Cancer's Toll on the Heart Decades Down the Road

New research explores how to lower the risk of heart disease in childhood cancer survivors.

June 8, 2020 By Jake Siegel

Kristy Sharif knew the drugs would make her nauseous. But as a 10-year-old girl, one of her greatest fears was that they would make her lose her hair.

It was 27 years ago, and Sharif (back then, she was Kristy Devine) had just been diagnosed with a type of bone cancer called osteosarcoma. She was scared. A year earlier, a close family friend had died of cancer. But her oncologist told her that surgery and chemotherapy drugs would help save her life. Sharif vowed that he would dance with her at her wedding.

They were both right.

Sharif is now a 37-year-old mother of two, with another child on the way. She likes to say that cancer shaped her but doesn't define her. Some days, that childhood experience is little more than a distant memory and a long scar on her left leg from a nine-hour surgery.

But on other days Sharif worries that her treatment left hidden wounds she'll have to deal with for the rest of her life. The chemotherapy drugs she took can cause premature heart failure or other cardiac issues. For years, Sharif and her doctors have kept tabs on her health through a battery of tests, like regular ultrasounds of her heart.

"My journey didn't end when I left the hospital after my last treatment," Sharif said. "It only somewhat began."

She shares perspective from that journey as head of the patient advocacy committee for the Children's Oncology Group, the world's largest organization devoted to childhood and adolescent cancer research.

One researcher she knows well is Eric Chow, MD, MPH, a pediatric oncologist at Fred Hutchinson Cancer Research Center. This week, he presented new research on the drugs Sharif took at the 2020 virtual annual meeting of the American Society of Clinical Oncology.

Chow and his collaborators in the Children's Oncology Group explored two key questions: Is there

anything doctors can do during a child's treatment to protect their heart? And for adult survivors like Sharif, what can we do to monitor and reduce the risk of heart disease?

As long-term survival rates for childhood cancers improve, it's critical to tackle the health problems that can crop up years or even decades later, Chow said.

"As pediatricians, we see people when they're children," Chow said. "But our goal is to have them thrive as adults and live productive lives well beyond when they leave the hospital."

'The only long-term study in the world'

The type of chemotherapy drugs Sharif took are called anthracyclines. They're important in treating many types of cancer, Chow said. But they come with a price: the risk of premature heart failure.

"So you can be cured of cancer when you're 10, but if you end up with heart failure when you're 30, that's terrible," Chow said. "So the key question is, can we modify our treatments so that people aren't having those secondary chronic problems when they're in their 30s or 40s or 50s?"

A drug called dexrazoxane (Zinecard) is the only Food and Drug Administration-approved drug to prevent heart problems in breast cancer patients who receive anthracyclines. But it's been a long-standing question whether it's helpful in children, Chow said.

More than 20 years ago, several pediatric clinical trials tried to answer that question. But long-term clinical research is difficult, Chow noted; people grow up and move away from their treatment centers, and researchers lose track of them. The trials found promising signals that dexrazoxane could provide some heart protection up to five years after treatment, but they couldn't tell whether the drug offered protection for the long haul.

So a few years ago Chow and several other researchers decided to try and find as many of the original trial participants as they could. They ultimately tracked down nearly 200 across the U.S. and Canada. As they reported at ASCO, their initial findings show that pediatric patients treated with dexrazoxane have better heart function 18 years after treatment compared with those who were not treated with dexrazoxane.

Chow notes that more and more centers now appear to be using dexrazoxane with their pediatric patients. He hopes that when his team publishes its final results, the oncology world will consider whether the drug should become a standard of care.

"This is the only long-term study on dexrazoxane in childhood cancer survivors in the world at this point. As good or bad as the data are, this is probably going to be the most definitive study there is."

Underdiagnosed and undertreated risk factors

While survivors like Sharif can't do anything about the cancer treatment they received as kids,

they can work with their health care providers to act on important risk factors for heart disease. Those include conditions like diabetes, high cholesterol and high blood pressure.

With thousands of childhood cancer survivors already at risk for heart disease because of their treatment, Chow and the research team also wanted to understand how many of them were diagnosed and being treated for these health problems they can control.

“The best strategy is to prevent these cardiac issues from happening in the first place with potential protectants like dexrazoxane,” Chow said. “But barring that, there are several generations of people who have already been treated successfully for cancer who may have unknown or uncontrolled risk factors present, and we have to figure out a better way of getting them the information they need.”

The researchers recruited hundreds of former patients from the long-running Childhood Cancer Survivor Study. Their findings presented at ASCO suggest that it’s common for doctors to overlook these conditions in adult survivors of childhood cancer. Among people without a prior known diagnosis, the team observed that more than a quarter had blood pressure and blood sugar values of concern for possible high blood pressure or pre-diabetes/diabetes, and nearly 20% had abnormal cholesterol levels.

The research group has now launched a randomized clinical trial with these same adult survivors to try and solve the problem. Half of the participants will receive a telehealth counseling session with a Fred Hutch medical professional and come up with an action plan to treat their newly diagnosed or undertreated condition. The other half will only receive their test results, which will also be sent to their doctor.

The researchers will assess whether the counseling session can help improve treatment of these conditions. They hope to have initial results by the end of 2021.

“The goal is to try to better educate both the patient and their primary care provider to the unique risks they face,” Chow said.

As a childhood cancer survivor, Sharif commended the work Chow and his colleagues are doing. “They really are giving families fresh hope and advancing research so no family feels like they face any future health challenges alone,” she said. “I am hopeful that their work will offer survivors like me the opportunity for a brighter future.”

The research presented at ASCO was supported by grants from the National Institutes of Health, St. Baldrick’s Foundation and the Leukemia & Lymphoma Society.

This article was originally published on June 1, 2020, by Hutch News. It is republished with permission.
