



Fertility Options Offer Hope for Young Adult Cancer Patients

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Think back on the best times you had as a teen and young adult. Now, imagine being that age and hearing the words: “You have cancer.” Patients between the ages of 15 and 30, known in the medical world as adolescents and young adults (AYA), are a distinctively vulnerable population. When a cancer diagnosis suddenly turns their world upside down, this age group needs holistic, life-changing care to meet their unique needs.

There is newfound attention being brought to AYA cancer treatment in recent years,¹ with many opportunities to provide this population with comprehensive care. One area specifically that is very important to these patients is the impact of cancer treatment on their fertility,² further adding to the medical, psychosocial and financial issues presented by a cancer diagnosis. However, through new fertility preservation options available now to patients, these alternatives can assist those wishing to reach the milestone of one day starting a family and also address their fertility and reproductive health — an essential part of optimizing outcomes for AYA cancer patients.

NAVIGATING THE ROAD TO ONCOFERTILITY

Over the last several decades, young adult patients have not seen the improvements in cancer outcomes that have occurred in the older adult and younger pediatric populations. While the reasons for this involve multiple factors, one barrier can be attributed to lack of access to clinical trials, as availability has been dramatically lower in the AYA group.³ Recognizing this disparity, in 2005 the National Cancer Institute and national advocacy groups began focusing attention and fund-

ing on AYA cancer research in order to advance oncology for this population.⁴ In the years since, AYA oncology has become recognized as a sub-specialty in the cancer care world, and national programs have been developed to optimally support these patients by improving survival and quality of life.

Fertility preservation is one of the five fundamental pillars of AYA cancer care.⁵ Others include access to clinical trials, management of financial burdens, education and career development during and after cancer treatment, and psychosocial and emotional health. When AYA patients who have completed cancer therapy are asked about their biggest concerns, the most common one expressed is: “Will I be able to have children?”⁶ Even more than the risk for cancer recurrence or issues of disability or disfigurement, the desire to build a family is their highest priority.

When a young adult patient first receives a diagnosis of cancer, they are typically dazed, disoriented and confused. During the whirlwind of discussions about cancer type, further testing, the types of therapy that will be administered and overall prognosis, the topic of future fertility can be forgotten, buried or seem inconsequential.

This stands in stark contrast to the patient's fears and worries that come after treatment.

Personal observation and published studies have shown that women, in particular, benefit from separate and extensive discussion of fertility risks and options, which need to occur outside of the oncologist's exam room and apart from the "Day 1" cancer conversation.⁷ Most male patients with any infertility risk from treatment will be successfully guided to sperm banking, a process that is less complex than steps that may be taken to preserve female fertility.

Conversations with female patients can be more complicated and nuanced. Such discussions will need to include specific considerations: the patient's age, diagnosis and treatment plan; the necessity for starting cancer treatment quickly; desire for future family-building; and patient financial resources. The care team of the medical institution making the cancer diagnosis may need to discuss how to best meet each individual patient's needs prior to any fertility preservation referral. In many cases, non-affiliated fertility centers may offer limited fertility options due to their outpatient structures or not be supportive of approaches available elsewhere.

OVARIAN TISSUE CRYOPRESERVATION

One such fertility preservation approach available for AYA female cancer patients is the technique of ovarian tissue cryopreservation (OTC), which has become widely available and accepted as a standard of care for these patients. This technique has been used for more than 25 years, with the first successful live birth reported in 2005.⁸ The procedure was officially deemed "nonexperimental" by the American Society for Reproductive Medicine in 2019.⁹ OTC involves removing one healthy ovary before cancer treatment begins, cutting the tissue into strips and cryopreserving the pieces. If the patient subsequently experiences failure of the remaining ovary, the stored tissue can be reimplanted and will almost always restore ovarian function for a period of one to several years.¹⁰ During this time, the patient can become pregnant by natural means, and additional strips of ovarian tissue can be implanted if additional pregnancies are desired.

OTC, ovarian tissue reimplantation and subsequent natural egg fertilization and pregnancy are all aligned with the Catholic Church and to Catholic health care ministries. This stands in contrast to the other standard approach to fertility preservation in post-pubescent women: oocyte harvesting

and cryopreservation. Furthermore, OTC is considered to be as effective in achieving successful childbirth results as oocyte cryopreservation,¹¹ which is more expensive and time-consuming due to several weeks of hormonal hyperstimulation, followed by surgical removal of matured eggs. From there, the eggs can be immediately frozen or fertilized in vitro with subsequent cryopreservation of the resulting embryo. Overall, the process can cost in excess of \$5,000 per treatment. For young adult patients facing the financial burden and stress of medical bills and lost wages, this monetary barrier is often insurmountable, and many choose not to undergo this type of fertility preservation procedure.¹²

In contrast, OTC can potentially have a much lower cost and does not impose any delay in cancer treatment. For example, at Mercy, ovary removal is typically carried out in conjunction with another procedure, such as a biopsy or central line placement. This eliminates most of the surgical cost, which is rarely covered by insurance. Mercy partners with a fertility preservation clinic that donates its services to prepare and freeze the ovary tissue, and as a result, patients typically owe much less — between nothing and \$1,000 — for the peace of mind of future fertility protection. When and if the patient does decide later in life to start a family, she will need to consider the costs involved in ovary thawing and the surgical reimplantation, which can amount to several thousand dollars depending on where the procedure is done. However, this typically occurs at a time when financial stress is far less for the patient.

MULTIDISCIPLINARY TEAM APPROACH

Young cancer patients and their families often navigate an array of radiologic, surgical and medical services. Therefore, holistic and comprehensive support services are key to providing optimal care for AYA cancer patients. Successful AYA cancer programs have a dedicated navigator or coordinator who meets with patients as early as possible and introduces them to AYA supportive services. This navigator is highly educated and trained in the field of oncofertility and provides the initial counseling for patients whose fertility is at risk.

One example of this approach is embodied through Mercy's Cardinals Young Adult Cancer Program in St. Louis, Missouri, which is one of approximately 50 AYA programs in the United States. The treatment team includes medical, pediatric



and gynecologic oncologists, a social worker, an AYA navigator, a psychologist, art and music therapists, and even a therapy dog.

Patients receive cancer treatment in a distinct and separate clinical infusion space, which is adjacent to the pediatric infusion center and clinic. Opened in October 2020, the AYA infusion center offers integrated therapy and support services, and has treated more than 25 patients to date. For nearly every patient treated, fertility preservation is an issue, and thus far, the program has successfully performed OTC for about 10 patients. Future growth plans for the program — which will be facilitated by a move to a larger space in 2023 — include adding “family-centered care” that will enable AYA patients with children to receive treatment with their family present.

CONCLUSION

AYA patients with cancer have a high probability of successful treatment and cure, with 85% five-year survival rates after diagnosis.¹³ As a result, the life expectancy of these patients is long, and their quality of life and survivorship critically important. Chronic health conditions can occur in the aftermath of any cancer treatment protocol, and infertility is among the most common of long-term complications.

A consistent focus of health care centered around the healing ministry of Jesus calls for a long-range view of patients’ lives after cancer. Ensuring a future that includes the possibility of childbirth/family-building is a high and necessary calling for every provider in the AYA oncology world, helping to keep forthcoming options open for patients.

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NOTES

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JOURNAL OF THE CATHOLIC HEALTH ASSOCIATION OF THE UNITED STATES

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Reprinted from *Health Progress*, Summer 2022, Vol. 103, No. 3
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