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Can we promise pregnancy to every woman today?

By *Dr Duru Shah* on March 28, 2018

Today, fertility treatment is purely scientific and precise, targeted to determining the cause and treating it. Besides, almost every hurdle can be overcome with the help of amazing options. For example, a woman without a uterus can still have her own child by borrowing another's womb!



Image source: Google
In a normal couple

During normal sexual activity, semen which consist of millions of sperms, is deposited in the vagina. From there the active and motile sperms travel into the fallopian tube to meet the egg which is released from the ovary once a month. This is where fertilization of the egg occurs. The fertilised egg multiplies further, becomes an embryo and travels into the uterus where it finally implants and forms a fetus and then into a beautiful baby. So to produce a baby it is absolutely necessary that there should be an efficient egg, a motile sperm and a functional uterus.

For a woman without functional ovaries There has been a gradual delay in the age at conception with today's career oriented women. Very often women delay their pregnancies till 35 years and beyond and plan pregnancy after their careers are stabilised. Women are born with limited eggs in their ovaries, and when the eggs are exhausted, women reach menopause. Fertility is low almost nil in the last 10 years before menopause. Indian women reach menopause at an average of 48 years which is about 5 years earlier than their western counterparts.



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The other risk factors for eggs to be harmed are active smoking and sometimes even passive smoking through excessive smoking by her partner. Previous ovarian surgery for various reasons where some part of the ovary may be removed.

Freezing or Vitrification of eggs is the way we freeze a young woman's eggs if any of the above is anticipated, so that she has kept young and good quality of her eggs for herself when she would need them. But if she has not frozen her eggs and she plans a pregnancy when her eggs have all been exhausted, then she needs an egg donor to give her the eggs she needs.

Egg donation involves finding an appropriate donor (anonymous), screening her for infections and other diseases such as **diabetes**, thyroid, etc, matching her physically with the patient concerned, retrieving eggs from the donor, fertilising the eggs with the patient's husband's sperm and placing the embryos (babies) in the womb of the patient.

This is a variation of IVF (In vitro fertilisation or test tube baby). Egg donation gives excellent results in women who have poor quality eggs.

For a man without functional sperm

For a pregnancy to occur, the egg is penetrated by the sperm within the human body and the two merge together to form an embryo.

Azoospermia is a condition in which the male does not have any measurable level of sperm in his semens. There are two ways of helping such couples.

The first option called TESA (Testicular Sperm Aspiration) involves directly obtaining sperm from the testes where they are produced. These sperms do not usually possess the ability to penetrate the egg. Hence a process called ICSI (Intra Cytoplasmic Sperm Injection) is utilized in which each sperm is literally injected into a single egg under 400 times magnification with the assistance of a very special Microscope called Micromanipulator.

ICSI is also used for men with a low sperm count or reduced ability of the sperm to move (motility).

The second option available for men with azoospermia is the use of donor sperm. This again involves a screening process, for ruling out medical conditions in the donor at ovulation, determined by ultrasonography, the sperms are injected into the uterus via a procedure called Intra Uterine Insemination (IUI).

For a woman without a womb Unfortunately, there are certain conditions in which a woman is born without a uterus or has to have it removed due to medical reasons. With the help of IVF, embryos are prepared with her eggs and her husbands' sperms and then transferred to another woman's womb. This procedure is termed **surrogacy**.

Surrogates (who carry the baby) also require thorough screening, to ensure that no infectious disease is transmitted to the baby. To confirm that the baby's is truly that of the biological parents, DNA fingerprinting is done and the DNA of the baby is the same as the DNA of the parents and not similar to the DNA of the surrogate who carries the baby till deliver. Recently Uterine Transplantation has been successfully tried abroad and about ten children have already been born! But I think it will take another 5 years before it becomes a common clinical service.

For a woman whose husband is overseas In the corporate world with couples hardly living together due to their hectic travel schedules, it can be difficult to get pregnant. Thankfully the husband can collect a semen sample before travelling and the semen can be frozen for eternity! The processed semen can be thawed when required, and the lady inseminated, providing the possibility of pregnancy even in the absence of the husband.

Semen freezing is also an excellent option prior to **chemotherapy** or radiation in young men undergoing **cancer** treatment for their tumours. The semen is frozen prior to the toxic treatment, because the sperms in the testes get damaged by both radiation and

chemotherapy, leading to a poor quality semen sample. In such cases, the male has the option of having a child whenever desired by simply using the frozen sperm.

With appropriate counselling and medical assistance the opportunity to become a parent is now available to almost every single woman desiring a pregnancy! It is wonderful to give a positive result to a childless couple but it is the responsibility of every center carrying out such Assisted Reproductive procedures needs to maintain strict confidentiality, thorough paper work, excellent hygiene and impeccable standards of care and ethics.

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