

## 1. What is infertility?

Infertility is a condition where couple is unable to conceive after one year of unprotected sexual intercourse. For women over 35, infertility might be diagnosed after six months of trying. It can happen due to problems in the man, the woman, or both. Primary infertility is a condition where the couple has never conceived. Secondary infertility is when previous pregnancy has occurred and now couple is unable to conceive naturally again. According to the World Health Organization (WHO), 17.5% of the adult population, or about 1 in 6 people worldwide, experience infertility at some point in their lifetime.

## 2. What are the steps in the IVF treatment ?

### a. Initial Consultation

- The first step in the IVF process is meeting with a fertility specialist. This visit helps assess your medical history, fertility challenges, and the best treatment options for you.
- *What Happens at this stage?*
  - The doctor will discuss your medical and family history, lifestyle factors, and any prior treatments or diagnoses.
  - Basic tests might be advised at this stage like blood tests to check hormone levels and some other important parameters, an ultrasound to examine the ovaries and uterus, and a semen analysis for the male partner.
- *Why is it Important?*
  - This step helps to understand the reason for infertility and create a personalized treatment plan for the couple.

**b. Ovarian Stimulation:** This step involves using hormonal injections to stimulate the ovaries to grow multiple follicles so that multiple eggs can be retrieved in a single menstrual cycle, rather than just one egg as in a natural cycle.

- *What Happens?*
  - The female will be advised take daily hormone injections for about 10–12 days (approximately).

- Regular ultrasounds and blood tests will be advised to monitor the progress to ensure the ovaries are responding well and follicles are growing properly.
  - *Why is it Important?*
  - More eggs mean more probability of achieving healthy embryos for transfer.
- c. Egg Retrieval (OPU):** Egg retrieval is a minor surgical procedure to retrieve mature eggs from the ovaries.
- *What Happens?*
  - The female patient will be given anaesthesia to ensure painless procedure.
  - Using ultrasound guidance, the doctor inserts a thin needle through the vaginal wall to collect eggs from the follicles in the ovaries.
  - The procedure typically takes about 15–30 minutes however the duration can vary with the number of follicles.
  - If 10 follicles are visible on ultrasound, the doctor might be able to retrieve around 7–10 mature eggs however the number may vary as per age or other medical conditions.
  - This is a day care procedure and mostly the patients will be discharged on the same day if the medical condition is stable.
  - **After the Procedure:** You might feel mild cramping or bloating for a day or two.
  - Follow up: the doctor will ask you to follow up after 24-48 hours to assess your medical condition
- d. Fertilization:** The eggs which are retrieved during ovum pickup (OPU) are fertilized with sperm in a laboratory to create embryos.
- *What Happens?*
  - Through an advanced technique of Intracytoplasmic Sperm Injection (ICSI), a single sperm is injected directly into an egg.
  - These embryos are incubated in advanced benchtop incubators for 3-5 days and then their quality and quantity is assessed.
  - These embryos maybe frozen or transferred depending on the treatment plan of the patient
  - Preimplantation genetic testing (if required) can be performed at this stage.

- e. **Embryo Transfer:** The healthy embryo/embryos are selected and placed into the uterus for implantation
- *What Happens?*
    - This is a quick and painless procedure, often done 3–5 days after fertilization or in future in case the embryos are frozen.
    - A thin catheter is used to place the embryo into the uterus under ultrasound guidance.
    - After the Procedure you might be advised to rest for a short period, but normal activities can usually be resumed the same day. Heavy and strenuous activities are to be avoided.
- f. **Pregnancy Test:** Two weeks after the embryo transfer, a blood test (beta-hCG test) is performed to confirm pregnancy.

### 3. Testing for Infertility ?

- a. The female is advised to undergo ultrasound (to examine ovaries, uterus and pelvis). She is advised to undergo some blood tests to check some hormones like prolactin, thyroid, AMH, etc. Some other blood tests are also advised like viral markers, blood group, CBC, SGPT, SGOT, creatinine, etc. The patient is advised Pap smear to screen for cervical cancer.
- b. The male is advised to Semen analysis to check for quality and quantity of sperms. He is also advised some blood tests like viral markers, blood group, etc.

### 4. Getting Ready for Treatment:

It is important to understand that “Lifestyle factors” play a significant role in fertility treatment outcomes.

- Maintaining a healthy weight can improve the effectiveness of treatments like IVF.
- Regular exercise supports overall reproductive health, but excessive exercise may have a negative impact.

- Balanced nutrition rich in fruits, vegetables, and whole grains can enhance fertility.
- Avoiding smoking and excessive alcohol consumption is crucial, as these can impair reproductive function and can also cause malformation in foetus.
- Stress management is also vital, as high stress levels can negatively affect fertility.
- Adequate sleep supports hormone regulation and overall health.
- Caffeine intake should be moderated, as excessive consumption may impact fertility.
- Environmental factors like exposure to toxins should be minimized.
- A holistic approach that includes lifestyle modifications can complement medical treatments and improve chances of success.

## 5. Ovulation and conception

Ovulation: It is a natural process when one of the ovaries releases a mature egg. This usually happens once a month, about halfway through your menstrual cycle.

- How It Works:
  - In each menstrual cycle, natural hormones in the female body cause an egg to grow inside a small fluid-filled sac called a follicle. When the egg is fully mature, the follicle bursts, and the egg is released which enters the fallopian tube.
  - Signs of Ovulation: A slight increase in body temperature or changes in cervical mucus (it may become clear and stretchy).
  - After ovulation, the egg can survive for about 24 hours after being released, waiting to meet sperm for fertilization. Sperm from the male travels through the woman's reproductive system to reach the egg in the fallopian tube (during natural intercourse or IUI). Fertilization occurs when one sperm successfully enters the egg and fertilizes it.
  - The fertilized egg (now called a zygote) moves to the uterus, where it implants and grows into a pregnancy.
  - Conception is most likely to happen if intercourse occurs during the "fertile window," which is within 1–2 days of ovulation

Point to note: If a woman has irregular ovulation, she may not release an egg every month, making it harder to get pregnant. Medications like Clomiphene can help trigger ovulation. If there is a blockage in the fallopian tubes, the egg and sperm cannot meet, preventing conception. Treatments like IVF bypass the fallopian tubes to help fertilization happen in a lab.

## 6. Ovulation Induction

- Ovulation induction is a treatment used to help women who have difficulty ovulating (releasing an egg) on their own. This process uses medications to stimulate the ovaries to release one or more eggs, increasing the chances of pregnancy
- Ovulation induction usually involves medications to stimulate the ovaries. These medications encourage the growth of one or more follicles (small sacs in the ovaries that contain eggs). Commonly used medications include Clomiphene Citrate, Letrozole, Gonadotropins (hormonal injections).
- Monitoring throughout the treatment is done through Ultrasound to check the size and number of follicles and some Blood Tests to measure hormone levels and confirm when the egg is ready to be released.
- Triggering Ovulation means when the follicle(s) reach the right size, a “trigger shot” (an injection of hCG, human chorionic gonadotropin) is given. This triggers ovulation, typically 36–48 hours after the trigger shot.
- Timing Intercourse or Procedure: Once ovulation is triggered couples can plan intercourse during the fertile window. Alternatively, procedures like intrauterine insemination (IUI) may be scheduled to improve the chances of fertilization.
- Ovulation induction is often recommended for women with irregular periods, women with PCOS, couples with unexplained infertility.
- While ovulation induction is generally safe, females may experience bloating, headaches, mood swings, or mild abdominal discomfort. There are some potential risks like Multiple Pregnancy and rarely, the ovaries may over-respond to medications, causing swelling, pain, or fluid buildup (Ovarian Hyperstimulation Syndrome (OHSS)).
- Ovulation induction is a proven and effective treatment for many women. Success depends on factors like age, overall health, and the cause of infertility. Many women go on to conceive with this treatment.

**7. What to expect when undergoing Stimulation – side effects of medications, risk of OHSS, when to obtain urgent care, how to obtain urgent care, sign and symptoms of OHSS,**

*Ovarian stimulation*

It is an essential part of treatments like IVF, where medications are used to encourage the ovaries to produce multiple eggs in a single cycle.

*Medications:*

Hormone injections like Follicle-Stimulating Hormone (FSH) or Human Menopausal Gonadotropins (hMG) are used to stimulate the ovaries to grow multiple follicles, each containing an egg.

*Monitoring:*

The patient will undergo regular ultrasounds and blood tests to monitor the growth of follicles and adjust medication doses if needed.

*Triggering:*

It means when the follicle(s) reach the right size, a “trigger shot” (an injection of hCG, human chorionic gonadotropin or Gonadotrophin agonist like triptorelin/Buserelin) is given typically 36 hours before Ovum pick up.

What are the side-effects?

The drugs that are used to stimulate the ovaries may have temporary side effects like- nausea, headache, bloating, mild abdominal discomfort or cramping, headache, mood swings or irritability, breast tenderness, allergic reactions to the medications (e.g., rash or swelling), abdominal pain and vaginal bleeding.

Only in a small proportion of patients, a condition called *Ovarian Hyper Stimulation Syndrome (OHSS)* occurs because of an exaggerated ovarian response. Such cases can be identified ahead of time but only to a limited extent. OHSS can be primary if it develops after trigger or secondary if develops because of ongoing pregnancy.

**Ovarian Hyperstimulation Syndrome**

Ovarian Hyperstimulation Syndrome (OHSS) is a rare side effect which occurs when the ovaries respond too strongly to the ovarian stimulation medications, causing them to swell and produce excess fluid. The severity of OHSS can range from mild, moderate and severe, and it's essential to recognize the signs and symptoms to manage it effectively.

**Mild OHSS**

Mild OHSS usually resolves on its own within a few days and very rarely requires active intervention by doctors.

**What are the symptoms:**

- a. Mild bloating or abdominal discomfort.
- b. Slight nausea.
- c. Temporary weight gain due to fluid retention (usually less than 2 pounds).
- d. Fluid can be seen in abdomen on ultrasonography

**What to do?**

Rest and stay hydrated. consult with the treating doctor.

Avoid vigorous exercise, but light activities like walking are fine.

Inform your doctor, but urgent care is usually not needed.

**Moderate OHSS**

Moderate OHSS requires closer monitoring and care.

**What are the symptoms?**

Noticeable abdominal swelling and discomfort.

Nausea and occasional vomiting.

Weight gain of 2–5 pounds over a few days.

Decreased urination or darker urine.

**What to do?**

Contact your treating doctor for advice immediately.

You may need an ultrasound or blood tests to check your condition.

Doctor may recommend changes to your activity level or medications.

**Severe OHSS**

Severe OHSS is rare but serious and requires urgent medical attention.

**Symptoms:**

Severe abdominal pain and extreme bloating.

Rapid weight gain (more than 5 pounds in 2–3 days).

Difficulty breathing or shortness of breath due to fluid buildup in the chest.

Little or no urination despite drinking fluids.

Severe nausea and vomiting.

Dizziness or fainting.

**What to Do:**

Seek immediate medical care.

Immediately report to the treating doctor for examination and further management.

In case you report to some other clinic then inform the medical staff that you are undergoing IVF and may have OHSS.

8. Lifestyle factors to improve to improve the outcomes while undergoing IVF treatment

“Lifestyle factors” play a significant role in fertility treatment outcomes.

- Maintaining a healthy weight can improve the effectiveness of treatments like IVF.
- Regular exercise supports overall reproductive health, but excessive exercise may have a negative impact.
- Balanced nutrition rich in fruits, vegetables, and whole grains can enhance fertility.
- Avoiding smoking and excessive alcohol consumption is crucial, as these can impair reproductive function and can also cause malformation in foetus.
- Stress management is also vital, as high stress levels can negatively affect fertility.
- Adequate sleep supports hormone regulation and overall health.
- Caffeine intake should be moderated, as excessive consumption may impact fertility.



- Environmental factors like exposure to toxins should be minimized.
- A holistic approach that includes lifestyle modifications can complement medical treatments and improve chances of success.

## 9. What to expect after OPU

Ovum Pick-Up (OPU), or egg retrieval, is a key step in the IVF process where eggs are collected from the ovaries. Here's what you can expect after the procedure, including how to care for yourself, potential side effects, and when to seek medical help.

### **Immediately After OPU**

#### **Recovery from Anaesthesia**

You'll rest in the clinic for a few hours as the effects of sedation or anesthesia wear off. It's normal to feel drowsy or slightly dizzy. You will need someone to accompany you home.

#### **Mild Discomfort**

Some cramping or bloating in the lower abdomen is common. You might experience mild spotting or light bleeding from the vaginal area.

#### **Hydration and Rest**

Drink plenty of water and fluids to stay hydrated. Avoid strenuous activities for the rest of the day and allow your body to recover.

### **Symptoms After OPU**

#### **Mild Abdominal Pain or Cramping**

This is due to the ovaries being stimulated and eggs being retrieved. Your treating doctor will advise you some painkiller medicines during discharge which can be taken for pain.

#### **Bloating or Feeling Full**

Hormonal changes may cause temporary bloating. Wearing loose clothing can help ease discomfort. Avoid heavy strenuous activities and jerky movements.

#### **Spotting or Light Bleeding**

This is normal and should stop within a day or two.

#### **Fatigue**

Feeling tired is common, especially after anesthesia. Rest as needed.

## Signs that need attention

Although complications are rare, contact the doctor if you experience:

- Severe Pain or Swelling
- Persistent or worsening abdominal pain that doesn't improve with rest or prescribed painkillers.
- Heavy Bleeding, bright red bleeding or passing large clots.
- Symptoms of Ovarian Hyperstimulation Syndrome (OHSS). Severe bloating, rapid weight gain (more than 2 pounds in 24 hours), nausea, vomiting, or difficulty breathing.
- Fever or Signs of Infection. fever or unusual vaginal discharge.
- Difficulty Urinating: Any changes in urination patterns, such as decreased output or dark urine.

## Post-procedure Care Tips

- **Follow Your Doctor's Instructions:** Continue any prescribed medications, such as antibiotics or progesterone supplements, as directed.
- **Prepare for the Next Steps:** After OPU, your eggs will be fertilized in the lab, and your doctor will inform you about the progress of your embryos on day 3 or day 5 of the OPU.
- **Rest and Relax:** Take it easy for 24–48 hours after the procedure. Avoid heavy lifting, intense exercise, or long-distance travel.
- **Eat a Balanced Diet:** Include light, nutritious meals. Have plenty of oral fluids.

## Next Steps in IVF

- **Embryo Counselling:** This is typically scheduled 3–5 days after OPU. The doctor will inform you about the number of embryos which are formed and their quality. The doctor will also discuss whether the embryos can be transferred into the uterus or need to be frozen for transfer in the subsequent menstrual cycles.
- **Frozen Embryo Transfer (FET):** If the transfer is delayed, your doctor will explain the timeline for preparing your body for a frozen transfer.

## 10. Intra-uterine Insemination (IUI)

Intrauterine Insemination (IUI) is a simple and effective fertility treatment where washed and concentrated sperm is placed directly into the uterus around the time of ovulation. This increases the likelihood of fertilization.

### Who Can Benefit from IUI?

- Couples with unexplained infertility.
- Women with ovulation problems.
- Mild male-factor infertility.
- Couples using donor sperm.
- Cervical mucus issues that may block sperm.
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### Steps in the IUI Process

#### Initial Assessment

The female will undergo basic blood tests and ultrasounds to evaluate the cause of infertility. The male will undergo semen analysis to ensure sperm health and some blood tests.

#### Follicular Monitoring

The doctor will monitor your cycle to track ovulation. This may involve natural tracking or medications to stimulate follicular growth in ovary.

#### Trigger injection

Triggering Ovulation means when the follicle(s) reach the right size, a “trigger shot” (an injection of hCG, human chorionic gonadotropin) is given. This triggers ovulation, typically 36–48 hours after the trigger shot.

#### Confirm ovulation

the doctor will confirm ovulation through ultrasound. Ovulation means that the follicle filled with fluid in the ovary will rupture to release the egg which is expected to enter the fallopian tube.

#### Sperm Preparation

A semen sample (from your partner or donor) is washed in the laboratory and the concentrated sample is made with motile and healthy sperms.

### **The IUI Procedure**

The prepared semen sample is placed into the uterus using a thin catheter. The procedure is quick (5–10 minutes) and usually painless, though some women may feel mild cramping.

### **After the Procedure**

You may rest briefly, but most people resume normal activities the same or next day.

### **What to Expect After IUI**

#### **Mild Symptoms:**

Light spotting or cramping. Slight bloating due to ovulation.

#### **Two-Week Wait:**

After IUI, you'll wait about two weeks before taking a pregnancy test.

#### **Medications:**

The doctor may prescribe medications like progesterone to support the uterine lining and early pregnancy.

### **Success Rates of IUI**

The success of IUI depends on factors like age, the cause of infertility, and whether medications are used. On average, success rates range from 10–20% but different studies in the literature have mentioned different success rates.

### **Advantages of IUI**

- Non-invasive compared to IVF.
- Less expensive than advanced treatments.
- A good starting point for many fertility challenges.

### **Disadvantages and Side Effects**

IUI is generally safe, but some potential risks include:

- **Mild Discomfort:** Cramping during or after the procedure.
- **Multiple Pregnancy:** If medications are used to stimulate ovulation, there is a slight chance of twins or more.
- **Low success rate as compared to IVF cycle**

### Next Steps

- If pregnancy occurs, your doctor will guide you on early prenatal care.
- If IUI isn't successful, your doctor may recommend repeating the cycle or exploring other treatments like IVF.

## 11. Preimplantation Genetic Testing (PGT)

### What is PGT?

PGT is a laboratory technique that examines the genetic material (chromosomes) of embryos to detect specific conditions or abnormalities. It ensures that only healthy embryos are selected for transfer during IVF treatment.

### Types of PGT

#### 1. **PGT-A (Pre-implantation Genetic Testing for Aneuploidy):**

Checks for abnormalities in the number of chromosomes (e.g., Down syndrome). Helps reduce the risk of miscarriage.

#### 2. **PGT-M (Pre-implantation Genetic Testing for Monogenic Disorders):**

Screens embryos for specific genetic conditions like cystic fibrosis or sickle cell anemia, which parents may carry.

#### 3. **PGT-SR (Pre-implantation Genetic Testing for Structural Rearrangements):**

Identifies structural abnormalities in chromosomes, such as translocations, which may affect embryo development.

## Who Might Benefit from PGT?

- Couples with a history of genetic disorders.
- Women of advanced maternal age (35 years or older).
- Recurrent pregnancy loss or previous IVF failures.
- Male factor infertility linked to chromosomal abnormalities.
- Carriers of known chromosomal rearrangements or genetic conditions.

## Steps in the PGT Process

### 1. IVF and Embryo Creation

During the process of IVF, Eggs are retrieved and fertilized in the lab to create embryos.

### 2. Embryo Biopsy

A few cells are safely removed from each embryo for genetic testing. This is a very critical step, and experienced embryologists are required to carry out this step so that it does not harm the embryo's ability to develop. These embryos are then frozen till the reports are available.

### 3. Genetic Testing in the Lab

- a. The biopsy samples are analyzed in the genetic testing laboratory to identify chromosomal or genetic abnormalities.

### 4. Embryo Selection and embryo transfer

- a. Healthy embryos without abnormalities are selected for transfer and placed in the uterus during a fresh or frozen embryo transfer cycle.

## Advantages of PGT

- **Reduce time to live Birth:** the embryos with good reports after embryo transfer have higher likelihood of implantation and a healthy pregnancy, as selection of good embryo happens with PGT, that reduces time to live birth.
- **Reduced Risk of Genetic Disorders:** Helps prevent the transmission of inherited conditions from parents to the offspring.
- **Fewer Miscarriages:** Identifying healthy embryos reduces the risk of pregnancy loss.

## Risks and Limitations of PGT

### Risks

Embryo biopsy is generally safe, but there is a very small risk of harm to the embryo.

### Limitations

- PGT cannot guarantee a pregnancy or rule out all genetic or chromosomal issues.
- Some embryos may not yield results due to insufficient DNA or technical challenges.
- Not all embryos can survive the stress of embryo biopsy and so only good grade embryos can be selected for embryo biopsy.
- **Timeline:** The genetic testing process may take 1–2 weeks. Your doctor will guide you on the next steps based on the results. So only frozen embryo transfers are possible when PGT is done.
- **Costs of PGT:** It is an additional step in IVF and involves extra costs.

## 11. What to expect after Embryo Transfer – Sign and symptoms, care at home after transfer, when and how to obtain urgent care, signs of ectopic pregnancy.

Embryo transfer is a crucial step in the IVF process. After the procedure, your body begins the implantation process, which could result in pregnancy. Here's what to expect, how to care for yourself, and when to seek medical help.

### Signs and Symptoms After Embryo Transfer

- Mild Cramping or Bloating:** This is common due to the procedure or medications.
- Spotting or Light Bleeding:** A small amount of spotting can occur and is not usually a cause for concern. However, it is advisable to contact the treating doctor for advice.
- Breast Tenderness:** Hormonal changes might make your breasts feel sore or swollen.
- Fatigue:** Your body is working hard during this period, so feeling tired is normal.
- Emotional Changes:** It's normal to feel anxious or excited. Hormonal medications can also cause mood swings.

## Care at Home After Embryo Transfer

- a. **Rest:** Take it easy on the day of the transfer, but complete bed rest is not necessary.
- b. **Avoid Strenuous Activities:** No heavy lifting, intense exercise, or activities that could strain your body.
- c. **Hydration:** Drink plenty of fluids to stay hydrated.
- d. **Dietary Recommendations:** Eat a balanced, nutritious diet to support your body. Avoid alcohol, caffeine, and smoking.
- e. **Medications:** Take all prescribed medications (e.g., progesterone) exactly as directed to support implantation. Do not take any medication other than prescribed by the doctor. In case of any illness like fever, loose motions, cough, cold, etc consult with doctor before taking any medication.
- f. **Lifestyle:** Minimize stress by engaging in calming activities like reading or meditation.

## When to Obtain Urgent Care

Contact your doctor or fertility clinic immediately if you experience:

1. **Heavy Bleeding**
  - a. Bright red bleeding or passing large clots.
2. **Severe Abdominal Pain**
  - a. Pain that is sharp, severe, or persistent.
3. **Fever or Infection Signs**
  - a. A fever over 100.4°F (38°C) or unusual vaginal discharge with a foul smell.
4. **Difficulty Breathing or Severe Swelling**
  - a. These could be signs of Ovarian Hyperstimulation Syndrome (OHSS)

## What's Next?

- **Pregnancy Test:** About 14 days after the embryo transfer, you'll have a blood test to confirm if you're pregnant. Avoid taking home pregnancy tests early, as they might give inaccurate results.



- **Emotional Support:** The waiting period after the transfer can be stressful. Consider talking to a partner, counsellor, or support group if you feel overwhelmed.

### **Signs of Ectopic Pregnancy**

An ectopic pregnancy happens when the embryo implants outside the uterus, such as in the fallopian tube. Though rare, it's a serious condition that requires immediate medical attention.

### **Symptoms of Ectopic Pregnancy:**

- Sharp, stabbing pain in the abdomen or pelvis.
- Vaginal bleeding or spotting.
- Dizziness, fainting, or weakness.
- Shoulder pain, which could indicate internal bleeding.

If you experience any of the above symptoms, report to the hospital immediately.

### **12. Cervical cerclage :**

A cervical cerclage is a treatment for women at risk of preterm birth or late miscarriage. It's performed when the cervix is too weak to stay closed as the pregnancy progresses, a condition known as cervical insufficiency.

#### **Procedure**

A skilled obstetrician places one or more stitches in the cervix during the second trimester of pregnancy. The procedure can be performed vaginally or abdominally. Usually a day care procedure sometimes patient may have to stay back on need basis.

### **13. What is PRP?**

PRP is a concentrated plasma that is prepared from a patient's blood by spinning it in a centrifuge. It contains platelets & growth factors that can promote cell growth and reduce inflammation.

How is PRP used to treat the endometrium?

PRP is infused into the uterine cavity to treat thin endometrium or to improve the chances of implantation and pregnancy.

Benefits of PRP

PRP can improve endometrial receptivity and thickness, and can increase the chances of pregnancy. PRP is also considered less invasive & safer than other treatments because it's made from the patient's own blood.

#### **14. Laparoscopy:**

A laparoscopy is a minimally invasive procedure that looks inside your stomach or pelvis. Healthcare providers use laparoscopies to diagnose medical conditions or perform surgery. Surgery using a laparoscope is called laparoscopic surgery. It's generally safer than traditional surgery because it's less invasive.

Benefits :

The advantages of having laparoscopic surgery include:

- a. Less trauma to the insides of your belly.
- b. Less blood loss and a lower risk of hemorrhage.
- c. Smaller scars.
- d. Less risk of infection.
- e. A shorter hospital stay, which means you'll be able to recover more comfortably at home. Less time in the hospital is also less expensive.

Faster recovery time and return to your usual activities.

f. Less pain during healing, so you won't need as much pain medication.

### **15. Hysteroscopy:**

Hysteroscopy is a minimally invasive procedure that allows a healthcare provider to examine the inside of the uterus. It can be used to diagnose and treat a variety of conditions.

During a hysteroscopy, a rigid or flexible hysteroscope is inserted through the cervix and into the uterus. Distending media is then used to allow the healthcare provider to fully visualize the uterine cavity. The procedure can be performed under local, regional, or general anesthesia. It's a day care procedure.

A hysteroscopy typically takes 5–30 minutes, but can take longer depending on the type of procedure.

### **16. NT SCAN**

A nuchal translucency (NT) scan is an ultrasound that measures the amount of fluid behind a fetus's neck during the first trimester of pregnancy (11 to 13.6 weeks). It's a non-invasive, painless screening test that helps determine the risk of chromosomal or genetic abnormalities in the fetus.

The NT scan is combined with the mother's age and blood test results to calculate the risk of genetic abnormalities. If the screening indicates a possible risk, further testing is necessary.

### **17. Preclampsia screening**

The Pre-eclampsia screening process is simple and involves an ultrasound scan to measure the placental blood flow at 11-13 weeks gestation in combination with maternal history, mean arterial blood pressure, serum PAPP-A maternal blood marker and placental growth factor (PLGF)

Screening during the first trimester can identify women at high-risk for pre-eclampsia. This could potentially improve the pregnancy outcome because better maternal and fetal monitoring would lead to earlier detection of the clinical signs of the disease and where necessary medication can be given.

In addition to your 11—13 week scan you can opt to have a screening test for this potentially serious condition. There is extensive evidence that early pre-eclampsia is associated with an increased risk to you and your baby's health.

### **18. Blastocyst culture**

Blastocyst culture is a laboratory process that involves growing embryos until they reach the blastocyst stage, which occurs around day 5 or 6 of development

Blastocyst culture allows embryos to be observed for a longer period of time and helps to select the embryos with the best chance of implantation. This can lead to higher implantation rates, clinical pregnancy rates, and lower rates of high order multiple pregnancies

### **19. What is Laser Assisted Hatching?**

Laser-assisted hatching is an advanced technology used along with IVF treatment to increase the rate of successful implantation of the embryo.

During the IVF procedure, fertilized eggs are kept in the lab for 2 to 5 days, allowing them to divide and develop into an embryo. A healthy embryo is then placed in a woman's uterus to achieve pregnancy. During this process of development, the embryo gets surrounded by a protective shell called zona pellucida. For implantation to happen, this protective shell breaks out naturally. But in some cases, the outer layer of the embryo hardens, making it difficult to hatch and implant. It becomes one of the reasons for infertility in women.

In laser-assisted hatching, a small crack is created before inserting the embryo in your uterus. This hatching helps in implantation of the embryo. Thus, helps in successful implantation leading to pregnancy.