Pregnancy prevention (Contraception)

Learning objectives: By the end of this lect. You need to:

-Know the benefit of family planning
-Describe category &function of each contraceptive method.
-Identify how to promote the family planning programme

Contraception is the use of temporary techniques to prevent pregnancy while allowing intercourse to continue. The ideal contraceptive should be safe , harmless and not interfere with sexual enjoyment. The failure rate of any method of contraception is judged by Pearl index(PI) : The no. of women having regular intercourse who become pregnant within a year out of 100 couples using the method .
Counseling:

Family planning and birth control need discussion of more than just the mechanics of the method. The use of contraception is influenced by many factors:

- Cultural background.
- Religion.
- Partnership status.
- Personal health.
- Personal habbits.

Methods used by the female:

Hormonal

- The pill- combined oral contraceptive(COCP), estrogene and progesterone.
- The emergency pill—high dose of estrogene with progesterone.
- The mini pill- progestogen only.
- Injectable hormone- progestpgens.
- Implantable hormones.

Intrauterine devices (IUDs)
Copper bearing devices. Progestogen Hormone releasing IUs •

Barriers:

- Condoms
- Female barrier
  Natural family planning
- Spermicides

Chemical spermicide

- Soluble pessaries
- Creams, foams, and jellies, medicated sponges, douching

Sterilization

- Female sterilization: tubal ligation
- Male sterilization: Vasectomy

Hormonal: Oral contraception

Combined pills

The pill contain esrogen and progestogen , the estrpgen commonly used is ethynil esradiol in 20 to 50 micrograms, the progestogen commonly used is levonorgestril,and nor ethisteron and norgestimate.

COCP
These pills contain both estrogen & progestern these taken for 21 days with 7 days pill free interval
Mode of action of COCP
1) Inhibition of ovulation
2) Change in CX mucous characteristics, interfering with sperm transport
3) Alteration in tubal motility
4) Endometrial atrophy &impaired uterine receptivity

Advantages:
-The pills the most effective method of reversible birth control.
-The method is not related to the act of intercourse.
-Women who suffer from dysmenorrhoea or heavy periods often find their periods less painful and the flow diminished .
-HB levels are maintained so that anemia is less common .
-Acne and hirsutism may improved

Metabolic effect:

In different women there may be as much as 10 fold variation in tissue levels of the hormones and therefore of their effects because of:
-Different in absorption and liver metabolism of steroids
-Difference in fat layers of body as fat absorbs steroids avidly.
-Glucose tolerance may be impaired .
-There may be an increase in : low density lipoprotein., cholesterol, serum iron, serum copper, circulating blood coagulation factors VII, IX, and fibrinogen.

Side effects:
-There may be fluid retention and wt gain .
-Breakthrough bleeding may occur in the first cycle and later if the amount of estrogen is too low .
-Thromboembolism may occur , mainly with high estrogen dosage and a very small increased risk in users of desogestrel / gestoden preparations.
-Skin pigmentations like the Chloasma of pregnancy may develop.
-Migraine *may be aggravated.*
-Depression occur in few.
-There is little evidence that the pill is carcinogenic to the cx or to the breast, much of this relates to the higher dose estrogen. and progestron. Used in COC 10 yrs ago.
-There is lower incidence of cancer of the ovary and endometrium.
Contraindications:

The most serious hazards are:
1.Thromboembolism
2.coronary thrombosis
3.cerebro vascular accidents
The pill should be avoided in women :
1.with history or family history of thrombophlebitis, severe uncontrolled hypertension or cerebrovascular accidents
2.over 40 yrs if they are obese and smoke heavily
3.with liver damage including recent infective hepatitis
4.with a history of breast cancer
5.Pulmonary HPT 6)hyperlipidemia
7) pregnancy
8) focal migraine
9) estrogen dependant neoplasms as breast cancer
10) undiagnosed genital tract bleeding with true sickle cell dis.-genotype SS or SC (but not sickle triad, genotype AS)
Women taken the pill who undergo surgery face an increased risk of thrombosis and embolism in the post. Operative period. The pill should ideally stop 6 wks before elective surgery and immediately in the case of illness or accidents leading to long immobilization.
Relative contraindication:-
1) generalized migraine
2) Long term immobilization
3) D.M, obesity, heavy smoking

Drug interactions

Certain drugs may interfere with the absorption , metabolism,, efficacy of COC. Like phenytoin, barbiturates antitub. Drugs (rifampicine) , antibiotics (tetracycline). The dose of hypoglycemic agents may need increasing while the effect of corticosteroids may be enhanced .

Side effects of COCP:

Weight gain, fluid retenition& leg cramps
*Headache, Nausea & vomiting.
*Chloasma & greesy skin.
*Mood changes, depression.
*Loss of libido.
* Mastalgia & brast enlargement.
* Vaginal discharge, irregular bleeding
* Growth of fibroid.
* Venous thromboembolism
* Arterial disease

Prescribing the pill:
A careful history is taken with reference to conditions such as heavy smoking which may increase the risk of the pill.

Exam. Should include BP and body wt., the breast , ht and abdomen . A pelvic exam. Should be done to exclude pelvic path.The choice for oral contraception often depends on the dr . preference . 20 micro gm. Pill are best kept for the very slim. 50 micro gm. Pills are only used as emergency contraception or for women with epilepsy

The first pill taken on the fifth day of the menst. Period , then taken for 21 days with 7 days free pill during which a withdrawal bleeding occurs.There may be some side effects such as early morning nausea , breast tenderness, and slight bleeding during the first cycle.
The tricyclic regime suits some women , here a 35 micro gm pill with a varying dose of progestogen is given for 21 days then 7 pill free days when bleeding should occur This may help sufferers from migraine or epilepsy. The COC should not be given during lactation , the progestogen only pill being preferred .The pill may be started on the second day of abortion. Regular exam. With test for BP ,glycosurea, and excessive wt. gain is essential.
Failure rate of COC is less than 1 / 100 woman year

Forgotten pill

- If the pill is missed for 12 hrs or less just take the pill.
- If more than 12 hrs , additional contraception (eg condom) is used for 7 days .
- If the missed pill is within the first 7 days of a pack the couple should be advised to use additional barrier for at least 2 wks.

Progestogen only pill

Prog. are used for oral contraception , they probably act not by inhibiting ovulation but by their effect on the cervical mucus and the endometrium .They also reduce tubal motility so increasing the risk of ectopic pregnancy. The prog. Only pill is taken continuously at the same time of the day from the first day of menst.. If the pill delayed more than 3 hrs additional precaution is taken for 14 days.
Failure rate 1 to 4 / 100 women year. There may be irregular bleeding or • amenorrhoea and the risk of thrombosis is less than that of COC They are useful in older women. Avoids risks & S.E of estrogen

❖ Mode of action:
- Centrally: inhibit ovulation
- Cervical mucous: hostile to ascending sperm
- Endometrium: thin and atrophic

❖ Particular Indications
- Breast feeding
- Older age
- CV risk factors, ex:high BP, smoking or DM

❖ Common S.E:
- Erratic or absent menstrual bleeding
- Simple, functional ovarian
- Breast tenderness
- Acne

Side effects of progestogen only contraception:-
1) irregular Vag bleeding or amenorrhea.
2) Premenstrual like syndrome.
3) Acne , breast tenderness
4) Functional ovarian cyst
5) Osteoporosis.
6) Risk of ectopic pregnancy

Injectable contraception

Those most commonly used consist of progestogen given by im injection. They are not the first choice of contraception but are widely used in developing countries or when other methods are contraindicated .
Depo-medroxy-progesterone acetate (Depo provera) is given in a dose of 150 mg repeated every 12 wks .
Norethisterone enanthate ,200 mg every 8 wks.
Side effects :wt gain ,irregular bleeding and amenorrhoea.

- Wt. gain 2-3 kg in the 1st year
- Loss of mineral bon density
- Delay in return of fertility
- Persistently irregular periods, most become amenorrrhoeic
- Use beyound 2 years is not recommended because of potential bone loss.
- Noncontraceptive benefits:
- Reduction of heavy bleeding
- Reduction of dysmenorrhea
- Reduction of pain of endometriosis
- Reduction of future risk of endometrial hyperplasia &ca.

Subdermal implant (implanon)

Silastic capsules injected sc under local anaesthesia .eg Levonorgesterel implants (norplant) offer about 5 yrs protection can be removed when the return of fertility is required .

Intrauterine contraceptive devices (IUD)

Mechanism of action:

All IUCD induce an inflamatory response in the endometrium that prevent implantation,
Cu-bearing IUCD has atoxic effect on sperm that prevent fertilization, Hormone releasing IUS prevent pregnancy by a local hormone effect on CX mucous & endometrium.
SE of IUCD :-
1) Increase menstrual blood loss
2) Increse dysmenorrhea
3) Increase risk of pelvic infection following insertion

4) perforation
5) Expulsion
6) Ectopic pregnancy

Some types of IUDs:

- is a small plastic and copper device, the amount varies between 250-380 mm² with various shapes and sizes but usually shaped like a 'T', which is fitted into the woman's uterus by a doctor using a simple procedure.

❖ problems

- Small increase risk of infection
- Ectopic pregnancy: if pregnancy occurs its 3-5% ectopic
- Perforation: mostly at time of insertion
- Increase menstrual bleeding and pain
- Expulsion: mostly at time of menstruation

Progestin devices (Mirena),levonorgestril 20 microgm / day.

Advantages:

An IUD gives perminant protection and requires no attention at time of intercourse . Provided there are no complications , a device can remain in the uterus for up to 5-10 yrs .

Disadvantages:

A skilled Dr or nurse is required to insert the IUD . When first inserted there may be pain and bleeding .The menst. Flow may be increased and the periods prolonged for a few months . There is risk of flaring up pre existing tubal infection .

Complications:

- The device may passed unnoticed , especially during menst.
- Pelvic infection may occur
- Increased risk of rejection in nulliparous women.
- Perforation of uterus may occur with the coil moving into the peritoneal cavity. This is usually at time of insertion particularly with an acutely anteflexed or retroflexed uterus . If it is occur with Cu devices it should be removed , either by laparoscopy or laparotomy .
- There is no evidence that IUD is carcinogenic .
- The thread may disappear . The continued presence of the device can be checked by ultrasound . Removal is usually easy in the outpatients department.
- While the rate of intrauterine pregnancy is reduced , that of ectopics is not . Hence there is a relative increase in ectopic pregnancy after IUD insersion.
- The progestogen IUD reduces menstrual flow and often dysmenorrhoea.

Contraindications:

IUD should not be inserted in the presence of :

- Pelvic infection .

- Large or submucosal fibroid
- Genital malignancy.
- Abnormal bleeding or menorrhagia(except Mirena)

Methods of insertion

The device is supplied in a sterile pack with full instructions for insertion . This should be done with a septic and antiseptic precautions .
-The best time is at the end of menstruation .
-The cx is exposed and may be steadied with a single toothed forceps.
-A uterine sound measure the cavity length.
-The device is loaded into the introducer and inserted .
-The intoducer is withdrawn and the nylon threads cut leaving 1.5 to 2 cm in the upper vagina.

A vasovagal attack may occur at the time of insertion , following cervical stimulation This usually responds to stopping the insertion and lowering the woman s head . Formal resuscitation is rarely needed , but facilities should be available at the family planning clinic for the rare occasions.

Emergency Family Planning contraception

About 85% of sexually active couples having unprotected intercourse for one year will have pregnancy.
Pregnancy is not established within uterus until about 7days after intercourse which may not occur for up to5-7 days following intercourse, is a safe and effective way to prevent pregnancy after unprotected intercourse.
- It can be started up to five days (120 hours) after unprotected intercourse.
-Emergency family planning is most effective within 3 days after sex
- Levonorgestrel (levonel) (plan B) 1.5mg single oral dose is used up to 72 hours of unprotected intercourse
Ulipristal acetate 30 mg progestogen receptor modulator is used up to 120 hours of unprotected intercourse

An IUD may be used for post coital contraception to prevent implantation if inserted withen 5 days of unprotected intercourse . The woman must be seen again to insure menstruation has occurred . This is an emergency measure , but if normal menstruation occurs the device may be left for permanent contraception.

The pregnancy rate of Cu devices is reported as 1.4 per 100 women/ year. Should pregnancy occur the possibility of ectopic pregnancy must be excluded.
-If the tail of the device is visible the device should be removed by pulling gently on the thread.
-If the tail is not visible the position of the device must be checked by ultrasound.
-The devic may be left in the uterus throughout pregnancy.

The most effective is vaginal diaphragm or Dutch cap which consist of a watch spring or coiled spring edged with a dome of latex. They are made in various sizes and for maximum safety must be used with a spermicidal jelly or cream .

Chemical contraception:

These are mainly spermicides .Creams , jells, soluble pessaries and foaming preparation exist.The failure rate is relatively high.(about 9 per 100 woman / year.

Douching

Douching immediately after intercourse with worm water or a weak solution of vinegar may be used , it may introduce infection and does not affect sperms which have already passed up the cervical canal .

Methods used by the male like condom

The commonest methods of contraception. It requires no medical intervention and can be bought in many non- medical places .For maximum safety the woman should insert a chemical contraceptive incase the bursts or slips off. Another advantage is that it reduces the spread of sexually transmitted infection including HIV.

Coitus interrupts:

This is the oldest and widely practiced method . It is not always reliable .It ma prevent complete satisfaction to both partners .

Methods used by both partners:

The safe period or natural family planning :
In theory ovulation occur only once in each menstrual cycle so there are days when a woman can expect to be infertile .These can be calculated in various ways:
-The calendar method based on working out the fertile period from previous cycle .
-The basal temp. method .Intercourse is stopped for 3 days before and after ovulation.
The disadvantage of the safe period is that it is not really safe if menstruation is irregular , after child birth , or abortion or in women approaching menopause.

Sterilization

Sterilization is an operation aimed at the permanent occlusion of the tubes carrying the gametes.
Counseling for sterilization:
It is an important step and the couple should know that reversal is not for sure.
Consent must be given in writing.

Female sterilization:
By blocking the fallopian tube . Thes are deep in the abdomen so their approach is a bigger procedure than operating on the male .
Laparotomy sterilization :
The simplest operation is described by Pomeroy .Now Irving method is more popular. They are doing mostly during CS . The failure rate is about 2 to 4 in 1000 operation .
Laparoscopic sterilization:

It should be only performed by those who are skilled in general gyn. Surgery because the abdomen may have to be opened at any time to deal with complications.The tube blocked by one of 3 methods:
1.A mechanical clip
2.a silastic ring
3.unipolar or bipolar diathermy.

Failure rate of laparoscopic ster. Is about 1 to 2 per 1000 operations. Causes of failure:
-The woman may already have a fertilized ovum in the proximal tube or in the uterus
-the occluding clip or ring may be correctly placed but spring off or break after the operator had left the abdomen .
-a small fistula can form between the contiguous ends bypassing the occluding device

Complications of female sterilization:-
1) Anasthetic complications
2)Damage to intraabdominal organs
3) Ectopic pregnancy
4) wound infection
5) Menstrual disorder
6) Failure

Vasectomy:-
This involve division of vas deferenson each side to prevent release of sperms during ejaculation, it is technically an easier ,quicker & performed under local anesthesia, vasectomy is not effective immediately so men should do SFA 12 wk &then 16 wk to check presence of sperm, If 2 consecutive samples are free of sperms then the vasectomy can be considered complete & alternative method of contraception must be used until that time
Techniques for vasectomy:-
1) Ligation or clips
2) Unipolar diathermy
3) Excision
4) Non scalpel vasectomy
5) Silicone plugs,sclerosing agents.
Complications of vasectomy:-
1) wound infection
2) Heamatoma
3) Sperm granuloma
4) Antisperm AB
5) Some suggest a linkage between vasectomy & testicular & prostatic tumor