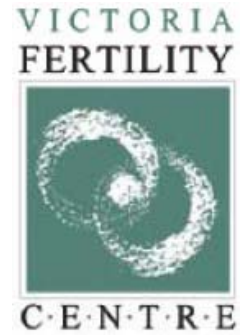


INTRAUTERINE INSEMINATION (IUI)

Intrauterine insemination is a fertility enhancing procedure in which sperm are washed, concentrated, and injected directly into a woman's uterus through the vagina. During natural intercourse, only a fraction of the sperm make it up the woman's genital tract. Intrauterine insemination increases the number of sperm in the uterus and fallopian tubes – where fertilization takes place. Intrauterine insemination is most successful when it is used along with certain fertility drugs to enhance ovulation. There are a number of different fertility drugs that are available. Some of these drugs can be taken orally – others need to be given by injection. The costs of these drugs, success rates and side effects are very variable and specific. This technique is often called controlled ovarian hyperstimulation and IUI (COH/IUI) or superovulation/IUI.



CANDIDATES:

Superovulation and IUI is often recommended for couples with no known cause of infertility who have been trying to have a baby for at least a year. It may be considered sooner than a year in an older woman. You should have thorough infertility investigations before trying this procedure. Under normal circumstances, IUI uses sperm from your male partner. If you do not have a partner, or if your partner has very poor quality sperm, then therapeutic donor insemination using screened sperm samples from anonymous donors would be considered.

MALE PARTNER REQUIREMENTS:

Studies suggest that IUI will not be effective in cases where the male has low sperm counts or poor sperm quality. Therefore, before proceeding with this process, sperm tests need to show reasonable sperm function.

FEMALE PARTNER REQUIREMENTS:

Tests will need to be done to confirm regular ovulation, normal uterine cavity, patent fallopian tubes, and normal hormone levels. In certain circumstances, if history and examination suggest possible pelvic pathology, a laparoscopy might be recommended. Laparoscopy is an operative procedure done under general anesthetic. This involves putting a small telescope through the belly-button to further evaluate the pelvic organs (uterus, fallopian tubes and ovaries).

SUCCESS RATES:

The success rates of superovulation with intrauterine insemination depend on a number of factors. Maternal age and the quality of the male partner sperm count are the most important.

RISKS OF SUPEROVULATION/IUI:

1. Infection.
2. The fertility drugs that are used to stimulate the ovaries increase the risk of multiple pregnancy and ovarian hyperstimulation syndrome.

PROCEDURES:

1. **Drug treatment.** There are a number of different fertility enhancing drugs (ovulation induction agents) available. They may be used alone or in combination with each other. The most commonly used drugs are Clomiphene pills or gonadotropin injections. Clomiphene

pills are given usually for five days, starting on the third day of the cycle. Gonadotropin injections are considerably more expensive, though also more successful, and are usually given on a daily basis, starting at around Day 3 to 5 of your cycle.

2. Monitoring treatment. This is done to measure the growth of the follicles, individualize drug doses and prevent serious side effects. Normally speaking an ultrasound will be done in the office on either the first, second or third day of your period, before you start the treatment. This will allow evaluation of your ovaries before they are stimulated. The days of your cycle are always counted using the first day of your period as Day 1. After the baseline ultrasound, you will start using the fertility drugs prescribed. On approximately Day 10 - 12, you will be asked to return to the office for another ultrasound. The eggs grow on the ovaries in capsules of fluid called follicles. These are easily monitored by ultrasound. Ultrasound is done to determine the number and size of the follicles developing.

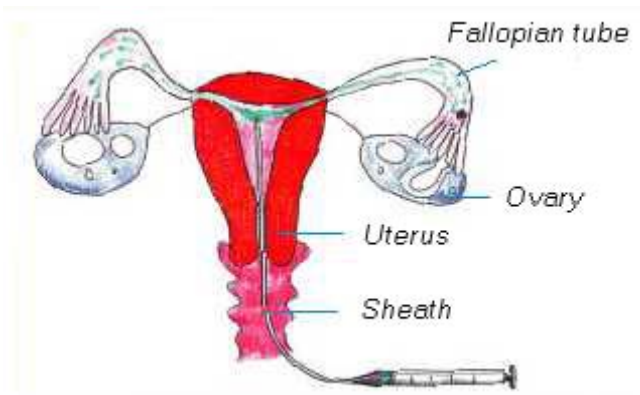
Ultrasound image of developing follicles



Depending on the ultrasound result, you may be asked to have a blood test to check estrogen levels. The dosage of your drugs may be adjusted depending on the response. The usual aim for this process is to generate three to five mature follicles. Depending on what drugs are used, an egg is normally mature once the follicle reaches a size of 17 mm.

3. After Day 9 or 10 you may be asked to monitor your urine daily using an ovulation predictor kit called ClearPlan. Occasionally the brain will trigger ovulation before all the follicles are ready. We need to be aware of this.
4. When enough follicles have reached their target size, you will be given an injection of a hormone to induce ovulation. This drug is called Profasi or Pregnyl.
5. Ovulation will occur 24-36 hours after the ovulation inducing injection. On that day, your partner will be asked to produce a specimen of semen by masturbation into a sterile container. It is preferable if the semen sample is produced on site at VFC. This fresh semen will then be washed and concentrated, a process which takes approximately one to two hours. Using a fine catheter, the sperm concentrate will then be injected through the cervix into the uterus. The procedure is fairly painless, though on occasion may cause some mild to moderate discomfort. After the

insemination you will be asked to lie quietly in the office for 5-10 minutes. You will then be able to resume routine regular activities, though will be encouraged to avoid excessive exercise, swimming or bathing for a couple of days.



6. If you do not get your period 14 days after the insemination, a pregnancy test should be done. An ultrasound will then need to be done, approximately 4-5 weeks after the insemination.

DRUG COSTS:

1. Letrozole. The cost is about \$40.00 for a cycle.
2. Clomiphene. The cost of a cycle of Clomiphene is approximately \$80.00.
3. Drug to trigger ovulation. The drug that is used to induce ovulation contains a hormone called HCG. The two available commercial preparations that are used to achieve this are called Profasi or Pregnyl. The cost is about \$85.00.
4. Gonadotropin costs.(Gonal F,Puregon,Repronex) Gonadotropins are drugs that are used to directly stimulate the ovaries. They need to be given by injection on a daily basis. They are expensive, and the total cost of a cycle would depend on the number of ampoules required. On average, the drug costs will be anywhere between \$500.00 and \$1500.00 per cycle.
5. The costs of sperm washing. This covers a presperm count and assessment, the sperm wash itself, post wash count and assessment, the preparation of the sperm for insemination and the intrauterine catheter.Please refer to the VFC fee schedule.

COMMENT ON SUCCESS RATES WITH SUPEROVULATION AND IUI

Success rates are contingent upon the procedure being performed –

1. For the correct indications.
2. Avoiding doing this when contraindications exist (such as blocked tubes, poor sperm quality).
3. Whether the woman is ovulating normally on her own.

4. The age of the woman.

An approximation of the pregnancy rates per cycle of superovulation/IUI performed for the correct indications are as follows:

1. 20% for women under the age of 30.
2. 15 % - 18% for women aged between 30 and 35.
3. 10 - 15% for women aged 35 to 39.
4. 5 - 10% for women over the age of 40.

However, the projected success rates really need to be individualized. It does depend largely on age and the choice of medication. Using gonadotropins improves pregnancy rates over using an oral agent like clomiphene. For instance, in the couple under the age of 30 with normal sperm parameters and using gonadotropins to stimulate ovulation, the success rate may be as high as 25% per cycle. At the other extreme, in the woman who is over 40, using only Clomiphene to stimulate the ovaries, the success rate for ovulation induction with Clomiphene and IUI would only be about 2 – 5 % per cycle.