



What you need to know about IVF/ICSI-ET?

The following information explains briefly the procedures of In Vitro Fertilisation (IVF/ICSI). This will give you an understanding of the treatment and an outline of methods we will use. We will be happy to discuss any questions you may have about the treatments.

What is IVF?

IVF is the technique of mixing the women's eggs (ova) with sperm from her partner in a small dish or test-tube in the laboratory to allow fertilisation to occur. Once the ova are fertilised, two or more fertilised eggs (pre-embryos) or developing embryos are replaced into the woman's womb through the cervix.

Who needs IVF?

Many types of subfertility can be helped with IVF. However, the chances of pregnancy are very variable and depend on the cause of your difficulty. When you are seen at the clinic we will discuss the most suitable type of treatment for you and give you an estimate of your chances of becoming pregnant

What does IVF involve? The precise details of your treatment will be sent separately and below is a short outline of the steps involved in IVF these include

- Stimulation of the ovaries
- Monitoring of egg development
- Egg collection
- Sperm preparation
- Fertilisation
- Embryo replacement
- Pregnancy test and scan

Stimulation of the ovaries

In a natural menstrual cycle, a woman produces only one egg, but in order to increase the chances of pregnancy in IVF it is desirable to stimulate the ovary to produce several eggs. This is done by giving you medication as an injection on your skin for about 3 weeks to control your natural cycle (down regulation) then additional injections are given for about 12 days (stimulation) to make the eggs grow.**(LONG PROTOCOL)**

Some times we go straight to stimulation phase and prevent ovulation with an antagonist cetrorelix.**(THE ANTAGONIST PROTOCOL).**



This is offered where there is diminished ovarian reserve or PCOS.

The eggs need to be exactly "ripe or mature" at the time of their collection and so their development must be carefully monitored (**repeated scans**). The drug treatment varies slightly to suit your circumstances but this will be fully discussed with you beforehand and as we progress.

Monitoring of egg development

Development of the eggs is monitored by the size and number of egg follicles growing in the ovary via ultrasound scanning. The scan is obtained by passing a small transducer (probe) into the vagina and a clear picture of the ovaries can then be seen on a television screen. At least three eggs must be growing before we can proceed to egg collection. Sometimes treatment will therefore fail at this stage. If the stimulation treatment has been successful, the eggs will be ripe at the right time and a final, different injection will be given to complete the ripening. Egg collection will be planned for about 36 hours after this injection. On rare occasions a complication of this treatment can occur (Hyperstimulation Syndrome). The ovaries may become large and painful and if severe, admission to hospital may be necessary.

Egg collection

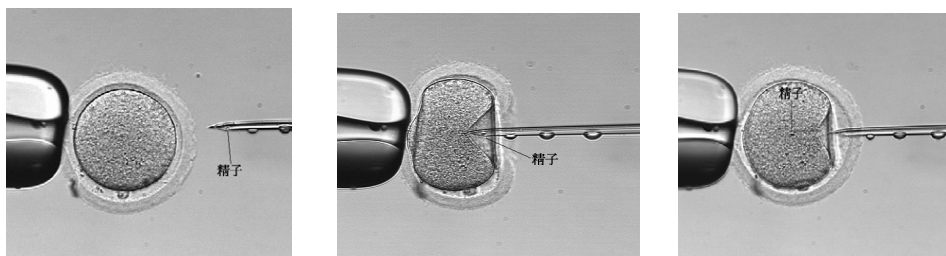
Eggs are collected from the ovary by suction through a fine needle. This needle is inserted into the ovary through the vagina using the ultrasound picture as a guide. A mild short acting general anaesthetic is used and you can go home a few hours later. We hope to obtain at least 3 eggs but usually larger numbers are obtained.

Sperm preparation

A fresh sperm sample is needed for IVF so that the sperm are of good quality. The sperm are specially prepared so that only the best, cleaned sperm are put with the eggs or injected into them.

Fertilisation

After collection the eggs will be put into the incubator for a short time. A relatively small number of sperm are then added to each egg or one injected into each intracytoplasmic sperm injection, ICSI.



Steps of ICSI: Intracytoplasmic sperm injection



They will then be kept in the incubator for about 2 days. They are looked at daily and we will keep in touch with you by telephone and advise when to attend for embryo replacement.

Embryo Transfer or replacement

An opportunity to discuss how many embryos should be replaced will already have taken place. The chances of pregnancy increases with the number of embryos replaced, but so does the risk of multiple pregnancy. There is an increased chance of losing one or all of the babies in a multiple pregnancy and we are therefore anxious to avoid this complication. We usually don't replace more than 3 embryos. The procedure for replacement of the embryos is virtually painless and is little more than an internal examination. You will need to lie down afterwards for a short while and then you can return to normal (but not too strenuous) activity.

Cryopreservation

Sometimes there are more embryos available than we can replace. In a few circumstances, it may be possible to consider freezing and storing embryos at an additional cost. This will be elaborated upon if the situation arises.

Pregnancy outcome

After IVF further pessaries may be needed to support the lining of the womb. We will see you about 2 weeks after egg collection; a pregnancy test will be done. If this is positive, **(35% of all cases)** a scan will be performed 5 weeks after egg collection to confirm that it is a good pregnancy and that a baby is growing. Many babies have now been born who were conceived after IVF during the past 21 years. Miscarriages can occur in any pregnancy but there is also no increased or decreased risk after IVF/ICSI. There is a small (7%) chance that the pregnancy may stick in the tube (ectopic pregnancy). If this occurs an operation is required to remove the pregnancy and possibly the tube as well. We see everyone who becomes pregnant regularly at the hospital until we are sure that the pregnancy is growing normally.

Disappointments

Clearly these methods of treatment are complicated and stressful and they may fail at any stage. Sometimes we can explain why it has failed but often it is for reasons which we don't understand. If you are not successful we will arrange for you both to come back to the hospital to discuss what happened in detail. If you have any further questions about these treatments, please feel free to ask the Doctor or other members of the unit. You will be asked to attend for a further counselling/information session at the Fertility Centre before treatment begins which will give you both an opportunity to discuss any problems.

We wish you the best.



ADDITIONAL PATIENT INFORMATION FOR IVF/ICSI-ET

The IVF/ICSI procedure consists of several steps that take place over a period of weeks:

- Education of the couple about the complex steps involved in IVF, its risks and benefits, and techniques for giving injections at home.
- Stimulation of the ovaries to produce several eggs
- Retrieval of the eggs from the ovaries and obtaining a semen sample
- Fertilization of the eggs with sperm and growth of the embryos in the laboratory
- Transfer of one or more embryos into the uterus

Ovarian stimulation — The first step of the IVF procedure involves the use of fertility medications to increase the number of eggs (follicles) that develop in the ovaries and control the time of ovulation. The stimulation regimen is selected based upon the woman's diagnosis and the physician's preferences.

- After a few days of injections, you will be asked to have a pelvic ultrasound to measure follicle growth. Depending on the findings the dose of FSH may be increased or decreased. Pelvic ultrasound scans may be repeated several times during a cycle.
- The goal of stimulation is to have at least three follicles that are approximately 17 to 18 mm in size. When blood testing and ultrasound measurements show that the follicles are "ready", you will be instructed to give an injection of hCG to trigger ovulation. hCG stands for human chorionic gonadotropin, This allows the follicles to be ready for egg retrieval during a window of time, approximately 36 hours later.

Side effects of treatment — FSH injections do not cause side effects directly. However, the ovaries become enlarged during treatment, which can cause abdominal swelling and discomfort, and in more severe cases, nausea or even vomiting.

Ovarian hyperstimulation syndrome (OHSS) is a condition in which the side effects of ovarian enlargement and abdominal swelling become extreme. The woman may develop severe abdominal pain, vomiting, and if untreated, blood clots in the legs or lungs and fluid imbalances in the blood. Mild forms of OHSS occur in 2 to 6 percent of women undergoing ovulation induction for IVF. Severe cases of OHSS occur in approximately 1 percent of cases.

The risk of OHSS can be reduced by canceling the IVF cycle when there are too many follicles seen on ultrasound. The IVF cycle may be cancelled before hCG is given or after the oocyte retrieval. If the cycle is cancelled after oocytes are retrieved, they are often fertilized and cryopreserved for use in a subsequent cycle.



Egg retrieval — Approximately 32 to 36 hours after injecting hCG, a procedure is performed to retrieve the eggs. The physician inserts an ultrasound probe into the vagina and then uses a needle to withdraw the egg from each follicle. The procedure takes approximately 15 to 20 minutes, depending upon how many follicles are present. This is generally done while the woman is sedated. Serious complications of oocyte retrieval are uncommon, but side effects such as pelvic cramping, light bleeding, and vaginal discharge often occur. If these problems are persistent or become severe, it is important to call us as soon as possible. Abdominal swelling and discomfort may also be signs of early ovarian hyperstimulation syndrome (OHSS)

Fertilization — After the retrieval procedure, the eggs are injected with sperm in a laboratory dish so they will fertilize. In general, approximately 80 percent of oocytes become fertilized.

In cases of severe male factor infertility, fertilization is achieved by intracytoplasmic sperm injection (ICSI). ICSI is an option for all men with severe male factor infertility, regardless of their sperm count. Only mature oocytes can be injected. Fertilization rates with ICSI range from 50 to 80 percent

Embryo transfer — Approximately two days after the retrieval, two or three eggs that have been fertilized (embryos) are placed in the woman's uterus using a thin, flexible catheter inserted through the cervix. Most commonly, embryo transfer is performed on day 2 after egg retrieval. The catheter is inserted as gently as possible to minimize uterine cramping; traumatic transfer procedures are associated with lower success rates. Anaesthesia is not usually needed for this procedure. It is also performed under ultrasound guidance to ensure optimal placement of the embryos, usually mid cavity, which is associated with the most successful outcomes

Following the transfer procedure, the woman is generally encouraged to rest at home for several hours. Although studies do not show that rest increases the chance of pregnancy, many women prefer not to resume their normal activities immediately.

Luteal support -We prescribe a progesterone medication to improve the chances that the embryo will implant inside the uterus. This medication is started on the day of retrieval. There are several ways to administer progesterone, we advise the vaginal route which has been shown to be the most efficacious



How many embryos to transfer? — The number of embryos transferred depends upon the woman or couple's preferences, the previous history of pregnancy and miscarriage, the woman's age, and the quality of the embryos. Younger women (under age 35) in their first cycle of IVF are often encouraged to have only one or two embryos transferred. If multiple attempts of IVF are not successful in achieving pregnancy, a physician may recommend transferring more than two or three embryos to increase the chances of pregnancy. However, this may also increase the risk of multiple gestation (twins, triplets).

The rate of implantation is lower among women over age 40 years; as a result, more embryos (eg, up to five) are often transferred in these women. However, older women who are receiving eggs from younger donors (eg, donor eggs) have a rate of implantation similar to that of younger women, and are generally advised to transfer no more than one or two at most three embryos.

