVIOUS ECTOPIC PREGNANCY

IUCDs are considered a safe and effective method of contraception for women who have had a previous ectopic pregnancy. They provide reliable contraception while allowing the fallopian tubes to function normally.



05 IUCDS CAN BE USED BY NULLIPAROUS WOMEN

In recent years, there have been significant advancements in IUCD design, resulting in the development of smaller and more flexible devices. These smaller IUCDs have made it easier and more comfortable for nulliparous women to use them as a form of contraception.

06 IUCDS CAN BE INSERTED IMMEDIATELY POSTPARTUM, INCLUDING AFTER FIRST- AND SECOND-TRIMESTER ABORTIONS

Immediate post-partum insertion offers the advantage of convenience, as it can be done during the same hospital stay, eliminating the need for a separate appointment. The cervix is usually open during this time, which facilitates the insertion process, and patient's acceptability is also higher. For post-abortion insertion, IUCDs can be inserted immediately following a first- or second-trimester abortion procedure. Similar to postpartum insertion, the cervix is often more open and accessible after an abortion, making the IUCD insertion easier.

07 IUCDS CAN BE INSERTED IN HIV-POSITIVE WOMEN

HIV-positive women have the same need for effective contraception as HIV-negative women to prevent unintended pregnancies. IUCDs are considered safe and effective for contraception in HIV-positive women. It's important to note that IUCDs do not protect against HIV or other sexually transmitted infections (STIs). Therefore, it's crucial for HIV-positive individuals, as well as their partners, to continue practicing safe sex and use barrier methods, such as condoms, to reduce the risk of transmitting or acquiring HIV or other STIs.

08 THE MODERN IUCD HAS NOT EXPOSED CLINICIANS TO LITIGATION

The risk of litigation is not unique to modern devices specifically but can occur with any form of medical treatment and contraceptive method. To mitigate the risk of litigation and ensure patient safety, healthcare providers should follow established guidelines and best practices for IUCD insertion, provide thorough patient education and informed consent, and closely monitor patients for potential complications or side effects. Adhering to professional standards of care and maintaining open communication with patients can help reduce the likelihood of litigation.

• CONCLUSION

In conclusion, there are several misconceptions surrounding IUCDs. It is important to address and correct these misconceptions to ensure accurate information and promote informed decision-making.

POST-PARTUM INTRA-UTERINE CONTRACEPTIVE DEVICES

Col Suneeta Singh
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INTRODUCTION

Family planning methods can avert nearly one third of maternal deaths and 10% of child mortality. Postpartum period is the most critical and acceptable time for advising and implementing family planning and contraception methods. Various postpartum family planning methods include condoms, intra uterine device, lactational amenorrhoea method, progesterone only pill, Inj DMPA, female & male sterilization. Among these PPIUCD is one of the contraceptive methods which is safe and highly effective reliable and inexpensive, non-hormonal, reversible, and long-acting contraceptive having higher satisfaction and higher continuation rates. The immediate postpartum period is an ideal time for PPIUCD when women are highly motivated to accept family planning methods. The immediate postpartum period is a great opportunity for PPIUCD services providers to introduce the method especially in a setting where women meet with health care providers is difficult due to geographical barriers. The counselling regarding contraception should be initiated in the antenatal period. universal counselling and provision of IEC Materials after admission for delivery were associated with high acceptability for PPIUCD. The client assessment for suitability of PPIUCD should be done twice, once during ANC period (as per WHO medical eligibility criteria) and second time just prior to insertion.

ADVANTAGES OF PPIUCD

1. Long-acting reversible contraceptive method (LARC)
2. Safe and effective
3. Convenient and avoids extra visit to the hospital
4. No effect on the quality and quantity of milk

LIMITATIONS

1. Higher expulsion rate (8-14%)
2. Non visibility of thread may cause anxiety

TIMING OF PPIUCD INSERTION

1. Post placental – insertion after expulsion of placenta
2. Intra-caesarean
3. Early post-partum – insertion within 48 hours of delivery
4. Delayed post-partum – insertion at or after 6 weeks of delivery

CONTRAINDICATION OF PPIUCD

1. Chorioamnionitis
2. Pronged PPROM
3. Puerperal sepsis
4. Excessive vaginal laceration
5. Uncontrolled PPH

CATEGORY 3 and 4 CONDITIONS FOR USE of the IUCD	
CATEGORY 3 CONDITIONS Generally, do not use the method unless other more appropriate methods are not available or acceptable	**CATEGORY 4 CONDITIONS** Do not use the method
♦ Heavy/prolonged or painful menstrual bleeding, endometriosis, severe dysmenorrhea ♦ AIDS, but no antiretroviral therapy or access to care ♦ High individual risk of chlamydia and gonococcal infection (partner has current purulent discharge or STI) ♦ Ovarian cancer ♦ Benign trophoblastic disease ♦ Lupus with severe thrombocytopenia ♦ Third degree uterine prolapse ♦ Vesicovaginal fistula	♦ Pregnancy (known or suspected) ♦ Unexplained vaginal bleeding ♦ Current PID, Gonorrhea, or Chlamydia ♦ Acute purulent (pus-like) discharge ♦ Distorted uterine cavity ♦ Malignant trophoblast disease ♦ Known pelvic tuberculosis ♦ Genital tract cancer (cervical or endometrial)

TECHNIQUE

The anterior lip of cervix is held with the sponge holder. Cu T which is held with the Kelly's forceps is inserted through the cervical canal. The uterine fundus is felt abdominally through one hand and the CuT is pushed till the level of uterine fundus. The forceps is withdrawn keeping the uterus stabilized. Threads may not be visible immediately.

During caesarean, the Cu T is held with ring forceps and placed at the uterine fundus. One should not attempt to pass the strings through the cervical os before closure of uterus as it may displace the IUCD.

ADVERSE EFFECTS

1. Expulsion rate (8-14%)
2. Pelvic pain
3. Increased bleeding
4. Uterine perforation

FOLLOW UP

The client should be asked to review if she has heavy bleeding/ pain or after six weeks. If the long thread is bothering her, it can be cut. If thread is not visible, the ultrasound should be done to rule out expulsion or for reassurance that IUD is in place.

• CONCLUSION

PPICUD is an effective long term safe and very effective contraceptive method. Expulsion rates may be as high as 10% but the retention rate is 90%. The health care providers should motivate the women for PPIUCD throughout the antenatal period, when she comes in labour and even after delivery.

ORAL CONTRACEPTIVE PILLS IN OBESE WOMEN

Maj Sunil Kumar
Resident

Maj Deepti Mishra
Resident

INTRODUCTION

Women with a Body Mass Index (BMI) greater than 35 kg/m2 are less likely to use contraceptives than women with a BMI less than 25 kg/m2. Approximately 51% pregnancies in the United States each year are unintended. It is likely that many of these unintended pregnancies are among obese women, since obesity is significantly associated with contraceptive nonuse, unintended pregnancy in obese women is especially worrisome because of the higher pregnancy risks associated with obesity. Maternal risks include a higher rate of cesarean section, gestational hypertension, gestational diabetes, and preeclampsia. Fetal risks include macrosomia, stillbirth, neural tube defects, orofacial defects, cardiac anomalies, and hydrocephalus. Additionally, infants born to obese mothers also have long-term sequelae of childhood obesity and type 2 diabetes.

It is important for clinicians to address family planning needs of obese patients in order to prevent unintended pregnancy and subsequent obstetrical complications. Obese women of reproductive age in particular would benefit from contraceptive counseling since they may underestimate their fertility due to irregular menses secondary to anovulation. In addition, obese women may desire to use contraceptives so they can optimize their weight prior to conceiving so they can have healthier pregnancies.

CHALLENGES OF OCP IN OBESITY

Obesity has reached epidemic proportions around the world. Effectiveness of hormonal contraceptives may be related to metabolic changes in obesity or to greater body mass or body fat. Hormonal contraceptives include oral contraceptives (OCs), injectables, implants, hormonal intrauterine contraception (IUC), the transdermal patch, and the vaginal ring. Given the prevalence of overweight and obesity, the public health impact of any effect on contraceptive efficacy could be substantial.

Obese women who are otherwise healthy can use low dose oral contraception. However, there are special considerations associated with obesity;

- Obesity and ageing are independent risk factors venous thrombosis, oral contraceptives with lowest dose of estrogen should be used in over weight and older women, but progestin only methods are even better choice.
- There is modest evidence that hormonal contraceptive failure is increased in overweight women, on other hand, no effect of body weight on oral contraceptive failure was detected in a large prospective study in Europe. Keep in mind that positive conclusions regarding failure rates and weight were based on differences of only 2 to 4 pregnancies per 100 women per year, efficacy in overweight women would still be greater than that with barrier methods.
- Obese women on oral contraceptives with a traditional 7 days pill free period took twice as long (10 days) to achieve a steady state concentration of the administered progestin. And this was associated with more frequent ovulation, so it strongly encourages the use of an extended regimen or continuous dosing in these patients.
- Many of the women pursuing bariatric surgery are anovulatory due to their obesity become ovulatory post-surgery since a small amount of weight loss can restore ovulatory function in obese women. Therefore, there may be an increase in fertility from these procedures. Changes in body image coupled with increased fertility after surgery may account for a possible increase in unintended pregnancies. Contraception counseling takes a prime importance among these couples. Studies indicate that steroids levels after ingestion of oral contraceptives are lower in these patients for at least several years. So, in order to avoid unwanted pregnancy, alternative methods like vaginal insertion of oral contraceptives, injections, implants, and intra uterine contraception are advisable for post 12 months after surgery.

• CONCLUSION

As clinicians caring for growing population with obesity, it is important to educate obese patients about the obstetrical risk associated with obesity and discuss contraceptive options during weight optimization and prevention of unintended pregnancies, obese women who are otherwise healthy can use low dose oral contraception.

CONTRACEPTION IN POST ORGAN TRANSPLANTATION

Maj Nalini Rathore
Resident

INTRODUCTION

Organ transplantations are now becoming more successful and offering more longevity to such patients. Many young patients in their reproductive age are getting cured from their primary diseases through organ transplantations. Although barrier methods of contraception are usually recommended, but after a good recovery from postoperative period in an organ transplant woman; steroid contraception can also be used. The use of steroid contraception in transplant patients will not only provide the much-needed want of an effective contraception but also prevent the irregular and heavy menses that are commonly experienced by such patients. Again, some immunosuppressants are highly teratogenic (Mycophenolate Mofetil) and hence if reproductive potential is intact; it is highly recommended that such patients should be under effective contraceptive methods. MTPs following unwanted pregnancies can lead to serious clinical events in already immunocompromised post organ transplant patients.

NEED OF CONTRACEPTION POST ORGAN TRANSPLANTATION

- Women suffering from kidney disease are more prone to fertility problems, due to uraemia which affects normal hypothalamic-pituitary-gonadal axes, precluding the increase in oestradiol concentration and the preovulatory surge of luteinizing hormone. Decreased libido and sexual dysfunction are other major problems that cause abnormal fertility.

- Infertility, menstrual abnormalities, such as amenorrhea, oligomenorrhea, irregular bleeding, and metrorrhagia, are similarly common in women with liver disease due to decreased sex hormone binding globulins.

Successful organ transplantation results in restored metabolism of sex hormones, menstrual cycles and reproductive functions. Pregnancies have occurred in organ transplant recipients, but such pregnancies are often complicated by preterm delivery, preeclampsia, and infection. Hence, it is essential to provide effective contraception to post transplant patients so that unwanted pregnancies are averted. Hormonal contraception did not significantly influence body mass index, mean blood pressure, serum creatinine, or other biochemical parameters. Hence, apart from barrier contraceptives; combined oral contraceptive pills may also be offered to such patients.

• CONCLUSION

As successful organ transplantation leads to restoration of normal menstruation and fertility among female patients of reproductive age. They must be counselled about the possibility of pregnancy and the use of low dose oral contraception. Hormonal contraception can be administered as soon as organ transplant function is stable. It is effective, well tolerated, and does not impair graft function.

CONTRACEPTION IN CANCER SURVIVORS

Surg Lt Cdr Apphia Saphir Kathi
Clinical Tutor, AFMC

INTRODUCTION

With the advent of increased availability of preventive oncological services, more and more early detection of cancers is seen in the reproductive age group women. Early detection of cancer leads to better survival outcome and opportunity of keeping an intact reproductive potential. Scope of intact fertility are more so in non-gynaecological cancers. Fertility sparing treatments and conservative surgical management in early cases of cancer are showing promising results. Cancer survivors are confronted with various problems like depression and financial burden (cost of treatment and loss of employment, etc). With intact fertility, unwanted pregnancy will be most undesirable burden at this critical phase of cancer surveillance! With these considerations contraception among cancers survivors is an important component of any Contraception Clinic. Contraception during cancer treatment requires careful consideration of individual patient factors, medical risks, and comorbidities as well as effectiveness of contraceptive method and patient's preference.
The prevention of unplanned pregnancy during cancer treatment is essential to:

01 Minimise risk of pregnancy

02 Avoid the potential for disruption of the treatment regimen.

03 Protection of sexual partners from exposure to chemotherapy agents (Theoretical risk)

04 Drug interactions between OCP and chemotherapeutic agents

CONTRACEPTION & MALIGNANCY

The various contraceptive methods available confer variable medical risk. Certain medical comorbidities present relative and absolute contraindications to certain contraceptive methods. Therefore, contraception counselling is individualised as per the comorbidities and requirements of the patient.

01 Barrier methods including male and female condoms can help to prevent exposure to bodily fluids for sexual partners as a part of barrier nursing.

02 Hormonal Contraception

- **Endometrial Cancer:** The use of oral contraception protects against endometrial cancer. The use for at least 12 months reduces the risk of developing endometrial cancer by 50%, with the greatest protective effect gained by use for more than 3 years. Protection against the cancer is greater with progesterone only pills.

- **Ovarian Cancer:** Protection against Ovarian cancer is one of the non-contraceptive benefits of OCPs. The risk of developing epithelial ovarian cancer of all histologic subtypes in users of oral contraception is reduced by 50% with 5 or more years of OCP use. The same magnitude of protection has been observed in women with BRCA1 or BRCA2 mutations. Even in benign functional ovarian cysts there is a role of suppression by treatment with OCP.

- **Cancer Cervix:** Oral contraceptives increase cervical ectopia and disrupts folate metabolism and theoretically can increase the risk of cervical adenocarcinoma. There are some marginal rise in risk of cervical cancer in-situ especially when confounding risk factors like HIV and smoking are associated with OCP users. This may be because such a cohort of patients (OCP users) are also exposed to more frequent pap smears and hence more chances of early detection of cancer cervix. Overall, the benefit of OCP use is more than the risk. OCPs can be used in patients with history of CIN treatment.

- **Molar pregnancy:** OCPs are used for contraception while the patient undergoes chemotherapy for Molar pregnancy.
- Liver Cancer: Oral contraception has been linked to the development of hepatocellular carcinoma by some studies but it is believed due to co-infection with Hepatitis C & Hepatitis B.

- **Breast Cancer:** Young women who begin use before age 20 have higher relative risks of breast cancer during current use and in the 5 years after stopping, this is a time when breast cancer is very rare, and, thus, there would be little impact on the actual number of breast cancers. OCP use does not further increase the risk of breast cancer in women with positive family histories of breast cancer or in women with proven benign breast disease.

- **Colorectal Cancer:** Steroid contraception should be offered to women with a strong family history of colorectal cancer and in Lynch syndrome. 40% reduced risk of colorectal cancer associated with 8 years of previous use of oral contraceptives.

03 Depot Medroxy Progesterone Acetate is associated with decreased risk of endometrial cancer and epithelial ovarian cancer comparable with that observed with oral contraceptives.

04 Intrauterine Contraceptive Devices (Cu-T) is the first-line contraceptive option for women with breast cancer, based on its high efficacy, long-acting, reversible and hormone free status.

05 Mirena levonorgestrel-containing intrauterine system (LNG - IUS) effectively protects the endometrium against hyperplasia and polyps in women using tamoxifen or postmenopausal estrogen therapy. In addition, this IUD can be used to treat endometrial hyperplasia.

06 Natural family planning methods such as withdrawal, rhythm method and basal body temperature charting, may provide insufficient contraceptive efficacy for patients with cancer.

• CONCLUSION

Contraception in a cancer survivor should be offered during the surveillance period whenever indicated. More research is warranted in contraceptive technology field for user friendly contraceptives in cancer survivors.

Maj Ankush Gupta
Resident

INTRODUCTION

Oral contraceptive pills (OCPs) impact exercise performance in athletes, due to changes in ovarian hormone-mediated physiological processes. Athletes are often amenorrhoeic and hypoestrogenic so oral contraceptives provide not only confidence of unwanted pregnancy but also estrogen support against bone loss. A low bone density can help motivate an athlete to take hormonal therapy. Athletes are often concerned that oral contraceptives could reduce exercise performance. Progestin enhancement of ventilatory response can theorotically consume energy otherwise available for athletic performance. However, experimental studies that simulate athletic events can find no adverse effect on oxygen uptake or respiratory uptake. Overall, oral contraceptives have no serious drawbacks for athletes.

VARIOUS TYPES OF CONTRACEPTION METHODS

01 EXTENDED CYCLE

Pills in which women take pills every day for 84 days followed by 7 days of placebo. she will have only 4 cycles in year which helped an athlete in continuous training and decreased risk of blood loss and anaemia.

02 CONTINUOUS CYCLE

Pill in which women is taking pill every day for a year. The vaginal and transdermal methods can be used.

03 LONG ACTING REVERSIBLE CONTRACEPTION

Includes intrauterine contraceptive devices like Mirena (LNG-IUD) & contraceptive implants like Implanon can be used.

FEMALE ATHLETE TRIAD

Low energy (with or without an eating disorder) in combination with a menstrual disorder and altered mineral bone density is known as the female athlete triad (ACSM 2007). In 2014, the international Olympic committee introduced a broader part of “FAT” and termed as “RELATIVE ENERGY DEFICIENCY in sports “(RED-S)”. However, females participating in endurance sports such as track and field, swimming and rowing or those requiring subjective judging like gymnastics and figure skating are most at risk. Determinants like stress and relative energy deficiency independently cause disruption of pulsatile gonadotropin secretion leading to anovulation and amenorrhea. Current indication for initiation of OCP in the treatment of FAT / RED-S is females older than 16 years with declining bone mineral density and persistent functional hypothalamic amenorrhea despite adequate energy availability. As gynaecologist, we should also be aware of ANTI-DOPING rules and performance enhancing drugs that are banned in sports in offering contraceptive counselling.

• CONCLUSION

OCP use might result in slightly inferior exercise performance on average when compared to naturally menstruating women, although any group-level effect is most likely to be trivial. Practically, as effects tended to be trivial and variable across studies, the current evidence does not warrant general guidance on OCP use in athletes. Therefore, when exercise performance is a priority, an individualised approach might be more appropriate. The analysis also indicated that exercise performance was consistent across the OCP cycle. Our contraceptive strategies are aimed primarily to allow women athletes to continue performing without any fear of unwanted pregnancy.

THIRD GENDER CONTRACEPTIVES

Col Bidhan Roy
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INTRODUCTION

Transgenderism involves a complex spectrum of biological, cultural and environmental influences upon an individual. Transgender individuals have a gender identity or gender expression that differs from the sex that they are assigned at birth. Transgender females (TGF) are those who live or identify as females but are being labelled as male at birth. Transgender males (TGM) are those who live or identify as males but are being labelled as female at birth.

As per 2011 census, there are around 4,88,000 transgender (third gender) population in India. While in U.S, there were 10,40,000 transgender population in 2016. Worldwide, there a lot of myths and misconceptions about health care perceptions for transgender individuals. There is a felt need of universal strategic planning that addresses medical aid, societal acceptance and legal framework for transgender individuals. Gynecological care towards transgender individuals is an integral part of their healthcare management. It is also desired that healthcare providers bring awareness and get trained themselves towards the special contraceptive attention that is required for the transgender individuals for healthy sexual practice.

OVERVIEW OF THIRD GENDER GYNECOLOGICAL CARE

The highlights of third gender gynaecological care includes hormonal suppression and hormone induction therapy. Clinical assessment for underlying gender dysphoria, venous thromboembolism risk, hepatic disorders and cardiovascular issues should be done followed by biochemical and baseline hormonal investigations. Thereafter, puberty induction, hormonal affirming and gender assigning surgeries are performed as desired.

Contraceptive need arises when a transgender individual develops sexual relationship with a cisgender individual. The hormonal suppression or reaffirming therapy does decrease the fertility potential but does not translate into absolute contraception and may generate a teratogenic environment (e.g – use of testosterone). Eligibility criteria for contraceptives in transgender individuals represent a special subset wherein more research is needed. Survey amongst transgender individuals reveal lack of awareness about the need of contraception. Correct alignment of the nature of contraceptive in them is essential to avoid dysphoria, unwanted pregnancy and neurocognitive development. Side-effects of various contraceptives should be disclosed before giving them to the transgender clientele to increase the acceptance and compliance.

CONTRACEPTIVES FOR TRANSGENDER FEMALE

Healthy sexual practices form an integral aspect of multidisciplinary health care management. The objective of gender affirming hormone therapy for TG female is to develop the female secondary sexual characteristics like breast development, female pattern of subcutaneous fat distribution and to suppress male secondary sexual characteristics like decrease in muscle mass, decrease in testicular volume and decrease in facial and bodily hair growth.

Gender affirming hormone therapy is not a reliable form of contraception and any antiandrogen drug is teratogenic. A TG female having sexual relationships with a cisgender female should use barrier contraceptive measures and alternatively the cisgender partner may use any form of contraceptives. Estrogen use in TG females increases the risk of venous thromboembolism, hypertriglyceridemia, hyperprolactinemia, hyperglycaemia, low bone mass, gallstones, weight gain, cardiovascular disease, and decreased libido. Oral preparation of estrogen has got the higher complication rate than the transdermal patch. Hence modifiable risk factors like obesity, hypertension, smoking and sedentary habits should be corrected while on hormonal treatment.Communication and counselling are the pillars of successful outcome of contraceptive care in transgender individuals.

CONTRACEPTIVES FOR TRANSGENDER MALE

Transgender males need to be on gender reaffirming hormonal therapy after completion of puberty to develop male secondary sexual characteristics. TG males who are on gender affirming hormonal therapy and in a sexual relationship with a cisgender male should use non-hormonal intrauterine devices or a barrier contraceptive. In such circumstances, contraceptive measures should continue till gender assigning surgeries like hysterectomy and bilateral salpingo-ophorectomy are done.

If pregnancy is not desired, then TG males who are not on gender reaffirming hormonal therapy and are in sexual relationship with a cisgender male should use some contraceptives like combined hormonal pills, hormonal or non-hormonal intrauterine devices, contraceptive patches, vaginal contraceptive rings and long-acting reversible contraceptive implants (LARC). Side-effects of each one of them are variable and prolonged amenorrhoea is a desirable side-effect in this subset of third gender. Contraceptive cover should continue till hysterectomy and bilateral salpingo-ophorectomy are accomplished.

• CONCLUSION

Goal of contraceptive care is to integrate healthy transgenders into general community. With widening legal and societal acceptance, there has been a justified demand of safe and better health care access to transgender individuals. It is time to understand and address health issues of transgender people in of our society.

NON-CONTRACEPTIVE BENEFITS OF HORMONAL CONTRACEPTIVES

Maj Akanksha Tevatia
Resident

INTRODUCTION

It is becoming evident that oral hormonal contraceptives, besides being well established contraceptives are also being considered as important medications for many functional or organic disturbances. There are enormous evidence based clinical outcomes to support use of oral contraceptives for non-contraceptive purposes like endometriosis, dysmenorrhoea, anovulatory cycles, dysfunctional uterine bleeding, rheumatoid arthritis, etc. Further, most studies indicate that prior use of oral contraception is associated with higher levels of bone density and increased protection. There may be incidental benefits or specifically targeted non-contraceptive benefits of low dose hormonal contraception.

NON-CONTRACEPTIVE INCIDENTAL BENEFITS ARE LISTED BELOW:

- Effective contraception (Less need for induced abortion & less need for surgical sterilisation)
- Less endometrial cancer, ovarian cancer & colorectal cancer
- Fewer ectopic pregnancies
- More regular menses (Less flow, dysmenorrhoea & anemia)
- Less salpingitis
- Less benign breast disease
- Increased bone density
- Less endometriosis
- Possibly less rheumatoid arthritis
- Possibly protection against atherosclerosis
- Possibly fewer ovarian cysts

NON-CONTRACEPTIVE DEFINITELY BENEFICIAL:

- Dysfunctional Uterine Bleeding
- Dysmenorrhoea
- Mittelschmerz
- Endometriosis prophylaxis
- Acne & hirsutism
- Hormone Therapy for hypothalamic amenorrhoea
- Prevention of menstrual porphyria
- Control of bleeding (dyscrasias, anovulation)

POSSIBLY BENEFICIAL:

- Functional ovarian cysts
- Premenstrual syndrome

• CONCLUSION

Awareness and judicious use of non-contraceptive benefits of hormonal contraceptives is very helpful and cost effective in diverse clinical situations. More research in contraceptive technology will surely explore this context of oral contraceptive pills in the coming days.

MANAGEMENT OF MISSED PILL

Maj Meenakshi Pethan
Resident

INTRODUCTION

Irregular pill taking is a common occurrence. Using an electronic monitoring device to measure compliance, it was apparent that consistency of pill taking is even worse than what patients report; only 33% of women were documented to have missed no pills in cycle 1, and by cycle 3, about one-third of the women missed 3 or more pills with many episodes of consecutive days of missed pills. These data indicate that women become less careful over time, emphasizing the importance of repeatedly reviewing patients on OCPs and counsel about the strategy of management of missed pill.

MANAGEMENT OF MISSED PILLS

01 **If a woman misses 1 pill ,** she should take it as soon as she remembers and continue rest as schedule.

02 **If she misses 2 pills in the first 2 weeks,** she should take two pills on each of the next 2 days; it is unlikely that a backup method is needed, but the official consensus is to recommend backup for the next 7 days, especially if the missed pills occurred in the first week. If the patient is using an oral contraceptive with 20 µg or less of estrogen and the missed pills occur in the first week, consider the use of emergency contraception.

03 **If 2 pills are missed in the 3rd week or if more than 2 active pills are missed at any time,** another form of contraception should be used as backup immediately and for 7 days; if a Sunday starter, keep taking a pill every day until Sunday, and on Sunday, start a new package; if a non-Sunday starter, start a new package the same day.

IMPACT OF MISSING PILLS ON CONTRACEPTION

One study demonstrated that skipping 4 consecutive pills at varying times in the cycle did not result in ovulation. Studies in which women deliberately lengthen their pill-free interval up to 11 days have failed to show signs of ovulation. So far there is no evidence that moving to lower doses has had an impact on the margin of error. Despite greater follicular activity with the lowest-dose oral contraceptives, ovulation is still effectively prevented. However, the studies have involved small numbers of women, and given the large individual variation, it is possible that some women might be at risk with a small increase in the pill-free interval. Although the progestational effects on endometrium and cervical mucus serve to ensure good contraceptive efficacy, conservative advice regarding missing pills is the safest message to convey. The most prevalent problems that can be identified associated with apparent oral contraceptive failures are vomiting and diarrhea. Even if no pills have been missed, patients should be instructed to use a backup method for at least 7 days after an episode of gastroenteritis.

• CONCLUSION

Patient on OCPs should be counselled about the management of missed period so that the chances of unwanted pregnancy is averted and contraceptive efficacy is enhanced.

EMERGENCY CONTRACEPTION

Dr Meenakshi K Bharadwaj
Prof, AFMC

INTRODUCTION

According to the NFHS-5 data, 48% woman sought abortions due to unplanned pregnancy in our country. Emergency contraceptives (EC) are unique methods to prevent such pregnancy occurring after unprotected intercourse or if birth control method has not worked correctly within 5 days. They have a decreasing efficacy after 3 days and provide maximum protection in initial 24 hours. This method can prevent 95% of pregnancies however there is lack of knowledge of their availability in more than half of woman.

TYPES OF EMERGENCY CONTRACEPTIVES

01 Emergency contraceptive pills (ECP) regimens which include

- Levonorgestrel (LNG) 1.5 mg single dose or 2 doses 12 hours apart,
- High dose combined oral contraceptive (COC) known as yuzpe regime
- Mifepristone 10-25mg single dose
- Ulipristal acetate (UPA) 30mg single dose

02 Intra uterine copper device.

Evidence has proved that LNG is more effective than COC pills, while UPA and Mifepristone are both more effective than LNG.
The copper intrauterine contraceptive device is most effective EC for medically eligible women according to WHO and ACOG.
Due to high dose of COC used as ECP, it is associated with increased side-effects like nausea and vomiting. If woman vomits within 3 hours, another dose of ECP needs to be taken immediately. Recent evidence reveals that LNG and UPA may be less effective in overweight or obese woman. However, ECP can be taken even by women in whom hormonal contraceptives are medically contraindicated. If periods are delayed by 7 days then the woman should check for pregnancy.

• CONCLUSION

It is important to understand that ECP is not a method of abortion but can be taken multiple times in the same cycle but that should not be a reason for unprotective intercourse. The woman desiring contraception should start with any regular contraceptive method immediately after the use of ECP and abstain from intercourse or use barrier contraception for 7 days after it.

EC is a safe and effective intervention to which all women should have simple access in case of unprotected intercourse. The greatest impediment to its widespread use is lack of proper knowledge. Future policies could place emphasis on developing and executing various educational programs in young girls and woman in reproductive age group.

Maj Anu Kumari
Resident

INTRODUCTION

Today, contraception method is very safe & effective. But the perfect method of contraception for either woman & men remains elusive. Worldwide, 19% females rely upon permanent sterilization as per United Nations report and 37% in India as per NFHS -4. However, not all females are pleased following tubectomy, in fact some women regret having done the procedure. This can be distressing for them and may cause psychological implications like depressive disorders due to "Tubectomy Regret."

BURDEN OF TUBECTOMY REGRET

Tubectomy regret is seen in about 2% of the women undergoing permanent sterilization like tubectomy and another 14% to 25% women expressed the desire to undergo reversal procedure in some point of their life as per some studies in US. It is estimated that about 2 per 1000 sterilized women will eventually undergo tubal anastomosis. In India, nearly 7% of the women aged 15 to 49 years reported sterilization regret

It is generally assumed that women undergoing tubectomy does not desire to have children in future. Yet many tubectomies are not only due to fertility issues but also due to personal, social -economic and co-morbid health conditions. Some of the indications can be only due to transient factors in life and may no longer be applicable afterwards in life. Thus, some women who undergo permanent sterilization like tubectomy regrets their decision because of entering in to a better situation or requirement in life. Tubectomy regret is a complex condition that is casually linked to unpredictable life events. Such regret may be severe enough to be associated with depressive symptoms.

The main factor associated with regrets were age less than 30 years and sterilization at the convenient time – during caesarean section, following abortions and following normal deliveries. Such decisions are usually taken because of the fear of future pregnancy and the opportune time of hospital stay. It is seen that that percentage of request for tubectomy reversal is higher in woman between 18 – 24 years of age at the time of sterilization. An important factor for request following tubectomy is change in marital states. Also, young couple in unstable relationship go for more request for tubectomy reversal.

Tubal anastomosis surgery require higher surgical skill and success can never be guaranteed. Reversal in form of microsurgery for tubal anastomosis in associated with excellent results if only a small segment of the tubes has been damaged. Pregnancy rate correlate with the length of the remaining tube (a length of 4 cm or more residual tubal length) and age at the time of tubectomy reversal procedure. An important complications following reversal procedure is the possibility of ectopic pregnancy after such reversal procedures. Overall, the pregnancy rate after successful tubectomy reversal is around 60% to 80% under optimal conditions. Alternatives like assisted reproductive techniques and surrogacy are costly. Thus, it is imperative that we should always perform tubectomy at the right juncture of tubal length so that future exercise of any reversal procedure stands successful.

- **CONCLUSION**

Tubectomy regret is a important health consideration and can be averted by meticulous counselling and choosing the right candidate for permanent sterilization.

CONTRACEPTIVE FAILURE RATES & CONTRAINDICATIONS OF OCPs

Maj Jeevan Mohan Mesta
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INTRODUCTION

Different methods of contraceptives can be highly effective at preventing pregnancy, but contraception failure is much more common than most people realize. OCPs are one of the most efficient methods of contraception. There are few absolute and relative contraindications of OCPs.

Following are the ready reckoner displaying birth control failure rate percentages, as well as contraindications of oral contraceptives.

Method	Lowest expected	Typical
No method	85%	85%
Combination pill	0.3%	8.7%
Progestin only	0.5%	3.0%
IUDs		
Levonorgestrel IUD	0.1%	0.1%
Copper T 380A	0.6%	1.0%
Implant	0.05%	1.0%
Injectables		
3 months	0.3%	0.3%
1 months	0.05%	3.0%
Patch	0.3%	8%
Vaginal ring	0.3%	8%
Female sterilization	0.5%	0.7%
Male sterilization	0.1%	0.2%
Spermicides	18.0%	29.0%
Periodic abstinence		25.3%
Calendar	9.0%	
Ovulation method	3.0%	
Symtothermal	2.0%	
Post ovulation	1.0%	
Withdrawal	4.0%	18.4%
Cervical cap		
Parous women	26.0%	32.0%
Nulliparous women	9.0%	16.0%
Sponge		
Parous women	20.0%	32.0%
Nulliparous women	9.0%	16.0%
Diaphragm +spermicide	6.0%	16.0%
Condom		
Male	2.0%	17.4%
Female	5.0%	27.0%

ABSOLUTE CONTRAINDICATIONS TO THE USE OF ORALCONTRACEPTION

- Thrombophlebitis, thromboembolic disorders (including a close family history),cerebral vascular disease, coronary occlusion, or a past history of these conditions, or conditions predisposing to these problems.
- Markedly impaired liver function or liver cancer.
- History of coronary heart disease or cerebrovascular disease.
- Migraine headaches with aura.
- Diabetes mellitus with vascular disease.
- Known or suspected breast cancer.
- Undiagnosed abnormal vaginal bleeding.
- Known or suspected pregnancy.
- Smokers over the age of 35.
- Severe hypercholesterolemia or hypertriglyceridemia.
- Uncontrolled hypertension.
- Breast-feeding and less than 21 days postpartum and h/o history of peripartum cardiomyopathy
- Surgery with prolonged nonmobility.

RELATIVE CONTRAINDICATIONS REQUIRING CLINICAL JUDGMENT AND INFORMED CONSENT

- Migraine headaches without aura
- Controlled hypertension
- Gestational diabetes
- Diabetes mellitus
- Seizure disorders
- Obstructive jaundice in pregnancy
- Sickle cell disease or sickle C disease
- Gallbladder disease
- Mitral valve prolapse
- Systemic lupus erythematosus
- Hyperlipidemia
- Smoking younger than 35
- Hepatic disease

• CONCLUSION

The physician should inform patients of various available alternatives. The method of contraception is choice made by the patient and her physician after adequate counseling on risks versus benefits.

MALE CONTRACEPTION: WHAT IS THE LATEST ?

Brig Sanjay Singh
Prof & HOD, AFMC

Researchers at Weill Cornell Medicine, led by Drs. Jochen Buck and Lonny Levin, have made significant strides in the development of a male contraceptive drug that could potentially offer men more contraceptive options beyond condoms or vasectomies. Their experimental drug candidate, called TDI-11861, targets an enzyme known as soluble adenylyl cyclase (sAC), which plays a crucial role in sperm movement.

One of the challenges in creating effective male contraceptives lies in the fact that men produce millions of sperm each day, necessitating a method to inhibit their mobility and prevent them from reaching and fertilizing an egg. The team at Weill Cornell Medicine focused on inhibiting sAC, as its activation triggers the vigorous tail beating of sperm that enables them to swim through the female reproductive tract.

The researchers conducted a series of tests on mice to assess the effects of TDI-11861 on sperm function and fertility. Firstly, they ensured the compound's safety by subjecting mice to various tests, which did not reveal any potential safety concerns associated with TDI-11861. Encouraged by these results, they proceeded to examine the drug's contraceptive effects.

Male mice were administered a single dose of TDI-11861 before being allowed to mate with females. Surprisingly, there were no discernible differences in mating behaviour between the treated and untreated mice. However, the researchers discovered that the sperm from the treated mice lost their ability to move independently. Once deposited in the female reproductive tract, the sperm remained immobile, effectively preventing fertilization.

To assess the contraceptive efficacy, the team paired the male mice treated with TDI-11861 with females. Remarkably, none of the females became pregnant when mated with the treated mice, demonstrating the contraceptive potential of the sAC inhibitor. In contrast, when male mice treated with a control compound were paired with females, pregnancies occurred in 30% of cases.

The contraceptive effect of TDI-11861 persisted for up to two and a half hours after treatment. However, fertility fully recovered within 24 hours, indicating the temporary nature of the drug's effects. This reversible aspect is a crucial characteristic for a male contraceptive, as it allows for on-demand use and flexibility in family planning.

While the findings are promising, the researchers acknowledge that further work is necessary before TDI-11861 can progress to human clinical trials. They are actively working on refining the sAC inhibitors to make them more suitable and effective for human use. Several challenges, such as optimizing the drug's delivery system, determining the appropriate dosage, and conducting additional safety studies, need to be addressed before the drug can be approved for widespread use.

If successfully developed into a safe and reversible contraceptive option for men, an sAC inhibitor like TDI-11861 could revolutionize male contraception. It would provide men with an additional choice beyond condoms or permanent sterilization, empowering them to take an active role in contraception and family planning. Moreover, it has the potential to reduce unintended pregnancies globally, addressing a significant public health issue.

In conclusion, the research conducted by the team at Weill Cornell Medicine represents a promising step towards the development of a male contraceptive drug. The inhibition of sAC by TDI-11861 effectively immobilized sperm and prevented pregnancy in mice. While more research is required, these findings open up exciting possibilities for the future of male contraception, offering men a broader range of contraceptive options and empowering them to take control of their reproductive health.

FAMILY PLANNING INDEMNITY SCHEME (GOVT OF INDIA)

INTRODUCTION:

The tubectomy and vasectomy (sterilization) programme in India is voluntary in nature and the couples choose a method best suited to them. The government provides compensation in case of death/failure of tubectomy and vasectomy operation as per details is given below:

BENEFITS OF THE SCHEME :

SECTION I: (FOR BENEFICIARIES)

Section	Coverage	Limits
I A	Death following sterilization (inclusive of death during process of sterilization operation) in hospital or within 7 days from the date of discharge from the hospital	Rs. 2 lakh
I B	Death following sterilization within 8 - 30 days from the date of discharge from the hospital	Rs. 50,000/-
I C	Failure of sterilization	Rs 30,000/-
I D	Cost of treatment **in hospital and upto 60 days** arising out of complication following sterilization operation (inclusive of complication during process of sterilization operation) from the date of discharge	Rs. 25,000/-

SECTION II: (FOR DOCTORS/ HEALTH FACILITIES- BOTH GOVT & NON-GOVT SECTORS)

II	Indemnity for Doctor/Health Facilities (but not more than 4 in a year)	Upto Rs. 2 Lakh per claim

- **CONCLUSION**

A case of medical negligence can be filed only if the doctor has acted negligently, either by doing something, or failing to do something that any doctor of ordinary skill and prudence would have done in the given situation. As long as a doctor acts with reasonable skill and care expected of a prudent professional, he cannot be held responsible for the outcome of the treatment.