

## IVF: Myths and Facts

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Infertility is the inability to achieve a pregnancy in regularly cohabiting couples without using any form of contraception. Worldwide estimates show that at least 15% couples in the reproductive age group suffer from infertility, although this figure may be higher for economically poorer countries. World Health Organization declared it as a global public health issue considering the magnitude of the problem and its impact on physical and mental health of young men and women.

Socially and culturally, women have singularly borne the entire burden of infertility, since it was thought to be a women's issue. It is worth noting that men contribute equally to the problem. Male factor

plays a role in 50%, and it is the sole reason for subfertility in 30% of couples.

Treatment options for infertile couples have increased tremendously. Besides a variety of medical and surgical treatments available, assisted reproductive technology (ART) revolutionized the treatment of infertility giving hope to many a couples to have their own biological child. ART involves handling of male and female gametes outside the human body, in laboratory conditions, as in in-vitro fertilization (IVF) or test-tube baby.

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## **What is IVF?**

To understand the process of IVF, it is important to first understand the natural cycle of reproduction. In natural conditions, one egg is released every month from either ovary, which is picked up by one of the fallopian tubes. If sperms are available in the tube at the time as a result of recent sexual contact, the egg can get fertilized. The resulting embryo is then transported from the tube into the uterine cavity where it can potentially implant and grow and mature into a full term baby. The probability of a natural pregnancy resulting in a given menstrual cycle, in fertile population, is at best 20-25%. The peak fertility in women is up to 25 years of age. It then declines with advancing maternal age due to deterioration in both quantity and quality of available eggs.

In an IVF cycle, the ovaries are stimulated with hormone injections to make more than one eggs to grow in a given cycle. These are then aspirated from the ovaries using a needle inserted vaginally under ultrasound guidance. The eggs are allowed to come in contact with sperms in the incubator to allow fertilization resulting in multiple embryos. One or two embryos are generally transferred to the woman's uterus, whereas the surplus embryos are frozen and can be used for future transfers. This significantly increases the overall pregnancy rate achieved from the eggs retrieved in a given treatment cycle compared to natural cycle.

Another medical term which needs explanation is ICSI. If the semen quality is not so good, the reduced fertilization rates in IVF can be largely overcome by a procedure called ICSI (Intra Cytoplasmic Sperm Injection) wherein a sperm is injected into the egg physically. It is the only effective treatment for male subfertility.

## **Who Needs IVF?**

When Steptoe and Edwards originally developed IVF, it was targeted to women with blocked fallopian tubes, as there is no means of natural conception unless tubes can be opened surgically. The indications have now extended to almost all causes of female and male infertility. If a couple fails to achieve pregnancy after active treatment for 1-2 years, IVF should be advised if feasible, without wasting any more time. It may be considered earlier in women with advance age, as delaying too long may mean drastic fall in fertility which affects IVF success rates proportionately.

## **Myths About IVF**

There are a number of myths surrounding IVF treatment which are generated from ignorance and obtaining information from unreliable sources. These instill fear and insecurity and deter many couples from taking advantage of a very promising treatment. Some common misconceptions are clarified as follows:

## **IVF is Unnatural**

IVF does require eggs and sperm to fuse outside the body in a laboratory. However, the egg and sperms are natural, and the process of fertilization and growth is also natural. An environment is created to mimic conditions inside the body, but there is no way the process itself can be controlled. The pregnancy and the baby are as natural as a spontaneously conceived pregnancy. But just as a natural pregnancy may end in a miscarriage or have other complications, the same applies to an IVF pregnancies as well. Not every IVF pregnancy means taking home a baby.

## **It is the Last Resort in Fertility Treatment**

Many people think that IVF must be done when all other options have been exhausted. On the contrary, IVF should be done at a younger age when it is more likely to be successful. IVF does not close the door for other treatments. If IVF is unsuccessful, other treatment options can still be pursued.

## **It is a Very Painful Procedure**

IVF involves stimulation of ovaries to make more eggs grow than in a natural cycle as explained before. This generally requires hormone injections for about 10 days. These can be given subcutaneously, which a patient can be taught to self-inject. The technique is similar to insulin injections many diabetics take 2-3 times a day before meals. Or they can be injected intramuscular as other regular injections, if patient prefers.

The only procedure which can cause pain is egg retrieval. It is therefore done under sedation or short anaesthesia so that patient experiences no pain during this procedure.

## **IVF Means Disruption of Normal Routine**

Patient has to come 3-4 times for ultrasound and blood test during the ovarian stimulation phase, but the time of the visit can be tailored to her schedule. It does not require giving up one's job or taking leave for the entire treatment period. The only day offs from work required are on the day of egg retrieval and embryo transfer.

## **IVF Means Resting for the Entire Duration of Pregnancy**

It is not true and completely based on local social and cultural beliefs. We see an increasingly sedentary lifestyle, particularly in the urban middle and upper class who can afford help at home. Since only one or two pregnancies are planned by this class, there is an over-emphasis on care during pregnancy, which translates into reduced physical activity. When the pregnancy has been achieved at a premium as in IVF pregnancies, this concern becomes overwhelming, forcing women to become even more sedentary.

There is no scientific data to support that excessive rest during pregnancy is of any benefit or improves pregnancy outcomes. Rather women who remain active throughout pregnancy have less antepartum and intrapartum complications, unless there is a specific complication necessitating rest. IVF pregnancies therefore do not require more rest than naturally conceived pregnancies.

### **Injections Used in IVF May Have Serious Side Effects**

Hormone injections given during IVF contain the same hormones which are produced in the body. In a natural cycle, the amount of hormone produced by the body is just enough to support the growth of one egg. Since IVF requires multi-follicular growth to retrieve a greater number of eggs, a higher dose of hormones is required. As a result, the hormone levels in the body are significantly higher than in natural cycles. This may result in side effects like headache, abdominal bloating, nausea, fatigue in some women. However, these are temporary and abate in a few days after stopping the injections. Women with polycystic ovaries tend to have a higher risk of side effects because of increased chance of hyperstimulation even with smaller dose of hormones.

There have been concerns of a long-term increased risk of ovarian cancer in women using fertility drugs. There is however no data to support this speculation.

### **Does IVF Cause Premature Menopause?**

Some women are worried whether retrieving more eggs in IVF will exhaust the ovaries sooner and cause premature menopause. This is false, because the number of eggs recruited in each cycle are the same in natural and IVF cycle, and they degenerate anyway if not retrieved.

### **It is A Very Expensive Treatment**

Well, the last but not the least of the concerns of couples and families is the financial burden of IVF treatment. It is indeed more costly than other medical treatments, since the hormone injections are expensive, and the cost of maintaining a good embryology laboratory is significant. Nevertheless, when the time taken to achieve a pregnancy is taken into consideration, the cost of IVF evens out because pregnancy is achieved in a much shorter time with IVF. The cumulative cost of other medical and surgical treatments stretched over a longer time period not only work out to be similar, and sometimes even more than IVF. Besides, there is a huge psychological impact on the couple as the anxiety and distress multiplies as the time taken to conception increases.

To conclude, IVF is a significant advancement in infertility treatment. Although every infertile couple does not need IVF, when indicated, it should not be delayed too long. Remember, pregnancy rates in IVF also decline with age, therefore it should be undertaken while it gives a good chance of conception.