

CHILD CONCEPTION
GENERAL GUIDELINES



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How does pregnancy occur?

When a couple tries for pregnancy naturally for a period of 1 year, 80-85% of them get success. If the couple does not get success in a period of one year, it is called infertility; they are said to be an infertile couple.

In 40% of infertility cases, the male is responsible; in 40% the female is responsible; in 5% both are responsible. Approximately 15% of cases of infertility remain unexplained. The advanced treatment and recent development in medicine have given a new hope to infertile couples.

In males, the testis situated in the scrotum produces millions of male gametes (sperms). On copulation, these millions of sperms pass through the penis in ejaculated semen from the testis into the vagina of the female partner and come in contact with the cervix (opening to the uterus). In the female pelvis, two ovaries are situated on either side of the uterus, and there are two fallopian tubes connected to the uterus which transport ova (egg) from the ovaries to the uterus.

The pituitary gland, which is located in the brain, produces gonadotrophin hormones (FSH & LH) which stimulate ovulation from any one of the ovaries. During the menstrual period of 28 days, approximately 14 days before menses, a dominant follicle grows in one of the ovaries and ruptures when it is mature, separates, and enters the fallopian tube. The endometrium, which is the inner lining of the uterus, also gets ready under the hormonal effect to accept an embryo.

During copulation, females produce cervical mucus secretions which facilitate sperms to travel from the cervix to the uterine cavity and then into the fallopian tubes. In the fallopian tubes, sperms fertilize the ovum to form an embryo which grows for 5 days in the fallopian tube itself. This blastocyst moves slowly into the uterine cavity, where it gets implanted (implantation) and grows to form a child.

In case in a female, if this process of fertilization & formation of an embryo or implantation does not occur, the endometrium sheds off and she gets her menstrual period. In the following month, a similar process occurs.

Why Infertility?

In the above mentioned process, If a couple faces problem at any step, then there will be difficulty in conceiving.

Causes of Infertility in Females

- The main reason of infertility is due to failure of ovulation, or irregular ovulation or improper ovulation or no ovulation.
- The fallopian tubes which takes ova from ovary can be damaged or not functioning properly due to some disease or disorder and become blocked.
- Endometrium, which is the inner lining of uterus is unable to accept embryo due to some reason.
- Cervix is having some difficulty in transporting the sperms into uterine cavity.
- Due to several other reason like, Endometriosis (condition in which endometrial tissue develops other than uterine cavity into the pelvic cavity). Polycystic ovary (condition in which ovaries are bulky and has pearl necklace pattern) Adhesions due to infections or other reasons causing disruption of normal anatomy of fallopian tubes and ovaries. These are various reasons of females infertility.

Causes of male infertility are as follows :

- Azoospermia - No sperms in semen due to improper production or transport from testis to penis (Via Vas Deferens).
- Aligospermia (Less number of sperms than normal range)
- Nonmotile sperms
- Asthenospermia (less motility of sperms than normal range)
- Teratospermia (increase number of abnormal sperms)
- Hypospermia (quantity of semen lesser than normal)
- Anejaculation/Retrograde Ejaculation - difficulty in ejaculating Semen during inter course due to physical or mental problem.

Inspite of doing all the investigation, in about 15–20% of the couple the cause of infertility is not known this condition is not called as “Causeless infertility” but we call it as “Unexplained infertility.”

We should understand that there are reasons for not conceiving, but we can't understand them. Hence we call it as "Unexplained Infertility"

The goal of infertility treatment is to find the reason of infertility and treat it accordingly.

Diagnosis of infertility

For proper treatment of any disease / disorder, diagnosis of the particular problem is necessary. The amount of money spent for such diagnostic procedure is worth to get good results. The proper diagnosis helps in proper treatment in correct direction. Sometimes couple is very much disappointed, when they come to know that their treatment was not in proper direction due to failure to diagnose cause of infertility. Hence its important to start the proper diagnostic procedure not with an individual but as a couple.

For Males:

1. Physical examination of male (Includes Genitalia)
2. Semen examination
3. Basic blood investigation of males.

If the above mentioned investigation are normal and if the male is able to have proper and regular sexual intercourse, then further investigation for male partner is generally not required.

But if the above mentioned investigation shows any abnormalities then further investigation are required. They can be hormonal profile of male partner, ultra-sonography of scrotum and other investigation. If there is abnormality in semen analysis, then the test can be repeated from a reputed and good laboratory for more than one time. This is beneficial way to diagnose abnormal semen analysis. In patients having azoospermia (no sperms in semen) there is difficulty in having child with one's own sperms, hence testicular biopsy (biopsy of male gonad), to confirm the diagnosis of azoospermia, is required to be done. We can't tell any patient that their sperms can't be used for treatment until we confirm by testicular biopsy. The procedure of testicular biopsy should be done in those setup where the sperms found on biopsy can be frozen, to be used for ICSI procedure, so repeat biopsy during ICSI is not required.

For Female Partner :

1. Physical examination.
2. Ultrasonography –trans vaginal sonography (scan done by inserting probe in vagina)

This is an important & primary investigation for diagnosis of female infertility. TVS helps for screening pelvic organs like uterus, ovaries and adnexas properly. TVS can also helps to monitor ovulation study and to know the hormonal changes and their effects on endometrium, uterus and ovaries.

3. Blood investigation : Routine blood test which may directly or indirectly cause difficulty in conceiving.

4. Fallopian tubes potency test : As explained before, a fallopian tubes play crucial role in transporting ova from ovary and its potency is very important. The procedure known as sonosalpingography (SSG) is the one in which saline is pushed in uterine cavity which is seen on ultrasonography , going through the tubes. If this procedure is done using a radio opaque dye and x-ray is taken of pelvis, it is called as hystero- salphingography (HSG). But the gold standard procedure for tubal potency is “Laparoscopy” in which an endoscope (camera) is inserted in abdominal cavity. These different procedure have been compared on the next page.

Before starting any treatment, fallopian tubes patency needs to be checked.

Most complex process of conception occurs in female body, hence examination of female and diagnostic procedure are difficult in females. Due to this diagnosis and treatment of a couple depends on physical, mental and economical status,

The diagnostic procedure should be such that, it is beneficial for the patient's diagnosis and facilitates the pregnancy chances. The couple must be counselled about the success of diagnostic procedure and their need to find out etiology of the infertility problem. For the diagnosis the counseling of couple should be done considering age of female patient, eagerness to have a child, previous treatment taken for infertility, mental status, physical health, and economical status of the couple. They should be guided properly so that couple can take proper decision in right direction.

In the whole world, there is no treatment modality which can

give 100% assurance of a child to a couple in single attempt inspite of spending huge amount, hence it is very important to counsel. The doctor should choose the best treatment modality for the couple and help them to achieve goal of having a child at right time. The treatment modalities have seen discussed in detail in following pages.

Points	SSG	HSG	Laparoscopy
Convenience	✓	✓	Minor surgical procedure
Pain	✓	✓	Done under anesthesia.
Scar on abdomen	×	×	✓
Stitch on abdomen	×	×	×
Information about Tube potency	✓	✓	More information ✓✓
Any pathology in & around tubes	×	×	✓
Tube functionality prediction	+	+	++++
Hospital stay	2-3 hrs	2-3 hrs	Half a day
Cost	+	+	++++
Treatment along with diagnosis of disease	Not possible	Not possible	Possible

TREATMENT

A couple needs to understand all the information about the treatment modalities before starting any treatment for infertility. They should know pros and cons of all the available treatment options. After having this information its important to decide one treatment modality and know its advantage & disadvantages, cost and procedure. To start any kind of treatment following points should be considered. Age of female partners, cause of infertility, effect of previous treatment taken for infertility on couple' emotional & physical, mental and economical aspect, social outlook of couple etc. Routinely after investigation, diagnosis is made and simplest type of treatment is started at first. If there is no result after this, on appropriate time the treatment is stepped up accordingly. In this way couple can fulfill goal of achieving pregnancy.

Ordinarily the fertility of a couple (male partner & female partner) together is $1+1 = 2$. In case of difficulty in one of the partner, the fertility of other partner can be increased to overcome the shortcoming of partner, $0.5 + 1.5 = 2$. And if supposedly both partners has deficiency. This lacunae can be tried to be fulfilled by the help of technology and total can be achieved 2.

Ovulation Induction Treatment:

Many drugs are available to produce good quality eggs in female. These drugs increase chances of pregnancy by increasing production of eggs. In female patients who have ovulatory dysfunction (an ovulatory cycles) (expect those who have ovarian failure) and in the patients who have many multiple follicle (eg. PCOD) this treatment helps ovulation and increases fertility.

Treatment of other problems associated with infertility :

There can be other hormonal problem in the body of patient which might hinder infertility of couple eg. Increase or decrease in thyroid hormone or prolactin hormone etc. There may be some other medical illness like diabetic, blood pressure or other which can be controlled with proper medications. Also there can be deficiency of vitamins, iron which could be treated by supplementation of appropriate nutrients & medicines. By doing all this treatment in pre conception period we can secure

antenatal, intranatal & post natal health of the female partner.

Intra uterine insemination

In this procedure semen of the male partner is processed to separate good sperms and washed to increase the count & motility and injected into the uterine cavity of female partner at the right time. This is Intra-uterine insemination.

For female partners, ovulation inducing medicines are given to increase the number and quality of oocytes, and this is monitored by doing follicular study through sonography. While monitoring follicle growth, injection to trigger ovulation is given and at the time of expected ovulation processed sample of male semen is injected into uterine cavity, this process is called IUI. The processed semen sample contains good quality sperms and are injected in uterus to facilitate pregnancy chances. For the patients who do not conceive naturally, IUI procedure can double or triple their chances of pregnancy. In IUI we don't know whether fertilization has occurred or not, or even whether embryo has reached uterine cavity or not, so the success rate in IUI is about 10% to 15% per cycle.

Test Tube Baby Treatment (IVF-In Vitro Fertilization)

In Vitro – Outside one's body

Fertilization – Union of egg and sperm

The procedure in which oocytes are fertilized outside the body after doing ovum pick up and fertilized with male sperms to form an embryo, which are then transferred into uterine cavity is called In Vitro Fertilization. By doing this procedure one can see the quality of egg by removing outside body. This is the only treatment in which good quality embryos can be identified and chosen to be inserted into the uterine cavity for implantation. This procedure helps to bypass the unseen events of fertilization of egg and sperm in the body, and hence helps to examine quality of embryo and select good embryos to be transferred in the uterine cavity. This is the reason for having good chances of pregnancy.

In which couple IVF is useful?

IVF is useful in the following patients :- Advanced female age, previous failed infertility treatment, or unexplained infertility (reason of infertility couldn't be found by routine investigation), blockage of fallopian tube or tubes, damaged

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investigation), blockage of fallopian tube or tubes, damaged tubes due to any disease or any pelvic disease or disorder like endometriosis, polycystic ovaries or tuberculosis. Also for any male factor like problem in sperm count. This procedure is helpful in all such conditions. Other than these reason if a couple requires donor eggs, ICSI, PGD or Surrogacy, IVF procedure is mandatory.

Advanced technology in In Vitro Fertilization Treatment

ICSI – Intra Cytoplasmic Sperm Injection

In this procedure only one sperm is injected directly into egg for fertilization. For fertilization of one female gamete-ova/ egg only one sperm is needed, hence what so ever less sperm count of male partner, he can become father with his own gamete.

In this procedure, immotile sperm or immature sperm obtained from testicular biopsy / TESA or from Epididymis (PESA) can be used for fertilization and can be successful.

Blastocyst Culture

Routinely in IVF procedure day 2 or day 3 Embryo Transfer is done in uterine cavity. During the natural process of pregnancy an embryo develops for 5 days in fallopian tube and than it descends down in the uterine cavity, the embryo at this stage is called blastocyst.

In IVF lab if embryos are allowed to develop till Day 4, 5 or 6 blastocyst can be cultured. The blastocyst is a developed and good embryo by natural way, which increases the pregnancy rate 1 o 2 times than day 2 or day 3 embryo transfer.

Laser Assisted Hatching

Zona pellucide is the thick layer covering the embryo which protects in developmental stages just like a coconut is covered by hard shell. When embryo reaches uterine cavity for implantation to occur it needs to break this zona pellucida for attaching to te endometrium in uterine cavity. To facilitate this, laser beams are used to drill microscopic holes on the zona pellucida of the embryos, this process is called Laser Assisted Hatching.

Pre Implantation Genetic Diagnostics (PGD)

The PGD is the technology which helps to determine genetic abnormality in an embryo before the embryo is transferred into uterine cavity, so as to avoid genetic disorder.

Embryo /Blastocyst : Freezing and Storage

During IVF treatment, pre decided number of embryos are transferred in uterine cavity & the surplus embryos are frozen under -196°c where embryo goes into hibernation like state and all molecular activity are stagnant. After this process the frozen embryo are kept safely for period decided by the patient. These frozen embryos can be used for transfer in future. Embryo freezing helps in using extra embryos obtained during IVF cycle instead of its wastage. Thus ready to transfer embryos are frozen, so while doing frozen embryo transfer patient needs a simpler and less costlier treatment for embryo transfer.

Semen Donation

By the advanced technology like ICSI, TESA, PESA a male can get a child with his own sperms even if the number of sperms is very less.

But if not even a single sperm is retrieved on doing these advanced technology or if the patient is not affordable for such procedures or also if there is history of any genetic disorder which can be inherited to the child, in such cases semen donation is easy & simple method of treatment. This procedure is economical and also confidential treatment.

For preventing sexually transmitted disease & to have good quality sperm donor, patient must select good semen bank.

Egg Donation

In IVF procedure, eggs are retrieved from female by doing ovum pick up and fertilized in vitro before transferring embryos into Uterine cavity. Due to this method, it is possible for retrieving eggs (or ova) from one female, fertilizing them with sperms and than transferring embryos to another women's uterine cavity. The donor women are selected on basis of criteria like proved fertility, young age, disease free and healthy individual. Due to this, the pregnancy rate is higher in donor IVF cycle.

This type of treatment is simpler alternative to the infertile ladies who have premature ovarian failure, advanced age, post menopausal, poor ovarian reserves or multiple IVF failure with self eggs. This method is easy, simple and confidential.

Surrogate Mother Treatment

In surrogate mother treatment, IVF is done same as routine IVF treatment but instead of transferring the embryos in the uterus of female partner, the embryo are transferred into the uterus of the another lady-Surrogate mother.

Surrogate mother bears the pregnancy for 9 months and gives birth to the child, and then hands over the child to the intended parents, hence in surrogate mother treatment the source of genetic material is 100% of the couple, and surrogate mother does not contribute any genetic material.

This procedure is simple as routine IVF and in some cases if needed , male or female gamete can be taken from donor as per the positive medical or surgical history of one of partner.

Endoscopy

Now a days patient does not need to undergo major Laparotomy (opening of abdomen with incision) for diagnosing or treating infertility problem or any other disease of abdomen/pelvic region. This procedure can be done by using a endoscope (a camera attached to narrow pipe like instrument). The endoscopy of the abdominal cavity is called as "Laparoscopy" while that in uterine cavity is called as "Hysteroscopy".

Laparoscopy – Hysteroscopy Operations

Laparoscopy is done with laparoscopy camera for which a very small incision is taken on abdomen (mostly near umbilicus) due to which patient recovers quickly and also gets earlier discharged from the hospitals.

Laparoscopy procedures can be done for diagnosing and treating various causes of infertility, also for removal of fibroids, ovarian cyst, dermoid cyst, chocolate cyst, adhesions, fallopian tube related problems, hysterectomy (Removal of uterus) & various other pelvic abnormalities.

Hysteroscopy procedure can be done for treating intra uterine adhesions, removal of polyp, septum resection (cut), removal of

foreign body, other various causes of infertility. This procedure is incision-less and there is speedy recovery in few hours and early discharge on same day. This procedure is simple and convenient for patients.

Fertility Preservation

For Males: (Semen freezing):

Male gametes (sperms) can be preserved for long period by doing semen freezing, which can be thawed and used when required.

This is a simple, successful & economical technology. This procedure is helpful for those male partners who have less sperm motility/count, or won't be able to be present during IUI /IVF procedure, or having sexual problem. Also patients who might be going for cancer treatment or testicular/pituitary surgeries can take advantage of this technology.

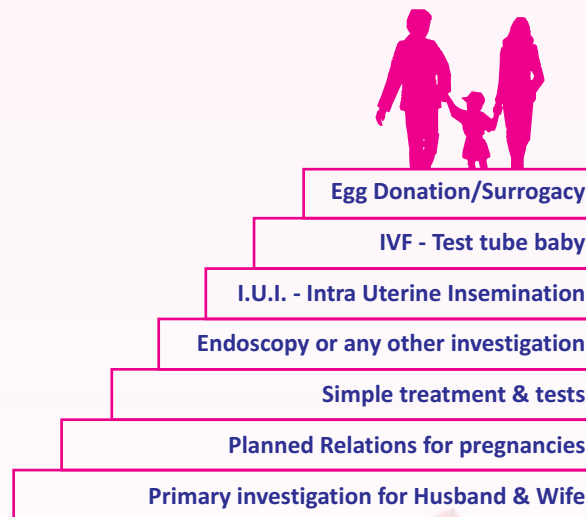
For Female: (Oocyte Preservation)

By the process called as **Vitrification** "female gametes (oocyte/egg) can be frozen similar to sperm for longer duration. If the female partner is not planning pregnancy immediately or in unmarried female, the oocyte can be freezed and then thawed & fertilized to be transferred when the female partner is ready in future. This process help to conceive with her own eggs/ovum.

LADDER TO SUCCESS

There are many options available for treatment other than treatments described above. Almost every couple get success if proper treatment option selected. It is very important to opt proper treatment at proper time to get success for a couple. The success rate decreases if couple keeps on undergoing similar treatment at different institutes. So it is advisable to select better treatment option to get success.

For every couple it is important to take guidance of fertility specialist, fertility treatment institute. Then only there are maximum possibilities to get success.



Routinely for most of the couples in suitable conditions the steps of treatment are as mentioned in diagram. But depending on the factors like age of female partners or eagerness for early pregnancy, treatment can be started at any step or even few steps can be skipped and advanced treatment can be chosen.

Introduction of Divya Santan Sansthan :

Divya Santan Sansthan is a selfless service organization which helps infertile couples to achieve their goal of having their own child. The main objective of this organization is to fulfill the short comings of childless couple. This organization is serving society to give support and hope to many childless couples throughout the Gujrat, India and whole world.

This organization came into existence on 20 April 2010 at Ahmedabad. In this era of science and technology, due to the advancement in medical science, there are various methods of treatment of infertility. Most case of infertility with any age of partner or any reason of infertility, can now be treated and have resulted in successful child birth, but due to lack of information & knowledge of fertility treatment, many get misguided and also get frustrated due to wrong advice, wrong diagnosis or treatment. Due to this trauma many couples gets disheartened and leave the option of taking further treatment and remain infertile for the rest of life time. In few couples especially female partners gets the guilt of remaining infertile and carries the burden and sorrow. Some even go ahead and take the deadliest step of life – suicide. There are many such examples still in society. Some couples gets so depressed that they behave in the life as if they are dead log. This organization was established to help such couples by giving the precious gift of child in the barren life of childless couples like river gives life to barren land.

More than 1500 couples have taken guidance of this organization. Many childless couple have been receiving good guidance, information, advice, and treatment from renowned consultants & hospital, which helps them to achieve the goal of child in their life. Due to failure in treatment, many couples go in depression and sorrow and stop taking right treatment, also sometimes due to reasons like shyness, social, economical or family reason forces couples to remain childless. These couples are given confidence and guidance by those couples who have been blessed by child with help of counseling, discussion & guidance of consultants & use of latest & Advance technology childless couples can conceive. Couples who have been blessed with gift of child through this organizations can share their stories

of struggle & success with the intention of serving & helping other such couples to conceive take advantage of this organization.

Importance of child in life

In life to be happy - physical, mental & economic wealth is necessary. But couples can only be in a supreme happiness when they have their own child. In front of child's happiness other wealth's are insignificant. Having children fills your life with Bliss and any female or male is eager to become mother & father. When one conceives and becomes parents at right time and right age that house is happy and content. Becoming a mother is a blissful experience for a female where she feels complete. A child does not just bring happiness to parents but also entire family, relatives, especially Grand parents whose happiness cannot be expressed in words, with this respect having a child in a family is utmost important. Child is like a god's gift and once a couple gets this gift, they get the feeling of meeting the god itself. The child's smile and happiness makes any tired and frustrated person, cheerful and blessed. After the day long work when parents return home and see their child playing, & spend sometimes with them, they get refreshed and overwhelmed. Children playing and enjoying in any house makes it a home to leave in, or else its just a house made of walls. Hence its very important to have kids in any house, also women gets the complete feminine feeling after giving childbirth. The home with child in it is a symbol of happiness & cheerfulness hence a childless couple should achieve the goal of pregnancy with help of technology.

It is very difficult to understand the pain & suffering of a childless couple to any couple who have got pregnant naturally without any difficulty. To help these couples and help them to achieve the happiness and goal of child, this organization works very hard. There are various organization in world for various other illness which are government aid or non government organization, but there are very few organization which work for infertility problems. The organization should help those couples who are sitting in home without any treatment, this is the real social service by any organization working for infertility. This organization works to wipe the tears of the couples, to achieve

them the goal of happy life with child in their family and home. In this way childless couples can fulfill their dream of complete happy family with guidance & knowledge shared by this organization

Thanking You All

“BAVISHI FERTILITY INSTITUTE.”