

CLASS-XII (Biology)

CHAPTER- 04 REPRODUCTIVE HEALTH

According to WHO, reproductive health means total well-being in all aspects of reproduction i.e. physical, emotional, behavioural and social.

Reproductive Health: Problem and Strategies

India was amongst the first countries in the world to initiate the programme “family planning” initiated in 1951.

Improved programs covering wider reproduction-related areas are currently in operation under the popular name ‘**Reproductive and child health care (RCH) program.**’

Health and education of young people and marriage and child bearing during more mature stages of life are important attributes to the reproductive health of a society.

Measures taken by Government : Through the help of audio-visuals & print media. Even family members, close relations are involved in the awareness. Sex education was introduced in schools to provide awareness Proper information about reproductive organs, adolescence & related changes, safe & hygienic sexual practices, sexually transmitted diseases, AIDS etc.

Amniocentesis - It is a technique used to find out chromosomal abnormalities in developing embryo by using amniotic fluid. It is also misused to check foetal sex determination based on the chromosomal pattern in the amniotic fluid surrounding the developing embryo.

Population Explosion and Birth Control

Improved quality of life of people, increased health facilities and better living condition had an explosive impact on explosion of population. Rapid decline in death rate, MMR (maternal mortality

rate) and IMR (infant mortality rate) along with increase in population of reproductive age is the main reason for population explosion.

Steps to overcome population explosion

1. Using various contraceptive methods.
2. Educating people about the demerits of large family.
3. Increasing the marriageable age of female and male
4. Providing incentive to parents having 1 or 2 children.

Contraceptive methods are used to prevent the unwanted pregnancy and modifying the menstrual cycle.

An ideal contraceptive should be

1. User friendly
2. Easily available
3. Effective
4. Reversible
5. No side effects
6. No way interferes with sexual desire and sexual act.

Contraceptive methods could be divided into following categories

- | | |
|-----------------------------------|-------------------------------|
| a) Natural or traditional methods | d) Oral contraceptive methods |
| b) Barrier methods | e) Injectable |
| c) IUDs | f) Implants |
| | g) Surgical methods. |

Natural methods work on the principle of avoiding chances of ovum and sperm meeting.

It includes

a) Periodic abstinence- the couples avoid coitus from day 10 to 17 of menstrual cycle as chances of fertilisation are very high during this period, it is called the fertile period.

b) Withdrawal or coitus interruptus – male partner withdraws penis from vagina just before ejaculation to avoid insemination .

c) Lactational Amenorrhea – absence of menstruation after parturition and due to intense milk feeding and no ovulation in this period, chances of fertilisation is nil.

In Barrier methods, ovum and sperms are prevented from physical meeting with help of barrier. This includes

a) Condoms- used by male, barrier made of rubber or latex sheet used to cover penis or vagina and cervix of female. It also prevents from STDs. Condom for male condom for female are available.

b) Diaphragms, cervical cap and vaults are barrier made of rubber that is inserted into the female reproductive tract during coitus. Spermicidal creams, jellies and foams are usually used along with these barriers to increase their contraceptive efficiency.

Advantages of barrier methods:

1. They are disposable.
2. They can be self –inserted.
3. They are reusable.
4. Prevents conception by blocking entry of sperm through cervix.

Intra uterine Devices- inserted by doctor or trained nurse into the female uterus through vagina.

IUCDs may be

non-medicated IUDs (e.g., Lippes loop),

Copper releasing IUDs (CuT, Cu7, Multiload 375) and

Hormone releasing IUDs (Progestasert, LNG-20)

IUCDs

Increase the phagocytosis of sperm in uterus and copper reduce the motility and fertility capacity of sperms. The hormone releasing IUDs make the uterus unsuitable for implantation and the cervix hostile to the sperms. It is ideal for female who wants to delay pregnancy and spacing between two children.

Oral Pills are progesterone or progesterone-estrogen combination used by females in form of tablets. They inhibit ovulation and implantation as well as change the quality of cervical mucus to prevent/ retard entry of sperms.

Administration of progesterone or progesterone-estrogen combination within 72 hours of coitus is found to be very effective as emergency contraceptive.

Implants-

The contraceptive implant (Nexplanon) is a small flexible plastic rod that's placed under the skin in your upper arm by a doctor or nurse. It releases the hormone progestogen into your bloodstream to prevent pregnancy and lasts for 3 years.

Surgical method - This method is also called sterilisation. It is used as terminal method of contraception in male and female to prevent any more pregnancy. Vasectomy and Tubectomy

Vasectomy is the surgical method in male; a small part of the vas deferens is removed or tied up through a small incision on the scrotum to prevent release of sperms.

Tubectomy is the surgical method in females in which small part of fallopian tube is removed surgically.

These techniques are highly effective but their reversibility is very poor Side effects of contraceptive method:

- It is very important that the selection of contraceptive method should be taken under the consultation of the doctors.
- They have ill-effects like nausea, abdominal pain, breakthrough bleeding, irregular menstrual bleeding or even breast cancer.

Medical Termination of Pregnancy (MTP)

Voluntary termination of pregnancy before full term is called MTP or induced abortion. It plays important role in decreasing population by aborting unwanted pregnancy.

In India, MTP is legalized in 1971 with some restriction to prevent its misuse such as indiscriminate and illegal female foeticides. MTP is used to get rid of unwanted pregnancy due to unprotected intercourse or failure of contraceptives used during coitus or rapes.

When pregnancy continuation could be harmful or even fatal to mother or foetus. MTPs are considered relatively safe during first trimester or up to 12 weeks of pregnancy. Second trimester MTPs are much more risky.

Sexually Transmitted Disease (STDs)

Diseases or infections which are transmitted through sexual intercourse are collectively called sexually transmitted disease or venereal disease (VD) or reproductive tract infection (RTI). Some common STDs are Gonorrhoea, syphilis, genital herpes, chlamydia, genital warts, trichomoniasis, hepatitis-B and AIDS.

Hepatitis-B and HIV is also transmitted by sharing of injection needles, surgical instruments with infected person, transfusion of blood, or from infected mother to foetus. Except genital herpes, HIV and hepatitis-B are completely curable if detected earlier and treated properly. Timely detection and proper treatment of STDs are very

important otherwise it could lead to complications later, which include pelvic inflammatory diseases (PID), abortions, still births, ectopic pregnancies, infertility or even cancer of the reproductive tract.

Infections of STDs can be prevented by

- a) Avoid sex with unknown partners/multiple partners.
- b) Always use condoms during coitus.
- c) Go to a qualified doctor in case of doubt for early detection and get complete treatment if diagnosed.

Infertility

The couples which are unable to reproduce children inspite of unprotected sexual cohabitation are called infertile. The reasons for this could be many-physical, congenital, diseases, drugs, Immunological or even Psychological. Infertile couples can be assisted to have children through certain special techniques commonly called assisted reproductive technologies (ART), which include In vitro fertilisation (IVF)-fertilisation outside the body followed by embryo transfer, which is commonly called test tube baby program. The ovum from wife/donor and sperms from husband/donor are collected and induced to fertilize in laboratory conditions.

The zygote or early embryo (8 blastomeres) could be transferred into fallopian tube called **ZIFT (zygote infra fallopian transfer)** and embryo with more than 8 blastomeres **IUT (intra uterine transfer)** into the uterus to complete the further development. **GIFT (gamete intra fallopian transfer)** –transfer of gametes collected from a donor into fallopian tube of another female who do not produce ovum.

Intra cytoplasmic sperm injection (ICSI)- specialized procedure to form an embryo in laboratory in which sperm is directly injected into ovum.

Artificial insemination- infertility cases in which male partner is unable to produce healthy sperms are treated by this technique in which semen collected from donor is artificially introduced into vagina or into uterus, IUI (intra uterine insemination) of the female. All these techniques require extremely high precision handling by specialized professional and expensive instruments. . Therefore, their benefits are limited to certain countries and people. Emotional, religious and social factors also prevent the adoption of these methods.

INFERTILITY IN HUMAN: Causes &Consequences :-

IN MALES

Oligospermia: Low sperm count

Azospermia: Absence of sperm.

Asthenozoospermia: Low sperm motility.

Teratozoospermia: Defective sperm morphology.

Cryptorchidism:Failure of Testes to descend in the scrotal sac.

IN FEMALES

Anovulation: Absence of ovulation.

Oligoovulation: Deficient ovulation.

Hyperprolactinemia: Ovum remain trapped inside the follicle.

Idiopathic Infertility: Failure or abnormal fertilization.

Tubal Infertility: Damaged/ligated fallopian

IMPORTANT TERMS TO REMEMBER

AMNIOCENTESIS: Foetal test based on chromosomal pattern in amniotic fluid surrounding the developing embryo. can be used for sex determination.

LACTATIONAL AMENORIA: Absence of menstruation due to disruption of ovulation during the period of intense lactation following parturition.

INTRA UTERINE DEVICES(IUDs): A medical device of insertion of artificial barrier in the uterus through vagina for obstructing sperm entry.

STERILISATION: Surgical intervention for stopping pregnancy by blocking gamete transport pathway in male/female.

ASSISTED REPRODUCTIVE TECHNOLOGIES(ART):

Artificial technological devices to enable couples to have children when fail they to get child due to any reproductive disorder.

ARTIFICIAL INSEMINATION: Medical technological devices by which semen collected from a healthy donor is artificially introduced into the vagina or uterus of female.

ETIOLOGY:Study of causes of diseases.

EPIDEMIOLOGY:Mode of transmission of diseases.

RECANALISATION: Attachment of cut Vasa deferentia with plastic tubes during Vasectomy.

CASTRATION: Surgical removal of Testes.

POPULATION CRASH: Rapid decline in the population.

POPULATION EXPLOSION: Rapid increase in the population.

AGE COMPOSITION: Relative abundance of the organisms of different ages in the population.

IN-VITRO FERTILISATION: Artificial technique of fusion of gametes outside the body in laboratory condition, in almost similar conditions as that of the body.

INFERTILITY: Inability of a couple to produce children in spite of unprotected sexual cohabitation.