

## Is in vitro fertilization for all or few only?

Over the last three and a half decades after the first successful *in vitro* fertilization (IVF), the technology has been rolling forward in all directions; so that a technique which was once considered the last resort to successful fertility has almost become the first choice. Why is it so? Is IVF flawless, without complications, and has the highest probability of fulfilling ones wish to correct the underlying disorder causing sub-fertility and promote natural conception appear redundant today! One would argue that it is not so; IVF has a flip side-complications, side effects, failures, and financial and emotional exhaustion are all part of it. But then, on the other hand, this technique is truly the only way to parenthood for a lot of medical conditions that cannot be rectified by developments within the scope of drugs and surgery. It is for this sector of patients who crave for a child, who are willing to forfeit the increased risk of congenital abnormality as well as maternal complications imposed by the technology in order to fulfill their dream of parenthood.

Originally, IVF was the only way out for women with blocked or irreparably damaged fallopian tubes. With the advent of intracytoplasmic sperm injection (ICSI), the indications of IVF expanded; initially to severe male factor infertility and then to couples with unexplained infertility. With the development of oocyte and embryo donation as well as surrogacy, the use of IVF could be extended to a lot more couples who would otherwise not have a chance to parent their own child. All these techniques involving use of third party for lending their gametes, embryos, or uteruses have made it possible for women with ovarian failure or premature menopause, couples with no gametes, and for women with absence of a functional uterus respectively to be able to carry a child. Becoming a gestational or true genetic mother has turned into reality for so many desperate mothers. Lately, the technology of oocyte and ovarian tissue freezing for fertility preservation before going through chemotherapy has become another turning point in the life cycle of IVF which now enables women to be able to parent their own child at a later date. Recently, the development of preimplantation genetic diagnosis (PGD) and preimplantation genetic screening (PGS) by testing one cell from “*in vitro* embryos” has further increased the possibility for couples to have disease free healthy babies.

However, after having said all this about the use and applications of this rapidly advancing technology, we also must understand that human reproduction is a very inefficient process and IVF mirrors this “wastage” at every stage. One in five cycles undertaken

yields no eggs at all, all retrieved oocytes do not fertilize, and 90% of embryos replaced do not survive. Of those that do, a few result into life-threatening ectopic pregnancies requiring urgent abortion while others miscarry. The number of peri-natal deaths is also double the rate of spontaneous conceptions partly because multiple pregnancies are more common with IVF and often result in premature delivery.

More than a failure is the iatrogenic complications of this technology. Amongst the foremost complications of IVF is the dreaded ovarian hyper-stimulation syndrome (OHSS) which is the direct effect of drugs used for ovarian stimulation and may become a real life threatening hazard. One woman in 12/cycle has mild symptoms, but two in every 100 are so ill that they need hospital admission and intensive care on account of the complications of OHSS. However, the biggest price to be paid cannot just be measured in terms of money or health risks. It is the emotional roller-coaster which goes with drugs used for treatment, egg retrieval, semen collection, embryo replacement, freezing of surplus embryos, and above all, high hopes and crushing disappointment.

At this stage with so many advances happening globally came the role of the middle man who tried to bring a third party to the intending parents. Policy makers, who could foresee and perceive the antecedent exploitation of such developments, restricted the use of third party reproduction in their jurisdiction and countries. However, a lot of developing countries gave into these newly developed technological advancements, partly because of lack of a regulatory governing body and mostly because of monetary gains. ICSI started being used for all women undergoing IVF, oocyte donation to compensate for sub optimal standards of IVF clinics, embryo donation for anyone and everyone especially for women of over 50 years of age, surrogacy for social reasons as well as for single fathers and gay couples, oocyte freezing for women wanting to delay pregnancy for personal and professional reasons, and PGD and PGS for sex selection of the unborn baby.

Out of the so many enumerated “misuses” of the technology, there are instances where law has been trying to control the health of women by limiting the age of surrogates to 35 and the age of oocyte donor also to below 35 to maximize the genetic normalcy of the unborn child. Nevertheless, there is no law to limit the age of a woman wanting to carry a child for her own self by donated oocyte or donated embryo. This presents yet another risk in that even if we were to set aside the exaggerated maternal mortality and morbidity with these older age pregnancies, we also seem to be unfairly deciding the fate of the unborn child by allowing them to be parented by couples who are aged like grandparents and are no longer capable of providing the same care a younger couple is able to provide, the way nature intended it. Who has given us the right to choose the destiny of these children? Or is this another “feather in our cap” which we very proudly advertise

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to entangle many more desperate couples into IVF who have become old wanting a child and will refuse to see any health risks associated with pregnancies at this age.

The IVF industry is powered by photographs of beautiful babies held by proud parents. Being childless is so traumatic for many that almost any cost seems worth paying. Indeed, the birth of a desperately wanted child is a priceless miracle for a couple who has otherwise given up all hope. The technology must continue to grow as it is one of the greatest advancement in the field of medicine where “life is created outside the human body”. All we need is good and strong legislation to safeguard mothers as well

as the unborn child who might get entangled in this rut of human race unknowing and unaware of the complications.

### **Abha Majumdar**

Centre of IVF and Human Reproduction,  
Sir Ganga Ram Hospital, New Delhi, India

**Address for correspondence:** Dr. Abha Majumdar,  
Centre of IVF and Human Reproduction, Sir Ganga Ram  
Hospital, New Delhi - 110 060, India.  
E-mail: abhamajumdar@hotmail.com