REPRODUCTIVE HEALTH

INFERTILITY

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- A large number of couples all over the world including India are infertile, i.e., they are unable to produce children in spite of unprotected sexual co-habitation. The reasons for this could be many - physial congenital, diseases, drugs, immunological or even psychological.
- In India, often the female is blamed for the couple being childless, but more often than not, the problem lies in the male partner.

Infertility in Males:

- Semen of a fertile is 2.5 to 5 ml per ejaculation with a sperm count of over 200-300 million, mostly motile, having proper fructose content and fluidity which is deposited high in the vagina.
- Any defect in sperm count, sperm structure, sperm motility of seminal fluid leads to infertility.
- Low sperm count is called oligospermia which near absence of sperms is known as azoospermia.
- Low sperm motility is called asthenozoospermia while defective sperm morphology is termed as teratozoospermia.

Various causes of infertility in males include:

- Cryptorchidism or failure of testes to descend into scrotum.
- Absence or blockage of vasa deferentia.
- Hyperthermia or higher scrotal temperature due to varicocele (varicose veins), hydrocele or filariasis, tight undergarment, thermal undergarment or working in hot environment cause oligospermia or depressed spermatogenesis.

- Infections like mumps after puberty (orchitis or inflammation of testes), bronchiectasis (cronic dilation of bronchioles) and infection of seminal vesicles or prostate result in oligospermia. Infections of Chlamydia trachomatis and T.mycoplasma (= Ureoplasma) also cause oligospermia.
- Alcoholism inhibits spermatogenesis.
- Klinefelter's syndrome.
- Gonadotropin deficiency.
- Cytotoxic drugs, radiations, antidepressant and anticonvulsant drugs supress spermatogenesis.
- Low fructose content, high prostaglandin content, high viscosity and low volume of ejaculate lead to male infertility.

Infertility in Females:

- A fertile woman is the one who regularly ovulates once every cycle, passes the egg down the reproductive tract which develops conditions for smooth passage of sperms and implantation of fertilised egg.

The various causes of infertility in females are as follows:

- Anovulation (nonovulation) and oligoovulation (deficient ovulation) are caused by deficient functioning of hypothalamo-pituitary complex or secondarily by thyroid and adrenal dysfunction.
- Indequate growth and functioning of corpus luteum resulting in reduced progesterone secretion and deficient secretory changes in endometrium. It is called luteal phase defect. It inhibits implantation.
- The ovum is not liberated but remains trapped inside the follicle due to hyperprolactinaemia.
- Fallopian tube may fail to pick up ovum, have impaired motility, loss of cilia and blocked lumen. The defects may be caused by infection or endometriosis.
- Noncanalisation of uterus.
- Defective uterine endometrium due to reduced or excessive secretory activity.

- Congenital malformation of uterus.
- Fibroid uterus.
- Defects in cervix like congenital elongation, occlusion of cervix by a polyp, cervicitis, scanty or excessive cervical mucus and presence of antisperm antibodies.
- Defective vaginal growth.
- Specialised health-care units (infertility clinics, etc.) could help in diagnosis and corrective treatment of some of these disorders and enable these couples to have children. However, where such corrections are not possible, the couples could be assisted to have children through certain special techniques commonly known as assisted reproductive technologies (ART).
- Among 15-30% of couples, infertility is a problem. Male infertility may be due to insufficient numbers of sperm and/or theiflnotility. Normally, the ejacula has a volume of 3 to 4 ml with approximately 200 to 300 million sperms of which for normal fertility, at least 60 percent sperms must have normal shape and size and for at least 40 percent of them must show vigorous motility.

(1). In vitro fertilisation (IVF-fertilisation) outside the body in almost similar conditions as that in the body followed by embryo transfer (ET) is one of such methods. In this method, popularly known as test-tube baby programme, ova from the wife/donor (female) and sperms from the husband/donor (male) are collected and are induced to form zygote under simulated conditions in the laboratory. The zygote or early embryos (with upto 8 blastomeres) could then be transferred into the fallopian tube (ZIFT-zygote intra fallopian transfer) and embryos with more than 8 blastomeres, into the uterus IUT - intra uterine transfer), to complete its further development. Embryos formed by in vivo fertilisation (fusion of gametes with in the female) also could be used for such transfer to assist those females who cannot conceive.

Note:

- The first in vitro fertilisation baby, Louis Brown, was born in England in July, 1978. During an in vitro fertilisation procedure, an egg is taken from the female, sperm is taken from male, and fertilisation occurs externally. The zygote is released into the woman's fallopian tubes, implantation then can proceed.

(2). Gamete Intra Fallopian Transfer (GIFT) involves transfer of an ovum collected from a donor into the fallopian tube of another female who cannot produce one, but can provide suitable environment for fertilisation and further development.

(3). Intra cytoplasmic sperm injection (lCSI) is another specialised procedure to form an embryo in the laboratory in which a sperm is directly injected into the ovum.

(4). Artificial insemination (AI) technique helps to correct infertility cases either due to inability of the male partner to inseminate the female or due to very low sperm counts in the ejaculates. In this technique, the semen collected either from the husband or a healthy donor is artificially introduced either into the vagina or into the uterus (IUI - intra-uterine insemination) of the female.

Limitations of methods of ART are:

- All these techniques require extremely high precision handling by specialised professionals and expensive instrumentation, therefore, these facilities are presently available only in very few centres in the country
- Their benefits is affordable to only a limited number of people.
- Emotional, religious and social factors are also deterrents in the adoption of these methods.

- Since the ultimate aim of all these procedures is to have children, in India we have so many orphaned and destitute children, who would probably not survive till maturity, unless taken care of. Our laws permit leg adoption and it is as yet, one of the best methods for couples looking for parenthood.
- The reasons for this could be many–physical, congenital, diseases, drugs, immunological or even psychological In India, often the female is blamed for the couple being childless, but more often than not, the problem lies in the male partner.
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