

CLASS – 12

BIOLOGY

Chapter – 4

REPRODUCTIVE HEALTH

By - Shahanshah Shahid

PGT- Biology

Chandra Public School, Mau (U.P)

Reproductive Health

- It refers healthy reproductive organs with normal functions.

OR

- It is state of **complete physical, mental** and **social well-being** and not merely the absence of reproductive diseases or infirmity.

- According to WHO – a total well being in all aspects of reproduction (*i.e. physical, emotional, behavioral and social*).
- Aim of studying reproductive health are:
 1. To provide awareness regarding the contraceptive or birth control method to both males and females.

2. To provide the ability to prevent and control sexually transmitted diseases (STDs).
3. It help to manage disorders related to reproductive system

Problems and strategies

1. Plans and programmes in India:

- India was the first country in the world who initiate action plan and programmers to achieve total reproductive health at national level like –

- I. **Family Planning** (i.e. initiated in 1951 with campaign as “Hum do Hamare do” to educate people about the advantage of having a small family so that parents can look after them well).
 - II. **Reproductive and Child Health Care (RCH)** (viz. include number of programmed with two main objective – to aware people about various reproductive aspects and provide facilities and support for building up a reproductive healthy society).
- ### **2. Strategies for successful implementation of programme:**
- **Involving the governmental and nongovernmental agencies** through audio-visual aid (i.e. radio, TV, and print media) to aware about reproduction related aspects.
 - **Introduction of sex education in school** to provide right information to the young mind and discourage the myths and misconception about sex related aspects.
 - **Proper knowledge about various sex related aspects** like – reproductive organs, adolescence and related changes, safe and hygienic sexual practice, and sexual

transmitted diseases like AIDS, Hepatitis B etc.

- **Targeting and educating marriageable age group and couple** about the available birth control option, care of pregnant mother, postnatal care of mother and child, importance of breast feeding, equal opportunities for male and female child etc. for making socially conscious healthy families of desired size.
 - **Creating awareness of problems among people** related to uncontrolled population growth, social evil like sex abuse and sex related crime, drug alcohol and tobacco abuse for making socially responsible and healthy society.
- ### **3. Support for successful implementation of programmes:**
- **Providing essential medical assistance and care** to people in reproduction-related problem like pregnancy, delivery, STDs, and abortions, contraception, menstrual problems, infertility etc.
 - **Implementation of better techniques and strategies** from time to time.
 - **Statutory ban on amniocentesis** (i.e. medical technique to study chromosomal pattern of foetus or to determine the sex) to prevent legally increasing female foeticides in the society.
 - **Awareness and implementation of massive child immunization program.**

Population explosion

- The technological advancement has tremendously improve the quality of life due to-
1. Increased health facilities

2. Better living conditions

- This advancement had promoted a phenomenal growth of population.
- For example: in 1900 , the world population was 2 billion but in 2015 it was about 7 billion which mean ***in 100 year the world population has grown 3 times*** and it is due to –

1. Decline in death rate

2. Decline in maternal mortality rate (MMR) or rate of death of mother.

3. Decline in infants mortality rate (IMR) or rate of death of infants.

4. Increase in number of people in the reproductive age.

- This *phenomenal growth of population* is called population explosion.

I. High birth rate

II. Polygamy

III. Preference of son

IV. Widow marriage

2. Economical cause:

I. Poverty

II. Illiteracy

III. Lack of birth control devices

IV. Control of Famines and Epidemics

V. Availability of medical facilities

VI. Maternal and child health service.

Demography

- Scientific ***study of human population*** is known as demography.

OR

Study of ***human population , their size, composition and distribution across place and the process*** through which the population change.

- ***Birth, deaths and migration*** are three factors which are producing the population stability or change.
- It helps to understand the social and economical problem and identifying the potential solutions.

Cause of population explosion

1. Social cause :

Consequences of population explosion

- It is global phenomenon and its consequences can be seen in the surface and in the atmosphere by declining environmental quality in all spare of earth.
- **The increase population create other consequences like –**
 1. *Cause socio economic problem due to lack of space and food.*
 2. *It is leading to increased unemployment.*
 3. *Shortage of raw material and housing is resulting in poor health of both child and adults.*
 4. *Increase urbanization is at the cost of deforestation which causes the ecological imbalance on the earth.*

Population control

Population explosion is the main obstacle to the smooth developing economy of any country so by taking measure we can keep it under control by following way-

1. **Rise in per capital income**
2. **Urbanization and industrialization**
3. **Late Marriage**
4. **Lowering infant mortality rate**
5. **Spread of education**
6. **Women education and employment**
7. **Family planning facilities**
8. **Publicity**
9. **Legislation**

Birth control and contraceptive

(Devise which stop pregnancy)

- An actions, devices or medications which prevent or reduce the likelihood of pregnancy or childbirth.

OR

- Mechanisms that are intended to reduce the like hood of pregnancy or childbirth.
- Ideal contraceptive should be :
 1. Effective
 2. Cheap
 3. Use of friendly
 4. Easy available
 5. Reversible
 6. Less side effect
 7. Should not interfere during sexual intercourse.

Types of contraceptive method

- contraceptive methods are grouped into the following method-

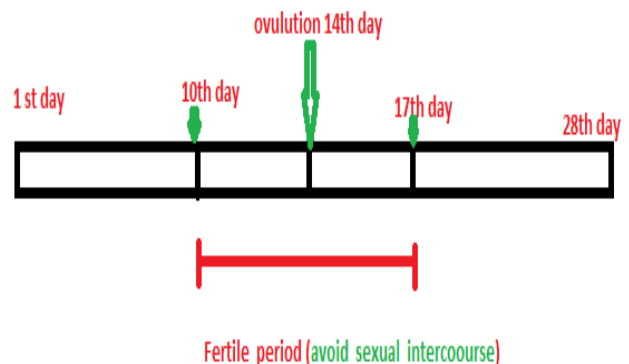
1. Natural methods
2. Barrier methods
3. Intrauterine devices (IUDs)
4. Oral contraceptives
5. Norplant (Subcutaneous Implants)
6. Depo – Provera (contraceptive injection)
7. Emergency contraceptive
8. Surgical method

Natural method

- It is based on the concept of abstaining from sex during a women's fertile period – or the period during which she is not ovulating.

1. Periodic abstinence:

- Based on the women **menstrual cycle** and involve **abstaining from sex during middle of her menstrual cycle** (i.e. day10 – 17).



2. Withdrawal or coitus interrupts:

- In this the male withdrawal the external genetelia from the vegina before ejaculation.

3. Lactational amenorrhea:

- In this method the **breast-feeding** suppresses women fertility in the early month after delivery (*i.e. up to 5-6 months*).

Barrier methods

- This method involves the use of a barrier between the sperm and egg which prevent conception.
- It available for both males and females.

1. Condom

- *Made up of latex (i.e. Plant), Prevention against STI, privacy to user*

2. Vaginal diaphragm:

- It is thin rubber dome with a springy and flexible rim which inserted into vagina and fits over the cervix.
- It holds spermicide which kills sperm and prevents fertilization.
- It should be left in place for 6-8 hours after intercourse.



Fig. 4.5 Vaginal diaphragm

- **Advantage** – comfortable, not alter menstrual cycles and does not affect future fertility.
- **Disadvantage:** offer only limited protection from sexually transmitted disease but not with HIV/AIDS., cause allergic reactions and increase risk of bladder infections.

3. Cervical cap:

- It is **latex, thimble shaped devices** that **inserted into the vegina and fits over the cervix.**
- It provides the barrier to **block sperm from entering the uterus and prevents fertilization.**
- It also should be left in place for 8 hours after intercourse.
- It used with spermicidal jellies or creams that kill sperm.

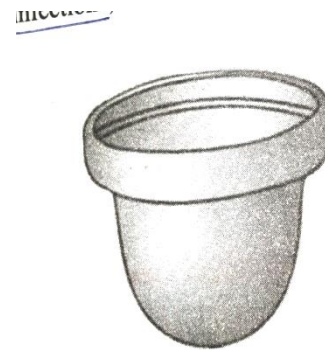


Fig. 4.6 Cervical cap

- **Advantage:** it can use before many hours, does not alter menstrual cycle and not affect future fertility.
- **Disadvantages:** provide limited protection from sexually transmitted diseases, difficult to insert and remove, can be dislodged during intercourse and can cause allergic reactions.

4. Vault cap:

- It is dome like **rubber or plastic cap with a thick rim which fit over the vaginal vault over the cervix.**
- 5. **Spermicides:**
 - It is the method brought over the counter by **killing sperm.**
 - It available in several forms: **spermicidal jelly, cream, foam, tablets, sponge and film.**
 - It is inserted into vagina just before sex to prevent pregnancy and most effective with another method of birth control.

Intra Uterine Devices (IUDs)

- It is inserted into uterus by specific techniques by expert of doctor and nurses.
- It available in three forms:

1. Non medical IUDs like lippes loop.

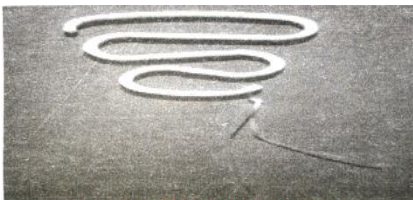


Fig. 4.8 Lippes loop

- Made-up of BeSO_4 – act as spermicidal chemical – make uterus hostile for impanation.
- 2. **Copper releasing IUDs** - contain copper which stimulate uterus and fallopian tubes by producing fluid (i.e. contain WBC, copper ion, enzyme and prostaglandins) that kill sperm.



Fig. 4.9 Copper T

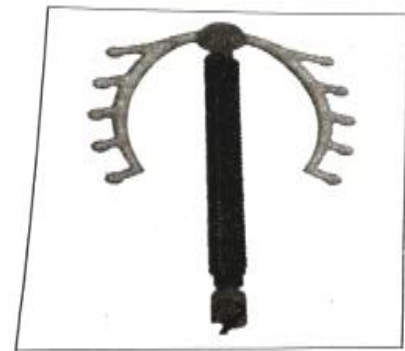


Fig. 4.10 Multiload 375

Example: CuT, Cu7 and Multiload 375.

3. Hormone- Releasing IUDs

- It is form of hormone progestin which prevents the fertilization by killing sperm and making the mucus in the cervix thick and sticky which prevent the entry of sperm into uterus.

Example: Progestasert, LNG-20 (levonorgestrel)

- **Advantage:** offer protection for many years, does not need to remember to take it regularly or before inter course.
- **Disadvantage:** it provide safeguards against pregnancy not from sexually transmitted infections, CuT cause cramps and heavier period while hormonal type change or stop menstrual cycle also cause pelvic inflammatory disease.

Oral contraceptives

- It is doses of progesterone or progesterone-estrogen combination in the form of pills which is taken orally by female.
- Contraceptive have to be taken daily for a period of 21 days starting preferably within the first five days of menstrual cycle and have to be repeated it till female desire to prevent conception.

- It inhibits the ovulation and implantation as well as alters the quality of cervical mucus to prevent or retard entry of sperms.



Example: Saheli – is a contraceptive for female containing a non steroid preparation.

- It is world first non steroidal oral contraceptive pills; develop by Central Drug Research Institute (CDRI) Lucknow.
- It does not have any side effect like nausea, vomiting, weight gain etc.

Depo provera (contraceptive injection)

- It is well known brand name for medroxyprogesterone **acetate**.
- It is contraceptive injection (i.e. contain hormone **progestin**) injected into muscles of women which **suppress the ovulation, keeping ovaries from releasing an egg and also thickens cervical mucus to avoid entry of sperm into uterus.**
- It is given at every three month.

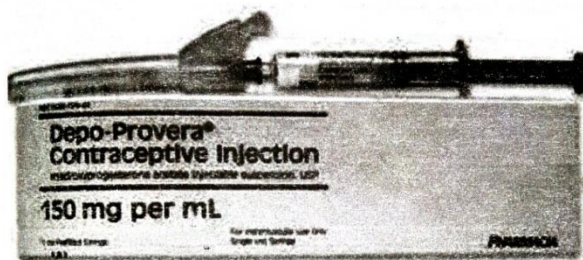


Fig. 4.14 Depo- Provera

Disadvantages:

Abnormal pain or cramping

Change in menstrual bleeding

Decrease bone mineral density

Pain or irritation at the place off injection

Unusual tiredness or weakness.

Emergency contraceptive

- It also known as the morning after pill day after pill.
- It is used after sex in case precaution was not taken earlier.
- It is taken in case of emergency and is not the substitute of any other method of contraceptive.

Surgical method

- It is also called sterilization in which pregnancy is prevented by blocking the gamete transport or by preventing the conception.
 - Sterilization procedure in male called vasectomy and in female is tubectomy.
1. **Vesectomy**
 - In this a small art of vas deferens is removed or tied up through a small incision on the scrotum.

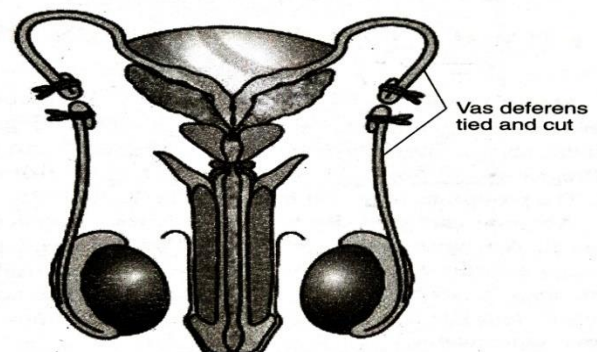


Fig. 4.15 Vasectomy

2. Tubectomy

- In this small portion of fallopian tube is removed or tied up through a small incision in the abdomen or through vagina.

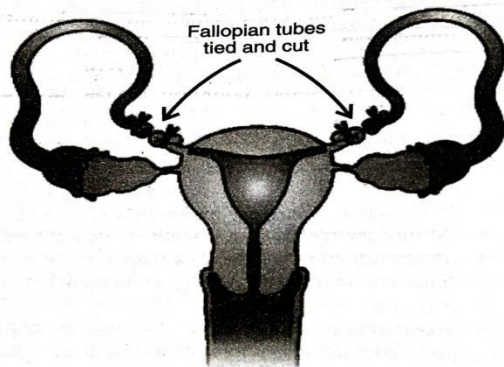


Fig. 4.16 Tubectomy

Medical Termination of Pregnancy

- It is legalized abortion in which voluntary termination of pregnancy occurs before the baby is born.
- In India it was legalized through “**Medical Termination of Pregnancy Act**” 1971 which came in force from April 1972 and revised in 1975.
- Basically two types of MTPs are occurs:

Medical Abortion:

- In this woman less than **7 week** can undergo medical abortions.
- In this process the termination of pregnancy is done by **medicines or pills** and it should be done under the supervision of physician.

Surgical Abortion:

- In this women with gestation period of more than **7 week** under go surgical abortion and can be recommended up to **11-12 weeks of pregnancy**.
- In this the patient is given *general anesthesia* and the *uterine cavity is cleaned*

by suction evacuation which followed by *sealing off the cut blood vessels inside the uterus to reduce bleeding*.

- Risk of surgical abortion include – *damage of womb or cervix, excessive bleeding, infection of uterus or fallopian tube and reaction of medicine or anesthesia*.

MTPs are considered relative safe during the 1st trimester while 2nd trimester abortion are much more risky.

Amniocentesis

- It is technique by which a small amount of amniotic fluid with drawn at early stage of foetal development.
- This technique is meant to analyze certain metabolites to detect any possible chromosomal abnormalities or metabolic disorders.
- It is often misused to determine sex of the child so as to abort the female foetus.

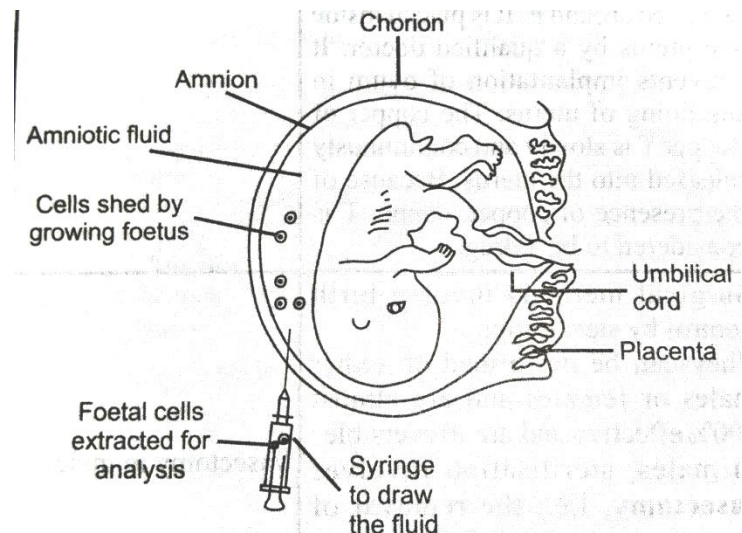


Fig. 4.4 Foetal cells shed in the amniotic fluid are analysed during amniocentesis

Sexually transmitted diseases

- Disease or infection which is transmitted through sexual intercourse is collectively called sexually transmitted diseases (STD) or venereal diseases (VD) or reproductive tract infections (RTI).

Example:

Name of STDs	Causative organism	Symptoms
Gonorrhea	<i>Neisseria gonorrhea</i>	Infect mucous membrane of the urinogenital tract. Genital discharge, painful urination
Syphilis	<i>Treponema pallidum</i>	Cause sore and lesions in the genital tract. Burning sensation at urination. Later cause sores in mouth and can be deadly if not treated. Cancer and skin eruption
Trichomoniasis	<i>Trichomonas vaginalis</i>	Vaginal irritation, itching and discharge
Genital herpes	<i>Herpes simplex virus</i>	Sores or blisters in the genital area, blister around the genitals or anus.
Chlamydiasis	<i>Chlamydia trachomatis</i>	Discharge from penis or vagina, burning sensation during urination, pain in abdomen, red sore at the tip of penis and bleeding even when not menstruating.

Hepatitis – B	<i>Hepatitis B virus</i>	Yellowing of skin, mucous membrane, white of the eye (i.e. jaundice, icterus), light colour stools and dark urine.
AIDS	<i>HIV</i>	Weight loss, regular headaches, severe diarrhoea, recurring night sweats, swelling up of lymph glands

Infertility

- Stage when couple are unable to produce children due to physical congenital, immunological, psychological and certain diseases (i.e. German measles) and drug.
1. **Male infertility:** in about 40% cases of infertility the cause is trace to the man due to -

Low sperm count, Poor sperm mobility, malformed sperm, Blocked sperm duct.

2. **Female infertility:** in another 40% cases women is diagnosed with a problem due to - Irregular ovulation, Blocked fallopian tube, Abnormality in cervix or uterus.

Assisted reproductive technology

- ART help infertile couple to achieve pregnancy by artificial or partial artificial mean.
 - In ART all infertile treatment includes which manipulate eggs and sperm.
 - Various technique of ART are :
1. **In-vitro fertilization (IVF)**

2. Gamete intra fallopian transfer (GIFT)
3. Zygote intra fallopian transfer (ZIFT)
4. Intra cytoplasmic sperm injection (ICSI)
5. Intra uterine insemination (IUI)

2. *Fertility drug or IUI have been unsuccessful.*
3. *Women fallopian tube is blocked.*

In-vitro fertilization (IVF)

- It is a technique in which the **ovum** from the **wife or donor female** and **sperm** from the **husband or donor male** are collected and induced to form **zygote** under simulated condition in the laboratory.
- After that zygote or early embryo (i.e. up to 8 blastomeres) **transfer into fallopian tube (ZIFT) or in uterine (IUI)** to complete further development.

Procedure:

1. Suppressing the natural menstrual cycle.
2. Super ovulation
3. Retrieving the egg
4. Insemination and fertilization
5. Embryo transfer

To whom and when

- IVF is ideal for the women who have not been able to become pregnant through **regular unprotected intercourse** or **after 12 cycle of artificial insemination.**
 - IVF consider as option if -
1. *You or your partner has been diagnosed with unexplained infertility.*

Gamete intra-fallopian transfer (GIFT)

- It is method in which an **ovum** is collected from a **female donor** and the **transferred to fallopian tube** of **another female** who cannot produce ovum but can be able to provide environment for fertilization and further development of the foetus.

Zygote intra-fallopian transfer (ZIFT)

- **Zygote** or early embryo up to 8 **blastomeres** are transferred into **fallopian tube** is called ZIFT.
- It combine IVF and GIFT
- It involves **retrieval of ova and semen, fertilization and growth in the laboratory upto zygote stage** which place in the fallopian tubes.

GIFT and ZIFT have higher success rates than IVF.

Home work: IUI, Surrogacy, Gestational carrier