

## **FROZEN EMBRYO TRANSFER**

### **What is frozen embryo transfer?**

This is a procedure whereby embryos (fertilised eggs) obtained from a previous stimulated In-Vitro Fertilisation (IVF) and/or Intra-Cytoplasmic Sperm Injection (ICSI) cycle and subsequently frozen, are thawed and transferred back into the woman's womb.

### **Why do I need this procedure?**

The aim of the procedure is to place the previously frozen IVF or ICSI embryo(s) into the uterus of the woman with the intention of achieving pregnancy. The pregnancy rate in a frozen embryo transfer cycle is about 20-30%.

### **What does it involve?**

1. The embryos may be transferred into the woman's uterus during a natural or regulated / artificial thaw cycle.
  - Natural cycle / Ovulation induction cycle

If the woman's menstrual cycle is regular, then her cycle will be monitored using transvaginal ultrasound scans or blood tests to predict ovulation (natural cycle) and to estimate the most suitable time for embryo transfer. Sometimes, oral medication may be given to induce ovulation (ovulation induction cycle) for patients with irregular menstrual cycle to stimulate a "natural" cycle. However, due to biological variation, cycles may not occur as anticipated and the initially planned transfer may sometimes be cancelled if it is determined that ovulation will not occur in that particular cycle or was missed. Under these circumstances, it will be proposed that the transfer be performed during another natural cycle, or a regulated cycle may be proposed.
  - Regulated/Artificial thaw cycle

Your menstrual cycle is regulated by administering hormonal treatment (oral medications and sometimes injections) to prepare the womb lining to receive the embryo/s. The uterus will be monitored using transvaginal ultrasound scans. Sometimes, dose adjustments may be necessary.

If you conceive with this cycle, you will be required to continue your oral hormonal medication for 8 to 12 weeks to produce sufficient hormone to support the pregnancy.
2. On the day of the embryo transfer, the woman may be asked to keep some urine in her bladder to facilitate visualisation with the ultrasound scan. The thawed embryo(s) will be placed into a catheter which will be passed through the cervical canal leading into the uterine cavity. Once the tip of the catheter is inside the cavity, a syringe attached to the end of the catheter is used to deposit the embryos into the cavity. The Singapore Ministry of Health permits a maximum of 2 embryos to be transferred at any one time. Rarely, under special circumstances, 3 embryos may be transferred (e.g. in women at least 37 years of age with poor quality embryos or previous failed IVF cycle).
3. Some women may experience some lower abdominal discomfort and/or mild vaginal bleeding.

### **What precautions must I take for the procedure?**

Please inform your doctor if you have any medical illnesses. Before the procedure, please inform your doctor if any of the following are applicable:

1. You have a history of allergy or reaction to any medications, drugs, or food.
2. You have a history of bleeding or clotting disorders.
3. You are taking drugs (e.g. Aspirin, Clopidogrel, Warfarin, and Rivaroxaban) or supplements (e.g. Cordyceps, Ginkgo Biloba, and Lingzhi), that thin your blood, as these substances may affect blood clotting and increase the risk of bleeding. If you are taking any of these, your doctor will advise you accordingly.

### **What are the risks and complications of the procedure?**

Some of the possible risks of the frozen embryo transfer are listed as follows:

1. Risks of Oestrogen related medication used during Regulated/Artificial thaw cycle  
If Oestrogen related medication is used, there may be minor side effects such as nausea or headache. Rarely, more serious potential complications such as thrombosis (blood clot) may occur but the risk is lower than in pregnancy.
2. Failure to stimulate ovulation  
For patients who receive hormonal injections or oral medications to stimulate ovulation, ovulation may sometimes still fail to occur, and this course of treatment may subsequently have to be abandoned.
3. Failure of the embryo/s to survive thawing process
4. Failure or difficulty in transferring of the embryos  
Embryo transfer could sometimes be difficult or unsuccessful due to anatomical variations. This may require the patient to wait for a fuller bladder, or the doctor to use a stiffer catheter and/or require the doctor to use a tenaculum (instrument to hold the cervix). Failure to transfer the embryos is extremely rare. Sometimes you may require sedation.
5. Infection  
Infection may necessitate hospitalisation, treatment with antibiotics, and rarely, surgery. This may complicate your reproductive treatment and lower the chances of successful conception.
6. Perforation of the uterine wall  
This could occur during the introduction of the catheter when transferring the embryo(s). This may be treated conservatively and hardly ever require correction by surgery.
7. Failure of embryo implantation  
Embryo may fail to implant and accordingly pregnancy may not occur even after the frozen embryo transfer.
8. Miscarriage
9. Ectopic pregnancy  
This occurs when the pregnancy is outside the uterus, usually in the fallopian tube. This may require surgery and possibly the loss of the fallopian tube.
10. Foetal anomaly  
The risk of foetal anomaly in frozen embryo transfer is no higher than those in IVF or ICSI cycle.

11. Risks associated with multiple gestations (12-18% based on the number of embryos transferred)

All the embryos transferred may result in successful implantation and hence multiple gestational pregnancy. It is also possible for an embryo to split into two and result in identical twins. This may pose the following risks to the foetus(es) and mother:

- Risks to the foetus(es) include increased risk of miscarriage, preterm labour and prematurity, attendant complications such as respiratory distress, hypoxic brain damage, including loss of life.
- Risks to the mother include higher risks of morning sickness, miscarriage needing a caesarean section, preterm labour, hypertension, anaemia, and diabetes. The mother will also be at greater risk of social, psychological and financial stress.

**What can I expect after the procedure?**

After the frozen embryo transfer, there is a two week waiting period before you will be able to know whether the transfer was successful. During this time, you will be advised to abstain from sexual intercourse but can continue your usual daily activities. It is important that you continue with the hormonal medications prescribed.

**What are my options?**

You have the option of no treatment. If you choose not to proceed with the frozen embryo transfer, the chances of conceiving at this point of time may be low or non-existent. You may opt to proceed with another fresh IVF cycle, or any other assisted reproductive procedures (please discuss this with your doctor). Child adoption is also available for your consideration.

## Declaration

1. We have read this information sheet and confirm that we understand the nature, purpose, risks, complications, and alternatives with regard to the following procedure ("Procedure"): **Frozen Embryo Transfer using:**
  - Natural Cycle / Ovulation Induction Cycle**
  - Regulated / Artificial Thaw Cycle**
2. We declare that we are still legally married up to the point of embryo transfer and if there is any change in status, we will update the Hospital (the SingHealth institution where the Procedure is performed).
3. We understand that no more than 2 embryos are transferred at any one time (with the exception of Point 4).
4. We understand that a maximum of 3 embryos (Day 2 or Day 3) may be transferred if the wife fulfils the following conditions:
  - (a) the wife is at least 37 years of age AND
  - (b) the wife has undergone at least 1 previous failed stimulated assisted reproductive cycle or there is no good quality embryo available
5. We acknowledge that the risks and complication(s) listed are not intended to be exhaustive. We have had an opportunity to ask for more information about (i) the above-mentioned risks and complications; (ii) the risks and complications in general; and (iii) specific concern(s) of relevance to us.
6. We acknowledge that this consent does not assure that an embryo transfer will occur, that the embryo(s) will survive the thawing process or that the thawed embryo(s) will be of sufficient quality to warrant a transfer. We consent to the Hospital preparing the frozen embryo(s) for us for the Procedure and to perform the Procedure.
7. We release the Hospital and its personnel from claims for loss, damage or destruction of embryos stored with the Hospital as far as the law permits.
8. We consent to any other treatment and monitoring procedures deemed necessary; and further or alternative procedural measures as may be found to be necessary during the course of the Procedure.
9. We consent to the administration of local/general anaesthesia/sedation, the use of drugs and medicines as may be deemed advisable or necessary for this Procedure.
10. We acknowledge that no representation has been made to us that the Procedure will be performed by any particular Medical Practitioner.
11. We hereby consent to undergo the Procedure.
12. We understand that all treatment details and outcome resulting from this Procedure will be notified to the Ministry of Health, Singapore, for the purpose of statistical reporting and research. We consent to the release of such information to the Ministry of Health.
13. We undertake to notify the Hospital of any birth(s) resulting from IVF/ICSI and related procedures within 28 days of delivery.
14. We understand and agree that the Procedure will be performed by the appropriate SingHealth institution and the Patient will be admitted and/or registered as a patient of that SingHealth institution.