

12.3.5.1 IN VITRO FERTILISATION

In Vitro Fertilisation (IVF) is the process where eggs are taken from the woman's body, fertilised in a laboratory with sperm and incubated after which time one or two of the resulting embryos are replaced into the woman's body.

The basic stages involved in the IVF procedure are detailed below, but because everyone is different these stages may differ in your particular treatment cycle. Some stages may be added or not included in your treatment. This sheet is designed to be an overview and lists the options that are available. You should discuss your treatment with the Co-ordinating sister.

The IVF treatment involves five main stages:

- a) Growth and maturation of several eggs
- b) Exact timing of the collection of these eggs
- c) The collection of the eggs
- d) Fertilisation of the eggs invitro.
- e) The transfer of the embryo back into the woman.

MEDICATION

Fertility drugs are used to stimulate the ovaries to develop a number of eggs in the IVF cycle. In the normal cycle usually only one egg is produced. It is thought that the pregnancy rates in IVF are better if a number of eggs can be collected.

The drugs used to stimulate egg production may be Clomiphene Citrate (Clomid), Serophene, Puregon or Gonal F.

Lucrin, Synarel or Orgalutran can be used to suppress the natural cycle & ovulation therefore allowing a controlled cycle.

Clomid, if used, is taken for 5 days with follicle stimulating injections starting some time during the Clomid course and continuing through until approx 48 hours before egg pick-up.

Most patients will have Lucrin or Synarel followed by Gonal-F or Puregon injections and no Clomid tablets. Individual instructions will be given to you.

Currently Puregon and Gonal F are supplied FREE of charge from the Commonwealth Department of Health.

Some patients may be treated with follicle stimulating hormone preparations only.

Please discuss the cost of Lucrin/Synarel/Orgalutran before commencing using these medications.

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MONITORING EGG DEVELOPMENT

The eggs (or Ova) develop in follicles, which are like little cysts or bags containing fluid. These follicles produce increasing amounts of oestradiol (an oestrogen hormone) as they grow. The size of the follicles can be measured by ultrasound, although the eggs themselves are much too small to see.

BLOOD TESTS

Blood is taken at intervals from about day 8 of the cycle to measure oestradiol levels. This has to be done between 7.30am and 9.00am so that the results are available the same day. This can be done at the main Concept Fertility Centre in Subiaco or at one of the St John of God Pathology collection centres. Closer to ovulation, further blood tests may be required outside of office hours ie. anytime between 5pm and 8am and these will be taken by staff at the Emergency Centre of King Edward Memorial Hospital.

ULTRASOUND EXAMINATIONS

Patients will have ultrasound examinations to measure the size, number and development of follicles growing. Ultrasounds are performed vaginally and no full bladder is needed. Sound waves are used to produce pictures of the growing follicles, so that they may be counted and measured. The number of eggs collected may differ from the number of follicles seen on ultrasound. These scans are done at Concept Fertility Centre between 0800am and 0830am.

ADMISSION TO HOSPITAL

Admission will be arranged at the Hospital prior to egg pick-up. You are to remain in hospital for about 2-4 hours after your operation.

TIMING OF OVUM ASPIRATION

This will be undertaken by an ultrasound guided pick-up about 36 hours after the HCG trigger injection (see below). The oestradiol levels (from the blood tests) and the number and the size of the follicles (from the ultrasound) are used together to assess the maturity of the eggs and the right time for egg collection. There is no "correct" oestradiol level to reach and there is enormous variation between patients. It is the whole pattern of blood and ultrasound results which determine whether the response to treatment is good. In general, however, it is important that the oestradiol level rises steadily until the eggs are collected. It is very important to realise that a wide range of individual treatments are used in the programme. Please do not be alarmed if your treatment is different from someone else's. The aim is to design the best individual protocol for you.

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For patients who do not have Lucrin / Synarel / or Orgalutran, LH, the hormone which normally triggers ovulation may be present. If the LH is detected, ovum pickup must be timed according to the results of the blood tests. If the start of LH production occurs before admission to hospital, further blood tests may determine the correct time for the operation.

If the appropriate LH rise is detected in the blood tests, the operation will be performed some 36 hours after the start of the rise, depending on the level of oestrogen and the number of follicles.

HCG INJECTIONS (TRIGGER)

HCG (human chorionic gonadotrophin) is a hormone which performs the function of LH, triggering the final maturation of the eggs and ovulation. This is given by injection 34-36 hours before the operation is planned, unless natural LH production has started.

OVUM PICK-UP (EGG COLLECTION)

This is most commonly done using a vaginal ultrasound probe under a light anaesthetic, although intravenous sedation can be used as an alternative, depending on the patient's preference. In certain circumstances the collection may be done laparoscopically, in which case a general anaesthetic is used. The follicles are visualised, and the fluid inside them is sucked through a needle and tubing into a test tube. The tube is passed immediately to the embryologist who looks for the egg under the microscope. The eggs are then put in the incubator. Most patients are sleepy, and some are nauseated for a few hours after the operation. You can be discharged 2-4 hours after the operation. When possible, your own gynaecologist will perform the egg collection, but because of other commitments this is not always possible.

SPERM COLLECTION

We will inform you of the approximate sperm collection time once the ovum pick-up time has been arranged. It will be approximately 1-8 hours after the operation. Three days abstinence from intercourse will be necessary prior to ovum pick-up. Your partner must contact Concept Fertility Centre after ovum aspiration to find out what time he is needed. The sperm sample is produced by masturbation at the Centre or by other means by arrangement. There is a room for this purpose. You are asked to wash your hands beforehand to minimise the chance of contamination. Lubricants are NOT to be used.

It can be very difficult for some to produce a sperm sample on request under these conditions. If you are worried about this aspect of the programme, please discuss it with us at or before the start of the treatment cycle, so that arrangements can be made to freeze some semen if necessary - freezing must be done at least a week before egg collection. Sexual activity may be continued as usual until three days before the time of the wife's egg collection. Abstaining from then on is important to allow the sperm to reach optimum quality.

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EVENTS IN THE LABORATORY

The sperm sample is prepared and put with the eggs (insemination), shortly after collection. Some patients may have their eggs matured for up to 24 hours before being inseminated. The eggs are kept in culture dishes in an incubator until next inspected 12-18 hours later.

At this time they are checked under the microscope to determine whether fertilisation has occurred. At about 36-48 hours after fertilisation, the embryos will be transferred to the uterus.

EMBRYO REPLACEMENT

We will inform you of progress daily. Transfer usually takes place around 2 days after pick-up. No more than 1-2 embryos will be replaced because of the risk of multiple pregnancies. Usually no anaesthetic is required and the procedure takes approximately 15 minutes. After transfer you will be confined to bed rest for ½ hour and then allowed up to sit in a chair. You will be required to stay in hospital for approximately two (2) hours from your admission time.

SURPLUS EGGS

Some patients will have more than two or three ova retrieved. Patients will be asked what they would prefer done with excess ova. One option available is to attempt to inseminate the excess eggs and freeze all embryos suitable for transfer in a later cycle, should pregnancy not occur initially. Your other option is to allow your extra eggs to succumb.

Embryos which are no longer wanted can be donated or destroyed. They can remain in storage for a maximum of 10 years with possible extensions of time if approval is granted by the RTC in exceptional circumstances.

DISCHARGE FROM HOSPITAL

You will be discharged about two (2) hours from your admission time. You are then requested to lead a normal life, and if possible, avoid strenuous work or activities until the pregnancy has been diagnosed. It is important that there is no sexual intercourse for four (4) days after the egg collection.

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PREGNANCY BLOOD TEST

To maintain your progesterone level either pessaries or injections may be required. You will be given instructions after your operation regarding your blood test(s) and medications. Other blood tests, specific to your cycle which are ordered by your doctor will also be on your post operative instruction sheet. Menstruation does not necessarily mean that a pregnancy is not developing. You must continue blood tests until a final outcome is known.

The blood test taken approximately two weeks after your egg collection will detect whether the pregnancy hormone (HCG) is present and check your blood progesterone level. If the pregnancy hormone is detected it is too early to know whether there is a healthy continuing pregnancy. Further blood tests and an ultrasound examination are needed.

Unfortunately IVF like natural conception, can lead to a biochemical pregnancy (transient rise in pregnancy hormone followed by a late period): miscarriage (needing curettage): or ectopic (tubal) pregnancy (requiring surgery), as well as the happier outcomes: so that even a positive blood test is not the end of the waiting.

Multiple pregnancy (twins or triplets) are more common with IVF than with natural conception if 2 embryos are replaced. A single pregnancy is safest for both the mother and the baby. The number of embryos to be replaced should be discussed at each treatment with your doctor.

FURTHER STEPS

All patients are asked to notify us of their next period whether or not ovum pick-up and/or embryo transfer is performed. This information helps us plan future management.

REPEAT IN-VITRO FERTILISATION ATTEMPTS

If pregnancy is not achieved then a repeat attempt can be made approximately 1-3 months later, depending on findings at the most recent treatment cycle. Make an appointment to see your gynaecologist after your period.

PATIENT COOPERATION

Your cooperation in all aspects mentioned is vital to the success and smooth running of the programme. Please do not lose this information leaflet - it has been provided for instant reference. Further enquires regarding management are best directed through the Co-Ordinator.