Fertility Preservation for Women with Cancer

BY JAMES GRIFO, MD, PHD

As the program director at the New York University (NYU) Langone Fertility Center and chief executive physician at Inception Fertility, my passion lies in reproductive endocrinology and infertility. I pursued a doctor of medicine and doctor of philosophy degree in obstetrics and gynecology because this best combined my desire to help others with my interests while having an impact on science. These fields focus heavily on translational medicine, so I am constantly researching and improving treatments.

I am passionate about helping patients have the families they desire and continuing to innovate treatments and science that will lead patients to optimal outcomes. I have pioneered techniques like the preimplantation genetic diagnosis and preimplantation genetic screening, which examine specific genes and chromosomal numbers in early embryo development. These procedures can be used to determine whether an embryo has genetic abnormalities that can put a pregnancy at risk and increase the odds of miscarriage or of a child being born with health problems. Both techniques require the removal of cells from the embryo, also known as embryo biopsy, and are considered safe procedures. In 1992, I performed the first embryo biopsy that led to a live birth in the United States.

Egg Freezing and *in vitro* Fertilization

Currently, my focus is on assisted reproduction—helping people with fertility issues through the use of egg freezing technology and *in vitro* fertilization. I believe that people, and women especially, need more fertility options because they should not be confined to the rules of "mother nature" that have not evolved along with societal norms, such as having babies at a younger age rather than when women feel ready for them, whether it be due to relationship or financial factors. More women today understand how their age and other factors (e.g., personal beliefs, life goals, etc.) impact their reproductive health. They want to take greater control over their biological clock. My team and I at NYU Langone continue to research fertility preservation and develop, as well as improve, techniques that will help individuals and/or couples have a baby when they are ready.

Specialists in our program at NYU Langone Fertility Center were early adopters of egg freezing technology and have pioneered its development since. Egg freezing, also known as human oocyte cryopreservation, is a procedure that preserves a woman's eggs so that she may use them in the future. It allows women to postpone pregnancy to a time that makes the most sense for them, including for the purposes of starting a family after cancer treatment. Egg freezing also increases the chances of healthy pregnancy for women who may decide—or need—to delay childbirth because the eggs will keep their youth once frozen. For example, a woman who freezes her eggs at age 33 and decides to use those eggs at age 40 will likely have the same chances for a healthy pregnancy that she had at 33 years old.

The first baby to be born using egg freezing at NYU Langone was in July 2005. Since then, we have seen an increase in the use of our egg freezing services.

Fertility Preservation in Oncology

For someone who has yet to experience parenthood or, perhaps, has not yet finished building their family, infertility can be another devastating side effect of a cancer diagnosis. Fertility preservation has proven to be an effective measure in ensuring that these individuals have fertility options should they decide to pursue pregnancy after completing their anti-cancer treatment.[1] My team and I recently published a first-of-its-kind, 15-year study[2] showing that egg freezing is a viable option for anyone looking to preserve their fertility. For patients with cancer, especially for the adolescent and young adult patient population, news of their fertility preservation options can be comforting and give them hope that they can have a baby after cancer.

Unfortunately, cancer treatments negatively impact patients' fertility health, and fertility is just one more area that can be emotionally overwhelming for patients on their cancer journey. Because the female fertility preservation process can take a few weeks, it is important for women to consider their options as soon as they receive a cancer diagnosis. Generally speaking, female fertility declines with age and this impacts not only egg quantity but also egg quality. It

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is recommended that women undergo egg freezing when in their late 20s to early 30s, which will give them the most optimal outcomes should they decide to pursue pregnancy after age 35. But recent findings show that women who freeze their eggs at a later age can also be successful. A groundbreaking new study,[3] led by me and my team, found that 70 percent of women who froze their eggs when they were younger than 38 years old and had at least 20 eggs thawed at a later date had a baby. Based on clinical experience, this study also reports that 211 babies were delivered from egg freezing and found that a considerable number of the women in the study had more than one child after egg preservation.

Therefore, presenting fertility preservation options to patients with cancer early in their care is a vital component to addressing their psychosocial health, especially considering that fertility concerns may not present until they are in survivorship.

It is necessary for an oncologist or a member of the multidisciplinary team to act swiftly upon a new diagnosis to immediately present to patients their fertility preservation options, so patients have time to consider their options and future plans. By having an open conversation, patients can be empowered to take the appropriate steps to preserve their fertility without compromising the urgency of their anti-cancer treatment.

Once patients complete their treatment and want to begin fertility treatment after having their eggs frozen, they should begin conversations with their oncologist and fertility provider to determine an appropriate timeframe to being the process.

My team and I have had great success in performing fertility preservation. We conducted a study to further explore the success of egg freezing as a fertility preservation option for women and found a high rate of success, where more than 95 percent of the frozen eggs survived the thawing process and 57 percent of patients in the study went on to deliver babies.[4]

Though egg freezing is a viable option for women of many ages, it is imperative for those with cancer to freeze their eggs prior to starting chemotherapy. By doing so, their eggs will not be impacted by damage from their anti-cancer treatment, nor will they age due to the loss of time between the treatment and when it is determined safe to begin the pregnancy process. Indeed, the Prelude Network has helped many survivors of cancer have babies using frozen eggs.

Keys to Success

As with other clinical supportive care services, fertility preservation is not a free service. Unfortunately, egg freezing is rarely covered by insurance, but patients should always contact their insurance providers to see whether they have fertility preservation coverage. For those who pay out of pocket, there are more options to help them access treatment. I recommend speaking with a fertility clinic's financial counselor about their payment options.

And one of the most important things a cancer program or practice can do to help their patients is educate staff about the various fertility preservation options for men and women, so they can arm patients with the different options available to them immediately. This information will help patients make an informed decision sooner with the guidance of a medical professional, which will, in turn, allow patients to quickly preserve their fertility without compromising the start of their cancer treatment.

For those who do not know where to start, I can help. NYU Langone Fertility is part of Inception Fertility's clinical network—the largest provider of fertility services in North America. Oncology professionals can direct their patients to any one of our centers, where our reproductive endocrinologists can share more about patients' fertility preservation options and answer any questions they may have about their fertility. OI

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