

A Travel through IVF Revolution

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“Motherhood contemplates as a crucial part in life of women; It’s a touchstone by which the worth of women’s is dignified. So infertility calls social stigma, with growing population, infertility is considered as a major health care issue among divergent communities. The high prevalence of this issue doubled its influence.

Incidence of infertility: Indian Society of Assisted Reproduction stated that “Infertility currently affects about 10 to 14 percent of the Indian population, with higher rates in urban areas where one out of six couples is impacted. It is time we recognize it as a perilous personal and public health issue.^{1,2}”

What is infertility?: Infertility is clarified as the incapacity to conceive after reasonable time of sexual intercourse without use of contraception. Regardless of high burdened individuals and couples, who wish but are unfit to conceive and maintain a desired pregnancy, require to fulfil their needs which are not being addressed, especially in lower class resource settings worldwide. couples and individuals, who desire but are unable to achieve and maintain a desired pregnancy, have needs which are not being addressed, particularly in lower resource settings worldwide.³

The development of in vitro fertilization: (IVF) revolutionized the management of female infertility as a significant tool, however, IVF fertilization rates remained poor in the presence of compromised semen parameters.⁴ Today, in vitro fertilization (IVF) is practically a household concept, but just before, it was a perplexed approach for infertility which is invented, thereafter, its well known as "test-tube babies." Louise Brown, born in England 1978, was the first such baby began life in a test tube outside her mother's womb. By 2100, In Vitro Fertilization (IVF) might account for 3.5% of the global population. It has already produced an estimated 6 million babies.⁵

Dr Robert G. Edwards and Dr Patrick Steptoe unfastened a new era in medicine when they successfully fertilized a human egg, which grew it briefly in a petri dish and transferred it into a woman’s uterus to produce a fetus⁶. Soon after the birth of the first baby conceived through IVF, it was again Dr Edwards who observed that embryos that grow faster were more likely to result in a pregnancy. Afterwards “Controlled ovarian hyperstimulation” (COH) concepts came into existence to produce more than one egg per cycle.

Procedure of IVF: IVF is the process of fertilization by extracting eggs, retrieving a sperm sample, and then manually combining an egg and sperm in a laboratory dish. The embryo(s) is then transferred to the uterus.

Step1: Stimulation of eggs through hormone therapy: Fertility drugs are used to Stimulate the production of eggs. Normally, a woman produces one egg/month but fertility drugs allow the ovaries to generate several eggs which help in the procedure of IVF.

Step2: Retrieving the eggs from the ovaries: Egg is retrieved through a minor surgery called 'follicular aspiration' under the ultrasound imaging.

Step3: Fertilization of the eggs and sperm: The male sperm is combined together with the best quality of eggs. Eggs and sperm are then stored in an environmentally controlled chamber leading to fertilization.

Step4: Embryo culture: When the fertilized egg divides, it further develops into an embryo. Within a matter of 3-5 days, a normal embryo matures, which has several cells that are actively dividing.

Step 5: Embryo transfer: Embryos are placed into the woman's uterus 3 - 5 days after egg retrieval and fertilization. Emerging trends In Vitro Fertilization: Various embryo selection technologies have emerged within the past decade, which includes Morphological assessment of the quality of preimplantation embryos. The metabolomics techniques is helpful for pre implantation screening to determine the viability of embryo, it will be more cost effective and reduce the occurrence of pre term or premature birth.⁷ creating parents embryo with definite biogenetic disorders are one step closer to being enable healthful children via IVF, Creating three parents embryo, it's a controversial procedure that involves creating an embryo using genetic material from parents, **Expanding the freezing of eggs and sperm** to cover the cost of female employees freezing their eggs for later use.^{8,9}

Currently couples are battling with the problem of rising infertility, which can be resolve by employing new and existing technologies. However, there is emerging evidences, that IVF-conceived babies presumably at considerable risk of perinatal complications than naturally conceived babies and knowledge on long-term health effects of IVF is yet to know. Hence, all clinicians and researchers involved in the care of infertile couple must maintain a heightened awareness of these potential issues. Since IVF was pioneered by great researcher, it has helped million of people become parents and build healthy families.

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