

## **Inability to conceive is a devastating situation in any married couple's life**

The dream of a complete family, if not fulfilled is a devastating experience; the situation erodes emotional, social and sexual confidence of the couple. Further the failure to conceive destroys self-esteem, self worth and sexuality.

All these negative feelings are compounded by number and complexity of investigations and treatment modalities and finally hope of success and unpredictable failures give them a roller coaster ride.

## **A Long Cherished dream comes true**

Inspired by the birth of world first test tube baby in 1978 at burnhall clinic in UK, Dr. Geeta Khanna, then a medical student only, decided to enter the field of infertility, Advanced infertility & IVF centre, her dream project come into existence in September 1997 and the Herculean efforts taken by her and her team, U.P. First test tube baby Prarthana was born to a menopausal lady on 17 November 1998, spreading boundless joy in the family.

## **Our Approach to the infertile Couple**

Mental pain and stress of couple is the foremost thing to be taken care of. They are advised to come on prefixed Monday for group counseling so that they understand the details about our approach to a case of infertility, plans about investigation, treatment modalities and expenditure involved and to explain chances of success. Both husband and wife are investigated together.

Basic tests to find any disease like general blood examination, x-ray and ultra sound, basal hormonal tests of wife on second /third day period. These hormone tests are necessary to find whether hormone levels in body are adequate to prepare eggs (ovulation) and to prepare lining of uterus (endometrium) where the embryo (fertilized egg) attaches to grow.

Basic Trans Vaginal ultrasound, ovulation monitoring done by gynecologist trained in Trans Vaginal sonography to find whether the eggs and endometrium is growing satisfactorily or not. Certain immunological investigations are also done.

Video hysteron-laparoscopy is done to find status and disease of uterus, tube and ovary, to find out whether there is any disease like tuberculosis or endometriosis or adhesions (sticking of tubes to other organs) is there or not, as these can't be seen by any other test. At the same time methylene blue dye is pushed in to uterus to see whether tubes are open or not (Chromotubation)

Hysteroscopy is the procedure where a thin telescope is put painlessly onto the uterus to see lining, tumor or septum (Divided uterine cavity) or submucous is present or not in the uterine cavity.

Semen analysis of husband is very important. It is done in specialized lab called by special techniques to find out defects in counts, motility or activity of sperms shape or morphology of sperms, any antisperm antibodies (ASA) or infections in semen. Any defect in an any of the above parameters in the semen will decrease the chances of pregnancy and specialized treatment options discussed below are to be offered to couple. Semen analysis done in IVF lab is different from that done in common pathology lab as many other factors are to be seen in semen analysis from infertility point of view.

## **Plan of Treatment**

80 couples out of hundred get treated by simple conservative treatment only by treatment of infections, treatment of hormonal imbalances by drugs and fertility enhancing surgical procedures like myoma

removal, septum division, tubal opening by microsurgery, endometrial, cysts removal, ovarian drilling and adhesiolysis etc.

Only 20 couples out of 100 need sophisticated management like intrauterine insemination of semen of husband or donor (IUI-H or IUI-D), invitro fertilization (IVF) or intracytoplasmic sperm injection (IVF-ICSI) out of these three procedures, which will be used in particular couple, is decided by the age of the couple and defect found by investigations in husband /wife or both.

Thus both husband and wife are investigated and treated together. This fact is essentially very important.

### **What is intrauterine insemination (IUI) and who needs it?**

When tubes of wife are normal, and she is forming eggs, but sperms of husband are less in number or motility (Oligoasthenospermia) or no sperms (Azoospermia) where donor semen to be used or sperms are not able to reach uterine cavity either due to immunological reasons or premature ejaculation, then we collect the semen of husband/ donor by special method, wash and process it and introduce it in wife's uterus by special intrauterine (disposable) catheter uterus on specific day when good quality of eggs of wife (seen by transvaginal sonography) have ruptured.

### **What is in- vitro fertilization (IVF) and who needs it?**

Uterine cavity Sperms of husband after being deposited in vagina at the time of intercourse, move up in uterine cavity to meet the eggs in tube. Eggs are formed in ovary. They mature and after rupture of the ovarian follicle they are picked up by ovarian fimbria and then move to the ampulla of the tube. Sperms fertilize the egg and the embryo thus formed travel to the uterine cavity to get attached (implanted) to the lining of uterus (endometrium) but if sperm are not able to reach egg due to:

- Blocked both tubes
- Or functionally destroyed but open tubes as egg pickup and transport mechanism is disturbed.
- Or Sperms are insufficient in number and activity to fertilize egg.
- Or Atmosphere in and around tube and ovary is disturbed due to endometriosis.
- No eggs available either due to premature ovarian failure or absent ovary or nonfunctioning ovary due to menopause (where donor eggs are needed)
- Or Unexplained infertility (where every test is normal and even then no pregnancy occurs naturally).
- Or several (3-4) attempts of proper IUI have failed.
- Or a group of above problems

In such cases, aim is to place sperms and egg together in a specialized four well petridish in a special culture medium in a carbon dioxide incubator, which provides the same atmosphere as of uterus and tubes. Thus fertilization is made to occur outside the human body hence called In-vitro fertilization.

### **What is the procedure of IVF?**

1. Normally every month each female makes an egg which starts developing from 3<sup>rd</sup> day of menstrual period and gets released after follicle rupture on 14-15 day of period (mid cycle). But in IVF we stimulate ovaries to form at least 8-10 eggs by giving hormones (gonadotrophins HMG, FSH, rec-FSH)

2. Monitoring of egg formation is done by trans vaginal sonography.
3. Monitoring of the lining (endometrium) where embryo has to implant, is done by sonography.
4. Egg (pickup) removal from ovary (Ova Retrieval) is done under sonographic guidance in special ova pickup theater and these eggs are aspirated by highly sophisticated ultra low pressure oocyte aspiration pump, then they are sent to adjacent embryology lab, where under special microscopes, enlarged and precise view of oocytes is seen and good quality eggs are selected (egg hunting).
5. Simultaneously semen of husband / donor (depending upon the case) is processed to wash semen and take out good motile sperms, in special andrology lab by swim up or gradient method.
6. Insemination of oocytes is done after which they are kept in carbon dioxide culture incubator.
7. Fertilization assessment is done after 18 hours and good quality embryos are selected and those with polyspermy are rejected.
8. The culture of fertilized embryos is done in carbon dioxide incubator which provides optimal temperature, Ph, and humidity. Culture media have same concentration of glucose, protein amino acids, and required electrolytes necessary for growth and division, thus providing same atmosphere as in vivo.
9. This embryo at its 6-8 cells stage or at advanced stage (blastocyst) is transferred to uterus for its implantation, by special embryo transfer catheter on Day-3, Day-4, and Day-5 after fertilization following all norms. Patient needs no anaesthesia for this procedure.
10. Confirmation of implantation or pregnancy is done by getting –HCG test in blood after 16-18 days of embryo transfer. If positive, then this pregnancy is monitored strictly to deliver healthy normal baby. All disposables to be used are procured from International market (CCD, Sweden, France, Australia, U.K.) and are embryo toxicity tested.

#### **What is ICSI who needs it?**

1. When there are very very poor sperm counts or morphology (Severe oligo / astheno / terato / azoospermia) in semen, then they are taken out directly from epididymis (MESA) or from testes (TESA or TESE) technique or selectivity picked from semen.
2. Or If lining of egg (zona) is thick as in advance age, unexplained infertility, endometriosis and immunological cause or if fertilization does not occur in routine IVF, then by this specialized micromanipulation technique of ICSI ( Intracytoplasmic sperm injection) single sperm is injected into single egg in by a special micropipette to fertilize egg, providing better chance of success.

#### **What are chances of success?**

Out of 10 couples who undergo IVF-ICSI procedure, only 3-4 get success despite best possible efforts (30% to 40% chances even at world best IVF centre), Implantation failure, is the most common cause of failed procedure, the reason of which is still not known.

### **Assisted hatching**

Assisted hatching is highly specialized technique in which if shell of the embryo is thick as in female above 35 years of age, then fertilized embryo is not able to hatch out spontaneously, then we make a deliberate hole in zona to assist embryo to hatch out. This increases chances of pregnancy.

### **Blastocyst transfer**

Is to further improve chances of pregnancy Embryos are transferred into sequential culture media so that it grows more and then embryo at this stage is transferred to uterus.

### **A word about cryofreezing (semen and embryo bank)**

Sperm and embryos are frozen by computerized planning in technique dedicated cryo preservation unit of Cryologic – Australia equipment for use in next cycle or future.

### **Success means dedicated team, efforts and vision**

This centre is one of pioneer IVF lab and providing consistent successes and IVF babies through dedicated team.

Medical director & specialist reproductive medicine	Dr. Gita Khanna
Medical director & specialist minimal invasive surgery	Dr. Anil Khanna
Andrologist	Dr. Anil Khanna, Dr. Akhilesh Chandra
Embryologist	Beetu Khanna, Saraswati Gupta
Endocrinologist	Dr. Sharad Kumar
Genetics	Dr. Vanadana Mehrotra
Pathologist	Dr. Dipti Nayyar
Clinical Team	Dr. Aparna Nigam, Dr. Renu Singh Dr. Shivangi
Counselor	Dr. Dipti Nayyar , Madhu Khanna

Treatment has been made affordable and economical and has personalized approach with continuous research aptitude to grow at par with latest advances and having no compromises in use of quality equipment disposable culture Medias, culture lab and professionals. Our efforts to provide continued medical education of staff, public and patients by repeated awareness programme's is well known.

### **Guide for adoption**

To fulfill the dreams of parent hood infertile couples the organization helps them to adopt through various organizations in case infertility treatment is not possible or fails.

## **Mile stone in Success path of Test- Tube Babies**

- 1- Our First Test Tube Baby of U.P. in menopausal female by oocyte donation, Baby PRATHANA in 1998.
- 2- Our First Test Tube Baby twins of Lucknow MANAV AND MUSKAN.
- 3- Our First ICSI Baby of Lucknow Sandhya.
- 4- Over 455 pregnancies in last Six Years by I.V.F.
- 5- Our First TESA, Baby of Lucknow Baby Sudhnashu.
- 6- We are pleased to inform that the centre is bringing consistent successes with carry home baby rate of 30% to 40% ever since the first success.
- 7- We have now consistent pregnancy rates in I.V.F. /ICSI of about 32% to 40%. Our centre is one stop centre for all investigation and treatment of infertility.

## **All Assisted Reproductive Techniques Under One Roof.**

### **Diagnostics**

- Hormonal tests, Endocrinology evaluation
- Transvaginal sonography
- Abdominal sonography
- Color Doppler, Endometrial Blood flow study by latest WIPRO DROPPPLER EQUIPMENT
- Seminal analysis and sperm function tests
- Hysterosalpingography
- Videohysterolaparoscopy
- Andrology and male infertility clinic

### **Treatments**

- Tubal microsurgery
- Fertility enhancing laparoscopic surgeries
- Surgery for male infertility
- Medical management of male infertility
- Intrauterine insemination (husband/ donor)
- ICSI (Intracytoplasmic sperm injection – micromanipulation)
- MESA/ TESA/ TESE
- Donor Oocyte IVF
- Embryo Donation
- Sperm banking / Confreezing
- Blastocyst Culture/ Transfer
- Assisted hatching
- Surrogacy

- Soon to be starting PGD by PCR/ FISH TECHNIQUES.

#### **Other Facilities**

- 24 hours Emergency, Ambulance and pharmacy
- Antenatal Care  
Antenatal counseling classes, monitoring by Cardiotocography (NST)
- Fully equipped labor room.
- Dedicated Neonatal Centre and NICU unit for small and high risk babies equipped with incubators, warmer, phototherapy, ventilators, arterial blood gases (ABG).
- Endoscopic Laparoscopic Surgeries
  1. Well equipped Laparoscopic theatre
  2. All kinds of hysteroscopic and laparoscopic surgeries as Tumor/ cysts of Uterus, ovaries, tubes, gall bladder stones etc
- Cancer Screening by Videocolpomiicroscopy treatment by cryosurgeries.
- Accident, Trauma, Ortho, and Neuro unit.
- Medical unit including critical care unit (ICU), ICCU equipped with ventilators
- Nephrology and dietetics unit
- ENT, Dermatology, Ophthalmology Unit

#### **Specialty Clinics**

- Breast Clinic
- Obesity Clinic
- Hypertension Clinics
- Lipid Clinic
- Gastro Clinic
- Thyroid Clinic
- Diabetes Clinic
- Joint (Arthritis) Clinic
- Cosmetic Surgery Clinic
- Adolescent Clinic
- Well Women Clinic for 35 plus ladies
- Well baby Clinic