CANCER AND FERTILITY PRESERVATION IN WOMEN

ISAR FERTILITY PRESERVATION SPECIAL INTEREST GROUP

A cancer diagnosis may not immediately lead to thoughts about preserving one's fertility. But, if you're a woman of childbearing age, it is important to understand that the treatments that help fight cancer may also affect your ability to have children. Different cancer treatments affect the body in different ways. Chemotherapy, radiation and surgery can all affect your reproductive system. In general, the higher the dose and longer the treatment, the higher the chance for reproductive problems. Ask your doctor to help determine the fertility risks associated with your individual treatment regimen.

What are my Fertility Preservation options before treatment?

Fortunately, there are more options to preserve your fertility than ever before.

- **Embryo Freezing :** Embryo freezing is a proven, successful way to try to preserve your fertility. Fertility clinics have successfully frozen embryos for more than 30 years, since an infant girl named Zoe became the first child born from a frozen embryo in Melbourne, Australia in 1984. Since then, embryo cryopreservation technology has helped bring hundreds of thousands of babies into the world, with as high a health level and live birth rates as in vitro fertilization (IVF) with fresh embryos. It is a good option to consider if you are married, have a committed partner or are willing to use donor sperm. The process requires hormonal stimulation to retrieve your eggs and takes two to six weeks.

- **Egg Freezing :** Egg freezing is now a very good option for unmarried women. However, Egg freezing, has had to overcome some particular challenges to get where it is today. When egg freezing began in the 1980's, the slower freezing techniques employed at the time created a risk of ice crystals formation during the freezing process. That all changed in 2012 when fertility specialists introduced a new flash-freeze process called vitrification, which combined with ICSI sperm injection, led to normal rates of fertilization. As a result, fertilization and pregnancy rates are as high for frozen eggs as with fresh eggs.

- **Ovarian Tissue Freezing :** Ovarian tissue freezing may be a good option for prepubertal patients or if you do not have a lot of time before treatment or if you cannot have the hormonal stimulation needed for egg retrieval and either Egg or Embryo Freezing. This approach involves the surgical removal and freezing of either part of the ovarian cortex or the whole ovary. However, there is a chance that the transplanted ovarian tissue may reintroduce cancer cells and cause relapse when ovarian transplant is performed in cases of hematological malignancies.

The fertility preservation option for patients should be adapted to each woman's unique situation, including her age, general health, lifestyle, and medical history. The choice must be mad In consultation with the patient, her oncologist, fertility specialist, and family members.

How are the eggs / embryos frozen and stored?

Following the egg retrieval procedure, the eggs are immediately transferred to the laboratory for an advanced cryopreservation process called “Vitrification” performed by highly skilled and experienced embryologists. Vitrification or Flash Freezing is the latest freezing technology which freezes eggs / embryos in a flash by converting them in a vitrified or glass state. This process eliminates the lethal ice crystal formation inside the eggs / embryos, thereby increasing the success rate of the process. The eggs are then stored in special holding tanks. A fertility clinic's secure cryopreservation facility includes stringent quality controls, enhanced security, fault-tolerant storage, controlled access and constant monitoring. If you are freezing embryos, then the harvested eggs are fertilised with your partner's sperms and the resulting embryos are vitrified and stored as described above.

For how long can the eggs / embryos/ ovarian tissue remain frozen?

Theoretically, eggs, embryos or ovarian tissue may be frozen indefinitely, as no biological activity takes place during cryopreservation. Based on scientific evidence, we are confident that 20 - 22 years of storage does not result in any decrease in quality of eggs.

What are my parenthood options after cancer?

Natural conception may be possible if you remain fertile after treatment. If you have undergone Egg, Embryo or Ovarian Tissue Freezing, you can use this genetic material and get pregnant with the help of IVF.

Many cancer survivors have children after treatment.

What is my chance of having a baby with frozen eggs and embryos?

Freezing and thawing protocols continue to improve, and eggs / embryos frozen recently have excellent recovery, with most clinics reporting over 95% survival rates. This enables very good pregnancy outcomes from these frozen eggs / embryos.

The literature suggests that the overall live birth rate per embryo transfer with new vitrification techniques is same for fresh and frozen eggs / embryos. It is also similar between non-cancer infertile women undergoing IVF and women with cancer undergoing IVF. However, a woman will have a better chance of a successful pregnancy if several embryos are stored. Her age will also play a large role in the chances of pregnancy, with a younger age at the time of egg retrieval resulting in higher pregnancy rates. The quality of the embryos also makes a difference.

Can I become a mother if I am not fit to carry a pregnancy after treatment?

If you have banked your eggs, embryos or ovarian tissue before treatment, then, you can still become a mother with the help of Gestational Surrogacy, where another woman carries your baby for you. India allows Altruistic surrogacy with a close relative as a surrogate mother.

How safe is it to become pregnant for a woman after surviving cancer?

Currently available studies suggest that pregnancy after cancer does not reduce chances of the patient's survival. It does not trigger cancer recurrence, even after breast cancer.

Radiation to the uterus can increase the risk of miscarriage or premature births.

Is there any risk of birth defects in children born to cancer survivors?

Rates of birth defects in the general population are 2% to 3%. Rates of birth defects in children born after one parent's cancer treatment appear similar; no higher than 6% and probably less. No unusual cancer risk has been identified in the offspring of cancer survivors (except in families identified with true genetic cancer syndromes, for example, Inherited Retinoblastoma).

Many options exist for you to become a parent. Thinking about fertility now can help assure you have choices when you are ready to become a parent. Talk to your medical team about your treatment and its effects on your fertility.

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