

## ASSISTED REPRODUCTIVE TECHNOLOGIES (ART)

Specialized health-care units, such as infertility clinics, could assist in diagnosing and treating some of these disorders, enabling couples to have children. In cases where corrections are not possible, couples can be aided in having children through assisted reproductive technologies (ART).

- 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 initial in vitro fertilization baby, Louis Brown, came into the world in England in July 1978. In this procedure, an egg is extracted from the female, sperm from the male, and fertilization takes place outside the body. The resulting zygote is then placed into the woman's fallopian tubes, allowing for implantation to occur.

- 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 (ICSI)** 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:

- These methods demand precise handling by specialized professionals and expensive equipment, making them available in only a few centers in the country.
- Their benefits are accessible to only a limited number of people due to the associated costs.
- Emotional, religious, and social factors also act as barriers to the adoption of these methods.
- Since the ultimate goal of these procedures is to have children, it's worth noting that India has many orphaned and destitute children who might not survive without proper care. Adoption, as permitted by our laws, remains one of the best options for couples seeking parenthood.
- The reasons for infertility are diverse – physical, congenital, diseases, drugs, immunological, or even psychological. In India, the blame for childlessness often falls on the female, but more frequently, the issue lies with the male partner.
- Specialized healthcare units, such as infertility clinics, can aid in diagnosing and treating some of these disorders, helping couples achieve their dream of having children.