**Facilities**

**Facilities available at our IVF centre**

In our IVF (In Vitro Fertilization) centre, a variety of procedures are performed to assist individuals and couples in achieving pregnancy. Here are some common procedures:

1. **Ovulation Induction:**

This involves the use of medications to stimulate the ovaries to produce multiple eggs. It's often the initial step in fertility treatment, especially for women who do not ovulate regularly or have irregular menstrual cycles.

1. **Egg Retrieval (Oocyte Retrieval):**

During this procedure, eggs are collected from the ovaries using a thin needle guided by ultrasound imaging. This typically occurs under sedation or anaesthesia and is a minimally invasive procedure.

1. **Sperm Collection and Preparation:**

Sperm samples are collected from the male partner (or donor) and processed in the laboratory to isolate healthy sperm for fertilization.

1. **Fertilization:**

In conventional IVF, eggs and sperm are combined in a laboratory dish and left to fertilize naturally. Alternatively, intracytoplasmic sperm injection (ICSI) may be used, where a single sperm is injected directly into each mature egg to facilitate fertilization.

1. **Embryo Culture:**

Fertilized eggs (embryos) are cultured in the laboratory for several days to allow them to develop and grow. The embryos are monitored closely for signs of viability.

1. **Embryo Transfer:**

Once embryos reach a certain stage of development (typically 3 to 5 days after fertilization), one or more embryos are transferred into the woman's uterus using a thin catheter. This procedure is usually performed without anaesthesia.

1. **Embryo Cryopreservation:**

Extra embryos that are not transferred during the initial IVF cycle may be frozen (cryopreserved) for future use. This allows patients to undergo frozen embryo transfer (FET) cycles without the need for additional egg retrieval procedures.

1. **Artificial Insemination (IUI):**

This procedure relies on the natural ability of sperm to fertilize an egg within the reproductive tract. The sperm from the male partner is collected and then washed in the lab to improve motility and concentrated sperm are then placed in the uterus using a thin catheter inserted through the cervix during the most fertile time in the menstrual cycle.

IUI Is Often Recommended for Women or Couples Who:

* Have ovulation problems and are undergoing ovulation induction
* Are unable to have normal intercourse
* Have mild male factor infertility
* Have unexplained infertility

Donor Sperm is used only when a male partner has an abnormal semen report. The procedure is simple and does not require anesthesia or hospitalization.

1. **IVM (In Vitro Maturation) - New ART Procedure:**

In vitro egg maturation or IVM - Instead of removing fully mature eggs from the ovaries and then fertilizing them, IVF Specialists remove immature eggs, ripen them in a lab dish, and then add sperm. The rest of the procedure is the same as IVF, the time required for stimulation is reduced greatly. This may be particularly useful for women who suffer from polycystic ovarian syndrome, a hormonal disorder that disrupts ovulation.

1. **IMSI Intracytoplasmic Morphologically selected Sperm Injection (IMSI):**

A specialized technique used in in vitro fertilization (IVF) to select the highest quality sperm for fertilization. IMSI is typically recommended for couples with male factor infertility, where conventional sperm selection methods may not be sufficient to identify the highest quality sperm for fertilization. By selecting sperm with the best morphological characteristics, IMSI aims to improve the chances of successful fertilization and embryo development, ultimately leading to better outcomes in IVF treatments.

1. **Intra Cytoplasmic Sperm Injection (ICSI):**

Also known as micromanipulation. The Approach to male fertility management has changed over the last few years. Patients who had compromised semen samples had to undergo years of medication and surgical manoeuvers and only a few patients benefited. Now with the advancement of ART techniques, a conventional method of treating male infertility has been replaced by ICSI, a proven and wholly acclaimed scientific procedure. This revolutionary technique we performed has given fresh hope to many men whose chance to father their children was slim.

ICSI is indicated when few sperms are available or no sperms are available IVF is not possible or unexplained fertilization failure or low fertilization in previous IVF cycles. ICSI can benefit 90% of patients with azoospermia after confirming the presence of sperms in the testicular biopsy.

In this procedure, eggs are retrieved (as in IVF) from the female partner, and under an inverted microscope, each egg is injected with a single sperm isolated from the male partner's semen or by sperm collected from the testis (TESA/MESA). This is done as an adjunct to IVF.

1. **Oocyte Donation:**

Oocyte Donation is for women whose ovaries are not functioning or have been surgically removed. In this procedure, another woman will be the egg donor. The donated eggs will be fertilized with the sperm of the husband of the recipient woman. The embryos are then transferred to the uterus of the recipient.

1. **Laser Assisted Hatching:**

Assisted Laser Hatching may help couples who have had many attempts at assisted reproductive procedures without success. Embryo implantation is one of the greatest barriers to success in the “In Vitro Fertilization” (IVF) cycle. When Embryos are transferred into the woman’s uterus, they are covered by an outer coating called the Zona Pellucida, once the embryo can “hatch”, a necessary step for implantation. In certain situations, this step is less likely to naturally occur in women of higher age, women with elevated serum FSH levels, and women who have failed to achieve a pregnancy in a prior IVF cycle. A hole is created with the use of a laser beam in the Zona of the embryo before it is transferred to the uterus. It facilitates improved implantation and increases the chances of pregnancy.

1. **Blastocyst Culture and Transfer:**

In conventional IVF the embryo transfer is done in the uterus after 48 hours at 4-8 cell stage. In natural conception, the embryo reaches the uterine cavity only on day FIVE. With the availability of a new extended culture medium, we can now culture the embryos in the laboratory till the blastocyst stage (i.e. days 5-6). Thereby increasing the chances of success dramatically to 50%.

Recent advances in blastocyst culture and transfer have resulted in improved IVF pregnancy rates and reduced multiple pregnancy rates. Traditionally, embryos are transferred to the uterus on day three (called Day 3 transfer) after fertilization and it is not uncommon to transfer three or four embryos. However, it is now possible to grow embryos in the laboratory to the blastocyst stage of development, which occurs on day five after fertilization when the embryo has 50-200 cells. Typically, the strongest, healthiest embryos make it to the blastocyst stage as they have survived key growth and division processes and have a better chance of implanting once transferred. The selection of potentially more viable embryos allows the embryologist to transfer fewer embryos, often one or two, lowering the risk of high-order multiples while maintaining high pregnancy rates.

Blastocyst transfer is not an option for all IVF patients. The technique is most successful with patients who are younger and have a large number of eggs available at retrieval. On average, patients with six or more high-quality embryos on day three are the best candidates for blastocyst culture because there is a better chance of more embryos growing successfully to day five.

1. **Semen analysis by using Artificial Intelligence:**

Using artificial intelligence (AI) in semen analysis is an innovative approach that has the potential to improve accuracy, efficiency, and objectivity in assessing semen quality. Here's how AI can be applied in this context:

* **Sperm Detection and Counting:** AI algorithms can be trained to accurately detect and count sperm cells in semen samples. This process involves analyzing images or videos of the sample captured under a microscope. AI can automate this task, reducing the time and effort required for manual counting by laboratory technicians.
* **Sperm Morphology Analysis:** AI can also be used to assess the morphology (shape and structure) of sperm cells. By analyzing images of sperm cells, AI algorithms can identify abnormalities such as head defects, tail deformities, or other irregularities that may affect fertility.
* **Sperm Motility Assessment:** Assessing sperm motility (movement) is crucial for evaluating fertility potential. AI algorithms can analyze videos of sperm motility captured under a microscope and classify sperm cells based on their movement characteristics, such as progressive motility, non-progressive motility, or no motility.
* **Quality Control:** AI can assist in maintaining quality control standards in semen analysis by standardizing the analysis process and reducing variability between different laboratory technicians. This can help ensure consistent and reliable results across different semen analysis procedures.
* **Predictive Analytics:** AI algorithms can analyze data from semen analysis results, along with other clinical and demographic factors, to predict fertility outcomes or recommend personalized treatment plans for couples undergoing fertility evaluation and treatment.
* By leveraging AI in semen analysis, Doctors can streamline the assessment of male fertility, improve diagnostic accuracy, and enhance patient care in

1. **Preimplantation Genetic Testing (PGT)**:

PGT stands for Preimplantation Genetic Testing, which is a set of techniques used in conjunction with in vitro fertilization (IVF) to screen embryos for genetic abnormalities before they are implanted into the uterus.

There are different types of PGT:

* **PGT-A (Preimplantation Genetic Testing for Aneuploidy)**: This type of testing screens embryos for aneuploidy, which is an abnormal number of chromosomes. Aneuploid embryos often result in failed implantation, miscarriage, or genetic disorders such as Down syndrome if they do implant and develop.
* **PGT-M (Preimplantation Genetic Testing for Monogenic/Single Gene Disorders)**: PGT-M is used when one or both parents are known carriers of a genetic disorder, such as cystic fibrosis or sickle cell anemia. It tests embryos for specific genetic mutations to avoid passing on the disorder to the child.
* **PGT-SR (Preimplantation Genetic Testing for Structural Rearrangements)**: PGT-SR is used when one or both parents have structural rearrangements of their chromosomes, such as translocations or inversions, which can lead to chromosomal imbalances in their offspring. This testing aims to identify embryos with balanced chromosomal arrangements for transfer.

1. **The Embryo Bank**

Many of today's modern couples choose to start a family later in life. Embryo Banking allows these couples the chance to freeze embryos and delay starting their families until the time is right. Also, during the IVF process many couples naturally produce an embryo surplus. Freezing surplus embryos until future cycles can circumvent additional egg retrievals.

1. **Semen Bank**

We maintain a dedicated Semen Bank. The male partner’s sperms are routinely frozen for cryocooling and IVF. The bank contains frozen sperm from voluntary donors with various backgrounds and physical characteristics to match individual needs. Donors are screened thoroughly to rule out transmission of any infectious or genetic diseases. We ensure close confidentiality for both the donor and the recipient.

1. **Social Egg Freezing/Oocyte Cryopreservation**

"Social eggs" refers to the practice of women undergoing egg retrieval and freezing their eggs for future use, typically for reasons unrelated to medical necessity. This process is often chosen by women who wish to preserve their fertility for various personal or social reasons, such as career advancement, not yet finding a suitable partner, or undergoing medical treatments that may affect fertility. Egg freezing, also known as oocyte cryopreservation,

Freezing of embryos allows a significant chance of pregnancy after a single ovarian stimulation. The excess good-quality embryos can be stored cryogenically for future initiation of pregnancy without having to go through superovulation and egg collection all over again.

1. **Surrogacy:**

There are two primary types of surrogacies: traditional surrogacy and gestational surrogacy:

**Traditional Surrogacy**:

* In traditional surrogacy, the surrogate (also known as the gestational carrier) is genetically related to the child she carries. This is because the surrogate's egg is fertilized with the intended father's sperm or donor sperm through artificial insemination.

**Gestational Surrogacy**:

* Gestational surrogacy is more commonly practised and generally considered less legally and emotionally complex than traditional surrogacy. In gestational surrogacy, the surrogate carries a child conceived using either the eggs and sperm of the intended parents or donor gametes. The surrogate is not genetically related to the child she carries.

**Surrogacy may be Commercial or Altruistic:**

* **Commercial Surrogacy:**

If the surrogate receives money for the surrogacy arrangement, it is considered commercial.

* **Altruistic Surrogacy:**

If she receives no compensation beyond reimbursement of her medical and other pregnancy-related expenses along with the insurance coverage for her, it is referred to as altruistic.

**Why Choose Us:**

Arpit Test Tube Baby Centre at Jeevan Jyoti Hospital has the Best IVF specialist having 25 years of experience. Our success rate is almost 70% which is much higher in comparison to many renowned IVF centres. Every facility from OPD consultation, investigation, special diagnostic procedures, IVR procedures, antenatal pregnancy care, normal & caesarean delivery and best post-operative care is available under one roof at affordable cost. Top of Form