

Preserving Fertility in Cancer Patients

By Anna Azvolinsky

Four years ago, Alice Crisci was diagnosed with stage I breast cancer at age 31. She immediately brought up fertility preservation with her oncologist, who told her there was a 50% chance the chemotherapy treatment for breast cancer would leave her infertile.

“I knew if they told me there was a 2% chance, I would have still wanted to pursue fertility preservation,” said Crisci.

She quickly learned that fertility preservation is expensive and that insurance typically does not cover the cost of the procedures and tests. When she did not qualify for financial aid through Fertile Hope—a nonprofit that helps cancer patients at risk for infertility—she put the \$20,000 fertility preservation bill on her credit card.

“I walked out of the clinic, thinking, ‘This must be why I got cancer. I am going to raise money so that other women don’t have to put this on their credit cards.’”

Three weeks after her cancer diagnosis, Crisci started a nonprofit organization to help women with cancer preserve their fertility.

“My experience echoes the experience of all the patients that I connect with and help,” Crisci said.

Oncologists are much more likely to have the fertility preservation conversation with a younger female patient now than a few years ago. Still, few young women are taking the steps to preserve their fertility before undergoing toxic cancer treatment, according to a study published March 26 in *Cancer*. The research also shows that much more needs to be done to provide effective counseling on fertility preservation for women of reproductive age who have a cancer diagnosis.

Fertility Counseling: an Unmet Need

According to Crisci, her oncologist never mentioned fertility preservation. She says that when she brought it up, he told her she would probably menstruate again after

therapy. But menstruation does not mean that a woman’s eggs can form healthy embryos that can be carried to term. So Crisci sought a second opinion, and that oncologist congratulated her when he found out that she had taken the right steps to preserve her fertility.

Rachell Moodie, who was diagnosed with aggressive breast cancer at age 24 in 2009, also chose fertility preservation. With financial help from Fertile Hope and her family, she and her husband froze their embryos. She was one of her doctor’s few patients undergoing fertility preservation. Cancer free for more than 2 years, Moodie now does public service announcements through the Moffitt Cancer Center in Tampa, Fla., where she received her treatment, to raise awareness for fertility preservation ahead of cancer treatment.

Signs indicate that fertility counseling and preservation among cancer patients is increasing. Mitchell P. Rosen, M.D., of the University of California, San Francisco, and colleagues, surveyed more than 1,000 women aged between 18 and 40 years from the California Cancer Registry who were diagnosed with leukemia, lymphoma, breast cancer, or gastrointestinal cancer between 1993 and 2007. Rosen and colleagues found that although 61% of the women received counseling on the risk of cancer treatment on their fertility, only 4% pursued fertility preservation. The rate of fertility preservation did increase from 1% of study participants in 1993 to approximately 8% by 2007.

The study showed that women who are childless or younger, white, and heterosexual were more likely to receive counseling about their reproductive risks and preservation options and undergo fertility preservation. But experts say more studies are needed, because that study predated improvements in fertility preservation, such as in vitro fertilization and ovarian tissue cryopreservation, as well as cancer treatments that are less toxic and noninvasive.

Infertility is one potential long-term consequence of cancer treatment. Cancer therapy, which targets proliferating cells, puts growing ovarian follicles at risk. Alkylating agents, a type of chemotherapy drug, can cause follicular depletion and premature ovarian failure, according to Zeev Blumenfeld, M.D., director of the reproductive endocrinology department at the Rambam Medical Center in Haifa, Israel. However, the effect of various other agents—including chemotherapies, radiotherapies, and combination treatments—is not yet well understood. The overall risk of infertility depends on several factors, including the chemotherapy regimen, the age of the patient, and her existing ovarian reserve.

Fertility and Quality of Life

With improvements in cancer diagnosis, treatments, and survival rates, quality of life is becoming more important. And fertility preservation may be a big part of that for some of the more than 120,000 women younger than 50 years who are diagnosed with cancer every year in the U.S. But fertility preservation for women often involves expensive invasive procedures that health insurance often does not cover.

According to Patricia Ganz, M.D., of the Jonsson Comprehensive Cancer Center in Los Angeles, “There is a real issue in being able to organize the care in an efficient way. We are trying to do that at UCLA, and we are a major, comprehensive cancer center. This is even more complicated in the community setting. It is not that people are not interested, but to be able to get patients seen in an efficient way is one of the challenges,” she said.

Rosen is vocal about counseling and educating all younger female cancer patients referred to a fertility specialist, just as women are now referred to a plastic surgeon for breast reconstruction after breast cancer surgery.

Nancy You, M.D., a surgical oncologist at the University of Texas M. D. Anderson Cancer Center in Houston, sees the patient–clinician discussion as an individualized risk–benefit analysis of the trade-offs of pursuing versus not pursuing fertility treatment.

“I think it’s our job to inform the balanced discussion. The ultimate decision rests with the individual patient,” she said.

You believes that a formal incorporation of counseling younger women on their fertility options as part of practice is a realistic goal that is achievable over the next 5 years.

“At least one member of the multidisciplinary treatment team should be discussing options with the patient and then coordinating the initiation of both the multidisciplinary

treatment and fertility preservation,” You said.

Crisci’s nonprofit includes a network of fertility specialists in 12 states that offer pro bono egg freezing and reduced-cost embryo freezing. Patients contact Crisci, who advocates for the women in their home states. Sometimes the woman has to fly out of state to see a fertility specialist in the nonprofit network.

“I want to make sure that every woman has access to fertility preservation, and part of the access is knowing that fertility is at risk—educating physicians and the public that this is as routine as telling them, ‘You are going to lose your hair,’” she explained.

According to Charis Eng, M.D., Ph.D., chair of cancer genomic medicine at the Cleveland Clinic Lerner Research Institute,

women need to empower themselves by finding out about their fertility options.

“Cancer treatment has come a long way, and survivorship is very real,” said Eng.

Crisci does not yet know the outcome of her fertility preservation efforts. She is trying to get pregnant naturally with her partner and is grateful that she froze embryos as a backup. She has miscarried twice and is considered sub-fertile despite normal blood test results.



Alice Crisci

Moodie is awaiting her 3-year remission mark, after which the chances are lower that her aggressive breast cancer will come back. In June, she and her husband can pursue pregnancy.

Like Crisci, she will try to get pregnant naturally, but her frozen embryos give her peace of mind. “I always knew I was called to be a mom. It was never a question for me,” said Moodie.

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