Frozen Embryo Transfer

Any surplus embryos in a fresh IVF or ICSI cycle may be frozen if they are of good quality. If the fresh cycle is not successful the frozen embryos can be thawed and used to try again. Alternatively, if the fresh cycle is successful, the frozen embryos can be used in future for attempting to have siblings.

Frozen embryo transfer, or frozen embryo replacement, has now been performed for many years and has resulted in successful delivery of several thousand healthy babies. There is no data to indicate any increased risk of abnormalities due to the freezing and thawing process. In fact, studies have shown that there is less risk of bleeding during pregnancy, lower chance of a baby being born underweight, less risk of a baby being born premature and less risk of death when frozen embryos compared to using fresh embryos. (Maheshwari et al., review, Aberdeen University, 2012) In fact, there is an increasing belief that in certain conditions one should freeze all embryos in an IVF or ICSI cycle and transfer them at a later date (based on embryos frozen by the vitrification method and not slow freezing).

The frozen embryo transfer (FET or FER) is very simple compared to a fresh IVF or ICSI cycle because it does not involve any stimulation of the ovaries, an egg collection or fertilisation. Thawed embryos may be replaced during a natural cycle, without any medications, or in a hormone controlled cycle, in which medications are used to control the hormones. Your consultant will advise you as to which option is suitable for you based on your medical history and age.

The actual embryo transfer Is identical to the one performed in a fresh IVF or ICSI cycle, except that the embryos will first be thawed in our laboratory at the appropriate time ahead of the procedure. The embryo transfer will be performed under ultrasound guidance and there is no requirement for anaesthesia.

## Natural cycle FET

It is important that frozen embryos are transferred at the correct time in a natural cycle. You will be closely monitored using ultrasound scans and advised to use Luteinising Hormone (LH) urine test kits in order confirm a normal ovulatory cycle. Once ovulation has occurred, the frozen embryos will be thawed and transferred into your uterus on the appropriate day.

## Medication controlled FET

If you are having an FET as part of a hormone controlled cycle, you will start medications to suppress or down regulate your natural hormones typically from day 21 (of a regular 28 day cycle). You will be asked to call the clinic on the first day of your period and arrange for an ultrasound scan on day 5, 6 or 7 to check if the hormonal suppression has been effective. If the scan is good then you will start medications (Oestradiol valerate tablets – Climaval) to prepare the lining of your womb (the endometrium). The development of the endometrium will be monitored using ultrasound scans (typically two). If the endometrium is not thick enough, you may also be asked to start Oesterogen patches. The embryo transfer will be arranged once the endometrium is thick enough. At this stage you will be asked to start Progesterone supplementation (in the form of pessaries or injection) for luteal phase support. You will continue the Oestrogen medications but will stop any down regulation medications.

## Screening tests

If you are planning to undergo an FET cycle, you and your partner (this is required for welfare of the child purposes) must have up to date screening test results for HIV, Hepatitis B surface antigen, Hepatitis B core antibody, Hepatitis C, Chlamydia and Gonorrhoea. You may be required to have further tests if you have visited certain countries recently or of a certain ethnic origin.

## Laser assisted hatching

During the freezing process, the shell (or outer protective layer) of embryos can become hard. Laser assisted hatching involves making a hole in the outer layer of an embryo to help the hatching process and may help to improve the embryo implantation rate. Assisted hatching is performed immediately prior to the embryo transfer.

## Endometrial preparation

In order to increase the probability of implantation a relatively new process called an endometrial scratch and saline hysterogram is offer to our patients undergoing an FET cycle. Recent research suggests that gently ‘scratching’ the endometrium causes the uterus to start a ‘repair reaction’, which may increase the probability of embryo implantation. At the same time the uterine cavity is washed with saline to provide a clean surface for embryo implantation. This procedure is performed 7 to 10 days before your period begins (i.e. at the time of down regulation in a hormone controlled FET cycle).

## Post embryo transfer

The luteal phase is the latter phase of a woman’s cycle during which pregnancy can occur. The hormone progesterone is significantly higher during the luteal phase than other phases of the cycle. The high levels of progesterone during the luteal phase have been shown to be required for successful pregnancy. (Practice Committee of ASRM, Fert. Stert., November 2008). Therefore as a part of all frozen embryo transfer cycles we will measure a your progesterone level around the time of embryo transfer. If the level is satisfactory, you will be asked to continue the luteal phase support medications you are on. If the level is low, you will be asked to start additional medications as required.

The pregnancy test is performed 10 days after embryo transfer. If the test is positive, we will arrange your seven-week early pregnancy scan. If the result is negative, we will try to help you understand why during a follow-up consultation and discuss the possible next steps. You may also wish to see a counsellor at this time.

### FET Checklist:

* Arrange appointment with nurse to complete consent forms and check validity of screening tests
* Arrange endometrial preparation if advised
* Arrange medications as advised
* Call clinic on day 1 of period
* Attend monitoring scan appointments
* Take medication as prescribed
* Arrange pregnancy test 10 days after FET