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Introduction

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Introduction. Introduction to Frozen Embryo Transfer. Throughout this series, we'll guide you through the processes and procedures of a frozen embryo transfer, also known as an FET. We'll provide you with in-depth information about the risks, benefits, and choices involved in your treatment program. Patients who understand the overall process tend to have a more positive experience as they progress through the cycle. We'll cover a lot of ground, so take your time and feel free to repeat videos if there's anything you don't understand. We hope that after you complete this module that you'll feel confident discussing any further concerns with your medical team..

The Menstrual Cycle

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The Menstrual Cycle. Before you begin fertility treatment, it's helpful to understand the menstrual cycle. Learning about the similarities and differences between the two can help you feel more comfortable with how fertility treatment works. The menstrual cycle is regulated by a fascinating series of coordinated hormonal changes throughout the body. A part of the brain called the hypothalamus produces a hormone known as gonadotropin releasing hormone, or GnRH, which stimulates the pituitary gland. The pituitary gland then releases two Gonadotropin hormones: follicle stimulating hormone, or FSH, and Luteinizing hormone, LH. In the first half of the menstrual cycle, or follicular phase, the ovary is populated by small fluid-filled structures called follicles, which produce estrogen and contain an immature egg. FSH from the pituitary gland stimulates the growth of a single follicle in one ovary. This happens over about 14 days, causing the follicle to produce more estrogen and the egg within that follicle to mature. The rising estrogen level causes the uterine lining, also known as the endometrium, to thicken in preparation for the eventual fertilized egg. Once the follicle is fully mature and the estrogen level high, production of LH rises sharply, completing maturation of the egg and triggering ovulation. Ovulation is the release of an egg from the ovary into the fallopian tube, where sperm traveling through the reproductive tract can find the egg and fertilize it. The sperm must do so within about 24 hours of ovulation or the egg will degenerate and pregnancy will not occur. The second half of the menstrual cycle, after ovulation, is known as the luteal phase. During this phase, what remains of the follicle develops into a hormone-producing structure known as the corpus luteum. In addition to continuing to produce estrogen, the corpus luteum also produces large amounts of progesterone, which matures and maintains the endometrium. If the egg is not fertilized, the corpus luteum will degenerate after about 14 days, at which point progesterone levels drop, the uterine lining sheds, and a new menstrual cycle begins. However, if fertilization does occur, the fertilized egg, or embryo, enters the uterus from the fallopian tube after about six days, and may become embedded in the uterine lining. This is called implantation. As a result of implantation, cells in the outer layer of the embryo begin to produce a hormone called human chorionic gonadotropin, or hCG. hCG continually stimulates the corpus luteum to produce more progesterone, preventing the loss of the uterine lining. As you progress through this module, you will see that all of the hormones that are produced in a typical menstrual cycle are also used in a FET cycle to thicken and mature the uterine lining..

Support of the Uterine Lining for an FET

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Support of the Uterine Lining for an FET. There are two approaches for an FET cycle: transferring the thawed embryo at the right time in a natural menstrual cycle or creating an artificial or programmed cycle using medications. . A natural cycle involves daily blood tests starting 7-11 days after your Day 1 and continuing until we detect the LH surge which tells us when ovulation will occur. When the day of ovulation is known, we will work out the appropriate day for thawing the embryo and for transfer . ~~The goal of a programmed FET cycle, With a programmed FET cycle, is to mimic an optimal menstrual cycle, usually using~~ hormonal medications are used to thicken and mature the uterine lining for embryo implantation. The first step in preparation may take place before your FET cycle begins, during pre-treatment, by suppressing your hormones in order to time your cycle and prevent an unexpected ovulation. One way to do this is by taking Oral Contraceptive Pills. Possible side effects of the pill include irregular bleeding, headaches, breast tenderness, nausea, and swelling. In very rare cases, they can cause blood clots or a stroke. GnRH agonists may also be used to prevent ovulation. They initially stimulate your pituitary gland to release FSH and LH, but after a few days of continuous use, GnRH agonists will have a suppressive effect. Due to your low estrogen level during ovarian suppression, you may experience a few days of menopausal-like side effects, such as headaches, hot flashes, muscle aches, and a depressed mood; however, no long-term or serious side effects are known. Just before your FET cycle begins, an ultrasound and blood hormone test may be performed to determine the baseline status of your hormones and uterine lining, before additional hormone supplements are prescribed. The first phase of an FET cycle involves the use of estrogen to facilitate the growth of the endometrium. This can be taken orally, by a skin patch, vaginally, or by injection. Estrogen is usually very well tolerated but occasionally causes local reactions. In extremely rare cases, estrogen causes an increase in the risk of blood clots or stroke. To ensure that the estrogen has had the desired effect, an ultrasound and bloodwork will be performed to assess the endometrial response. If estrogen treatment was successful, progesterone will be added to the protocol. Progesterone may be administered via pill, or vaginal suppository, or intramuscular injection. ~~The intramuscular injection may be painful when injected, and approximately 1% of patients develop an allergic reaction that may manifest as a skin rash. If the rash escalates into redness and pain at the injection site, you may be given a different form of progesterone instead.~~ Unexpected ovulation is another potential complication that occurs in less than 3% of cases. If this happens, your FET cycle will be canceled, and your medical team will explain next steps for starting a new cycle. However, if everything goes according to plan, your medical team will be able to determine the day and time of your embryo transfer.. Your Fertility Associates doctor can provide information and guidance on the advantages of a natural cycle, a natural cycle with additional medication, or a programmed cycle tailored to your specific circumstances. . . .

The Frozen Embryo Transfer

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The Frozen Embryo Transfer. On the day of your transfer, your frozen embryo or embryos will be thawed in the laboratory. Freezing and thawing technology has improved significantly, but there's still a risk that the embryo will not survive the thaw. If this occurs and you have extra embryos in storage, there will still be time to thaw an additional embryo. The transfer procedure is simple and nearly painless, and in the vast majority of cases, sedation is not required. You must come in with a moderately full bladder which will allow your medical team to better visualize the uterus using an abdominal ultrasound. To start the embryo transfer procedure, the embryologist looks at the embryo under a microscope. Using a small syringe, the embryologist draws the embryo and a small amount of culture media into the thin, flexible transfer catheter. A speculum is placed into the vaginal canal to visualize the cervix. The clinician then threads the catheter through the cervix and into the upper portion of the uterus, often with guidance from an abdominal ultrasound. Then the embryo is released into the uterine cavity for implantation. The procedure typically takes less than 10 minutes. Following the embryo transfer, your medical team will provide comprehensive instructions on next steps leading up to the pregnancy test.

The Number of Embryos to Transfer

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The Number of Embryos to Transfer. An Important part of preparing for an embryo transfer, is the decision you and your medical team will make about how many embryos to transfer. The goal of this decision is to increase the likelihood of pregnancy while minimizing the risk of multiple pregnancy. Multiple pregnancy is one of the most significant complications you can experience from fertility treatment and can cause serious health risks for the pregnancy as well as the babies. To avoid a multiple pregnancy, the best approach is often to transfer only one embryo. The American Society for Reproductive Medicine, or ASRM, provides recommendations on the number of embryos to transfer based on factors such as age, quality and stage of embryo development, and other clinical issues. . Most chromosomally abnormal embryos will not implant, and even if they do they will usually miscarry. This is part of the reason lower pregnancy rates and higher miscarriage rates are seen with advancing age whether using fertility treatment or not. For patients who are older than 38 and are using their own eggs, transfer of multiple embryos may be recommended. In most other cases, one embryo is recommended. . If the chromosomal analysis from PGT, also known as PGT-A, suggests an embryo is viable, single embryo transfer is highly recommended regardless of age. If the egg is from a patient who is younger than 35 patients achieve singleton pregnancy at similar rates whether one or two embryos are transferred.. If two of these embryos are transferred, at least one out of every four patients will experience a twin pregnancy.. It's also possible to have a multiple pregnancy due to embryo splitting. . In less than 3% of cycles, a single embryo transferred can split and result in identical twins. Similarly, when 2 embryos are transferred, there is a less than 3% chance of one embryo splitting, which could result in a triplet pregnancy. If both embryos were to split, the transfer of 2 embryos could also lead to quadruplets, but this is incredibly rare. Because each patient is different, individualized plans should be discussed with your medical team.. .

Conclusion

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Conclusion. By now, you should feel informed about the processes and procedures involved in an FET program. The success rates of an FET cycle are comparable to fresh IVF cycles. In some cases, FET cycles can actually result in a higher success rate because of the opportunity to optimize the uterine lining. If a pregnancy is achieved,

hormonal support may then be continued for several weeks, as directed by your medical team. Continuous improvements and research have led to better pregnancy rates, fewer complications, and easier cycles. Now that you have completed the module, we hope you feel empowered to discuss any questions or concerns with your medical team. .