



Infertility is a major crisis affecting all areas of life. About 15% of couples suffer from infertility. These couples need proper medical advice, support and treatment to move through the crisis. Institute of Human Reproduction (IHR) is India's most friendly, modern and versatile organisation for assisting conception. IHR offers a holistic and best possible treatment for infertility, that too in a very cost effective way.

Incepted in the year 1980, IHR started with Ovarian Stimulation and Donor Insemination. Gradually Diagnostic Laparoscopy & Hysteroscopy were introduced in 1982-1983. For the first time in Eastern India. Microsurgery for infertile couples was introduced at IHR in 1985. IHR became the first IVF centre of north-eastern region in 1990.

During last two decades, we have been introducing all the latest techniques of Assisted Reproduction. We offer every possible medical & technological (diagnostic & therapeutic) service which are available anywhere in the world for the treatment of infertility. Now, IHR has created a niche for itself in the field of infertility treatment and is counted among the top leading institutes of India for the treatment of Infertility. Our results are at par with any renowned IVF centre of international standard and as a centre for infertility treatment, we are definitely one of the best in India. We have crossed 3000 mark of having Test Tube babies involving different kinds of couples with irreversible infertility. We have patients not only from India but from other countries as well, like UK, USA, Singapore, Bangladesh, Bhutan, Nepal.

We assure our patients and referring colleagues of highest levels of professional competence and service as well as the opportunities to be not just with individual respect but with internationally pioneering technology.

Dr. M.L. Goenka

Dr. Deepak Goenka

What is In Vitro Fertilisation (IVF) ?

IVF is a technological process where several eggs are retrieved from a woman's ovaries and then fertilised by the husband's sperm outside the body in a highly specialised and controlled environment of the Laboratory. The fertilised eggs then develop into embryos and these are returned to the woman's uterus by a procedure called embryo transfer (ET).

Who will benefit from IVF ?

1. Both Fallopian tubes are absent, blocked or hopelessly diseased
2. The husband has a reduced motile sperm (Asthenozoospermia), increased abnormal sperm (Teratozoospermia)
3. Decreased number of sperm (<10 million/ml.) in semen (Oligozoospermia)
4. No sperm in the semen (Azoospermia)
5. Sperm antibodies in the wife's and /or husband's serum
6. Endometriosis i.e. the presence of endometrial lining of the womb outside the uterus
7. PCOS cases who have failed conception with ovulation induction and IUI
8. Unexplained Infertility (refers to couples in whom no obvious pathology is found but who cannot conceive naturally).
9. Women who have absent ovaries or where there are no eggs in the ovaries (see Oocyte Donation).

Eligibility

1. The Couple must be legally married
2. The wife must be between the age of 18 and 40 years (preferably below 38 years) in conventional IVF programme.

IVF Programme (Step-by-Step)

Initial Consultation

The couple should bring along their records of infertility workup that they possess, such as hysterosalpingogram films, semen analysis report, blood & hormone reports, previous laparoscopy test results. The IVF team physician will counsel couple about the programme, and some further investigations may be necessary to establish the chances of success. The women may have to be scheduled for a screening laparoscopy, hysteroscopy & ultrasonography and trial E.T., if needed, to assess the pelvic anatomy and accessibility of the ovaries for eggs retrieval.

IVF Involves Several Steps

1. Temporary Pituitary Inactivation or Down-Regulation
2. Ovarian Stimulation (Ovulation Induction)
3. Monitoring the Maturity of Eggs/Follicular development
4. Egg Collection (Oocyte Retrieval)
5. Semen Specimen Collection, Sperm preparation and insemination
6. Fertilization and Cleavage
7. Embryo Transfer (ET)
8. Blood Tests for Pregnancy

Temporary Pituitary Inactivation

GnRH-a (Decapeptyl) injections are given to inactivate the pituitary in the menstrual cycle previous to IVF cycle. By inactivating pituitary, woman's own hormone production is temporarily "switched off". Pituitary down regulating drugs (Inj. Decapeptyl) are continued till the day of HCG injection. Patient should report to the institute on 1st day or 2nd day of the menstrual cycle (while continuing the Inj. Decapeptyl). At that time Hormone assays for E2, LH, PRG are done to confirm the down regulation of pituitary. A **baseline sonography** of uterus and ovaries is done to rule out presence of any functional cyst in ovaries. A **cyst measuring 10cm** or more requires aspiration. **Husband's semen is also cryopreserved.** This provides a backup sample, in case husband is unable to produce semen on the day of ovum pickup.

With the advent of new drugs (antagonists), pituitary down regulation is not necessary. Ovarian stimulation can be started on the 2nd or 3rd day of menstrual cycle without down regulation and making the IVF procedure less painful.

Ovarian Stimulation

Female is born with 2 million eggs into her ovaries. After 1st menstruation (Menarche) every month about 500 eggs comes out of ovaries for maturation. Pituitary gland produces that much hormone where only one egg matures and ovulates and remaining eggs gets destroyed (atretic). By giving some extra hormones from outside we can mature more number of eggs. IVF, with one egg, will have a very low success rate. Hence ovaries are stimulated to produce multiple eggs for better results. Ovarian stimulation is done by drugs like recombinant FSH, Highly Purified HMG or U-HMG. The injections can be started on 2nd or 3rd day of menstrual cycle. If necessary, stimulation can be started at a later date while continuing the down regulation with decapeptyl injection.



Monitoring the maturity of Eggs

This is done by periodic examination of blood for hormones and ultrasound examination of the ovaries. Patient has to report to the clinic every day from 2nd day of menstrual cycle till the eggs are aspirated and the embryos replaced. The number of injections to be given each day will depend on the number and size of follicles in ovaries seen by ultrasonography and hormone assay. Maturation of eggs may require 7 to 15 days of ovarian stimulation.

Egg Retrieval

When follicles are mature, an ovulating dose of 10000 units of HCG or 1 mg of Leuprolode Acetate is injected. This causes final maturation of the eggs. Ovulation occurs 36 to 40 hrs after HCG injection. Therefore eggs are collected 34 - 35 hrs after HCG injection i.e just before ovulation. HCG is to be taken at the prescribed time. Any change in time should be informed to the clinic. **If by any chance injection is not taken properly, eggs will not mature and therefore not a single egg will be found during retrieval procedure.**

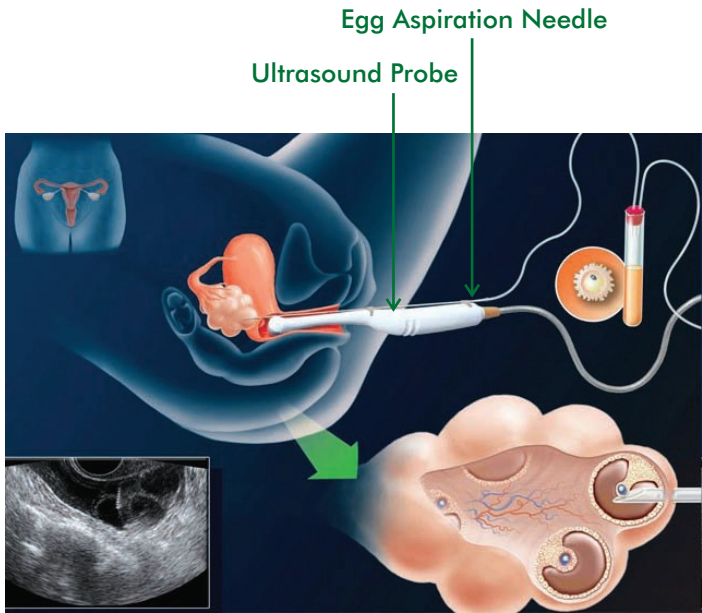
Eggs are retrieved transvaginally under the guidance of sonography through a needle inserted in backwall of vagina and into the follicles. The eggs, thus obtained, are placed into a culture dish containing special nourishing fluid (Culture media).

Egg retrieval procedure is done under general anesthesia. It can also be done under local anesthesia and sedation. The Egg collection process is the main surgical procedure involved in the IVF cycle. It is sometimes also called egg harvesting, egg pick up, OPU or oocyte pick-up.

This is a day-care procedure and requires rest for a few hours only. Some patients may experience vaginal spotting and mild lower abdominal pain. Complications of the procedure occur in less than 1% of the cases and include infection, hemorrhage, and lower bowel or bladder injury that may require additional surgery. If an attempt at the ultrasound retrieval is unsuccessful, laparoscopic retrieval is performed.

Immediately After the Egg Retrievel :

You should not drive yourself home or travel alone even if you just had sedation and/or general anaesthesies. Critical activities are discouraged for 24 hours after the procedure. These include driving, signing documents or operating machinery.

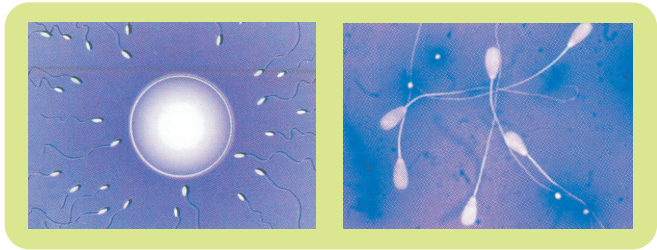


Egg Retrieval Procedure

Sperm Separation & Insemination

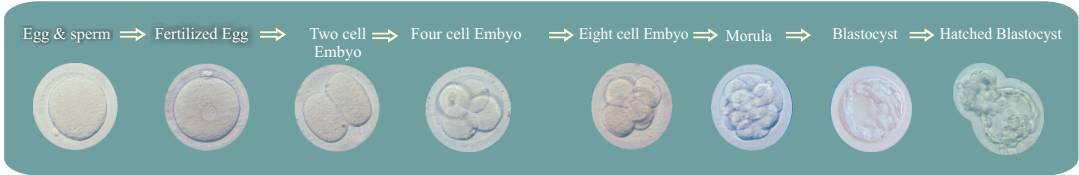
(In Vitro Fertilization of Eggs)

After the retrieval, eggs are placed in the incubator for 3 to 6 hours and then inseminated with washed motile sperms which have been collected and prepared after the egg collection or taken from a frozen semen sample (Backup Arrangement). The eggs and sperms are placed in the incubator (at a body temperature i.e. 37 degree centigrade and 5-6% CO₂ + 5% O₂ + 89-90% N₂). This types of modern triple gas incubation of embryos decreases the chances of abortions. If husband has low sperm count, then ICSI procedure will be performed.



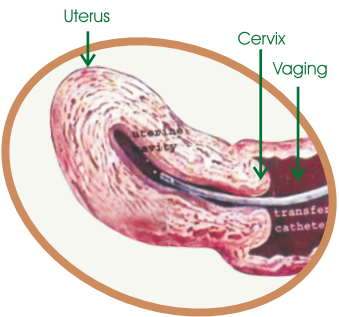
Fertilisation and Cleavage

Fertilisation is the process of a sperm penetrating the egg. The egg, being fertilised, is now called an embryo. These embryos are observed further to be certain that they are dividing (cleaving) normally.



Embryo transfer

Embryo Transfer (E.T.) is done 2-3 days after egg retrieval. The embryos are placed into the uterus by means of a thin tube (catheter) through the mouth of the womb (Cervix). The procedure is done on an outpatient basis. **The patient leaves the IVF centre within two hours following the transfer procedure.** In some cases, blastocyst stage transfer can be done on D5/D6.



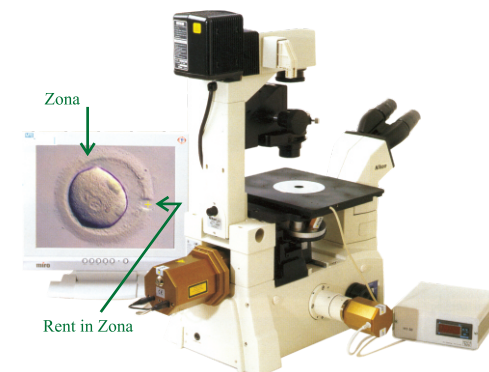
ET Procedure

Blood Tests

Blood test (Serum b-HCG) is performed for evidence of pregnancy approximately 15 days after egg collection.

LASER Assisted Embryo Hatching

This is a procedure in which a hole/rent is made in the outer covering (Zona) of embryos with the help of LASER rays. This is helpful in patients having repeated IVF failures due to thick or hard Zona or patients who are above the age of 36 years. LASER Assisted Hatching is also done in patients where cryopreserved embryos are transferred.



Laser Assisted Hatching System

How long the couple has to stay in Guwahati / Kolkata ?

If the preliminary investigations for both husband & wife have already been done, patient is required to stay in Guwahati/ Kolkata for 2-3 weeks. The patient should report to clinic on 2nd day of the menstrual cycle for the treatment of IVF. The husband is required to stay for 1 day, on the day of egg collection, to give semen sample. Husband's presence is not essential if we use cryopreserved semen sample.

How much will IVF cost ?

The main cost of IVF is for hormone injections used to stimulate ovaries. The cost of IVF varies from INR 1,10,000/- to 1,30,000/- per cycle of the treatment depending on the type of medicine used for ovarian stimulation. The charges includes:

- ✍ Baseline sonography
- ✍ Hormone estimation during IVF cycle (If Required)
- ✍ Ovarian Stimulation Drugs
- ✍ Sonographic monitoring
- ✍ Egg recovery under anesthesia (general or local)
- ✍ Anesthesia medicines
- ✍ OT charges for egg recovery & embryo transfer.
- ✍ Embryologist Charges
- ✍ IVF specialist Fees
- ✍ Anesthetist Fees

Drugs for pituitary down regulation (Lupride/ buseriline etc), progesterone injections, medicines pre & post IVF cycle will cost another INR 10000/- to 15000/-.

Special medicines (Inj. Heparine, Cortisone, Oestrogens, Progesterone inj/ cap etc.) used in some cases will cost extra.

TESA procedure (done in AZOOSPERMIA cases) will cost 5000/- extra.

Will you get an abnormal baby from IVF ?

More than 25 lakhs IVF babies have been born till date. The congenital abnormality rate has proven to be same as in natural conception or normal population (2-3%).

What are the other risks of IVF procedure ?

1. The stimulated cycle is very carefully monitored. However in any cycle there is a small risk (3-5%) of hyperstimulation (OHSS).
2. Chances of twin and triplet pregnancies are about 20% and 3% respectively.
3. Pregnancies following IVF-ET have higher miscarriage rates (20%) than normal (10%-15%).
4. Ectopic pregnancy chances are same (2-3%) as in natural conception.



Your IVF cycle may have to be cancelled before ovum pickup

The aim of the intensive monitoring of IVF cycle is to obtain good number of healthy mature eggs. If the cycle is unsatisfactory, it may have to be cancelled at any stage. The reasons for cancellations are

- a. Too few follicles are developing which would decrease the chances of obtaining at least one mature egg.
- b. There are no follicles developing at all. This is rare but may occur.

- c. The follicles may have ovulated before pickup. Occasionally some women ovulate earlier than expected.
- d. Sometimes the patient gets signs of developing ovarian hyperstimulation (OHSS) and cycle may have to be cancelled or your embryos have to be stored in bank and transferred (ET) later on in unstimulated cycle.

How many times IVF can be repeated ?

IVF can be repeated as many times as a couple can afford / desire.

Upto what age IVF is possible ?

IVF is preferable upto the age of 35 years (wife). It may be extended up to the age of 38 years (to be done only after ovarian reserve tests, which are done before your IVF cycle). After the age of 38 years females are usually unable to produce good quality eggs. In these cases pregnancy can be achieved by using donor eggs. IVF by Donor Eggs can be done upto the age of 60 years. Pregnancy in post menopausal women can be achieved by IVF using donor eggs. (See our Donor Egg brochure)

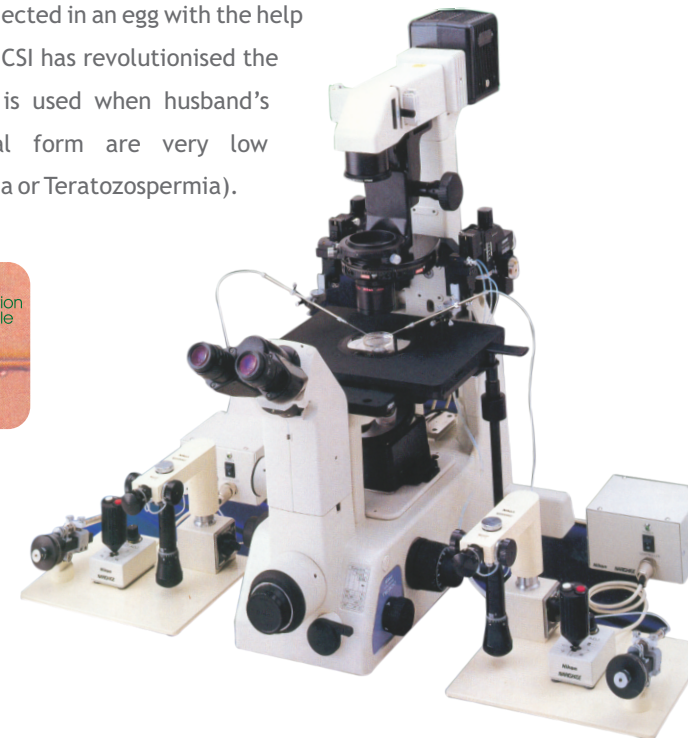
ICSI - Intracytoplasmic Sperm Injection

In this technique, a single sperm is injected in an egg with the help of highly sophisticated microscope. ICSI has revolutionised the treatment of male infertility. ICSI is used when husband's sperm count, motility or normal form are very low (Oligozoospermia, Asthenozoospermia or Teratozoospermia).



Single sperm injected in an egg

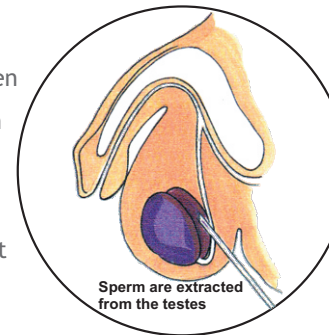
ICSI is helpful when patient fails in standard IVF procedure due to fertilisation problem.



ICSI Microscope

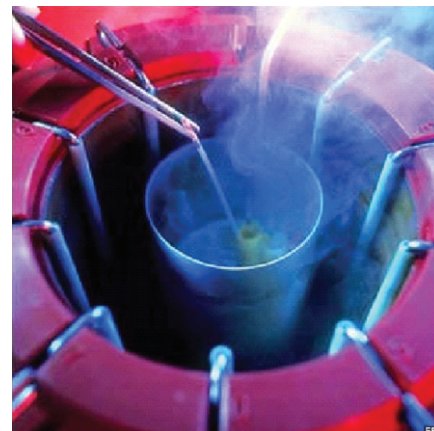
TESA-ICSI

TESA is testicular sperm aspiration. When there are no sperm in semen (Azoospermia), few sperms are extracted from any of the testes with the help of a needle. ICSI can be done with these extracted sperms. Most of the patients with Azoospermia can be benefited by TESA-ICSI. TESA can be done under local anesthesia or General Anesthesia without any discomfort and is an OPD procedure.



Cryopreservation of embryos

Your extra embryos after embryo transfer (E.T.) can be cryopreserved in our bank at minus 196°C and later transferred in the uterus in a natural (unstimulated) cycle if the woman doesn't become pregnant in the original IVF cycle. Only very good embryos (Grade-I) are to be cryopreserved. Some of embryos may die during freezing and thawing procedure. Egg recovery after freezing and thawing is about 50%. The pregnancy rate after frozen embryo transfer (FET) is good (35-40%).



Semen & Embryo Bank



Freezing Programmers

Egg Sharing - a new form of IVF treatment

Egg sharing is a practical and dignified solution to two very different problems. The first problem is for women who produce normal eggs but can't afford the cost of IVF treatment whilst the second problem is for women who can afford IVF treatment but need donor eggs (patients with secondary ovarian failure / poor responders / perimenopausal and menopausal females). In egg sharing the cost of IVF of donor is shared among the two.

Success Rate

The success rate of IVF/ET at our centre is 40 to 45%. It varies with the age of the patient and decreases as the patient's age increases. It is 5% to 10% in patients above 38 years and only 2% above the age of 40 years. After 38 years chances of abortion and abnormal pregnancies also increase to 40-50%. The success rate of IVF with donor eggs is about 50 to 60%.

IVF in Older Women

The best chance for a female to conceive is when she is less than 30 years of age. A gradual fall in fertility occurs between 30 and 35 years. However after 35 years of age a sharp decline in pregnancy chances occurs. Natural pregnancy is rare after 40 years of age.

The major factor that determines fertility rates is the quality of eggs. The quality of eggs diminish with age. The defect lies in the inability of the older egg to allow correct separation of chromosomes as the embryo divides. An extra chromosome is then added in the normal complement that causes the Down's abnormality. Other defects of similar types are also more common in older women. These embryos are less likely to implant or do not develop and so explain a lower pregnancy rate. In addition, with IVF in women over 35 years, the ovaries are generally less responsive to medication indicating a fall in the total number of eggs, which also lessens the chances of success. Eggs of older women when exposed to sperms, have a lower chance of fertilisation.

All women above 35 years, should get their ovarian reserve checked. Women with very low ovarian reserve should opt for IVF with donor oocytes.

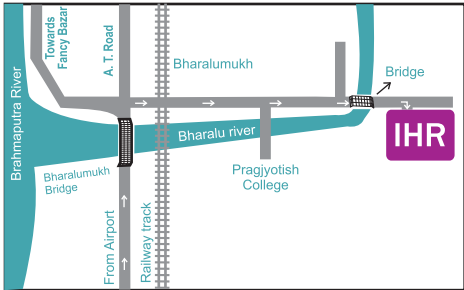


"IHR, Where building families is a tradition"

Route Map to IHR



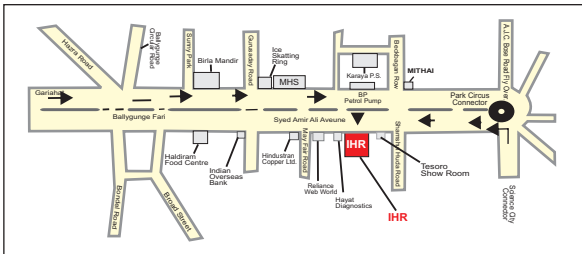
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IHR



**In Vitro Fertilisation & Embryo Transfer
(Test Tube baby Technology)**

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