Higher Risk of Heart Failure Seen in Some Cancers

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Some people who have been treated for breast cancer or lymphoma have a higher risk of developing congestive heart failure than people who haven't had cancer, results from a new study show.

The study researchers retrospectively compared heart failure rates in people who were diagnosed with breast cancer or lymphoma with those in people who did not have cancer. Although the risk of developing heart failure was relatively low overall, people who had been treated for cancer had more than twice the risk of developing heart failure than those who had never had cancer, they found, and the risk was evident as early as one year after their cancer diagnosis. The increased risk persisted for at least 20 years.

"As more cancer patients live longer, they are living long enough to manifest the long-term cardiac effects of cancer treatment," said Lori Minasian, MD, of NCI's Division of Cancer Prevention, who was not involved in the study. "Increasingly, cardiologists and cardiovascular investigators have seen the need to evaluate the short- and long-term cardiac effects of cancer treatment."

The bottom line, said study investigator Carolyn Larsen, MD, of the Mayo Clinic, is that people who have been treated for breast cancer or lymphoma and their physicians should be aware of these risks, and patients should be assessed annually for signs of heart failure.

Larsen presented the study findings at the American College of Cardiology (ACC) Annual Scientific Session on March 10.

Some Cancer Treatments Can Damage the Heart

Congestive heart failure (also referred to as heart failure) is a condition in which weakened or damaged heart muscles are unable to effectively pump blood to the rest of the body. Heart disease, diabetes, and high blood pressure are all risk factors for heart failure, as are some cancer treatments such as chemotherapy, chest radiation, immunotherapy, and some targeted therapies.

To assess the long-term risk of heart failure in people with cancer, Mayo Clinic researchers

analyzed data from the Rochester Epidemiology Project. They focused on participants who were diagnosed with breast cancer or lymphoma from 1985 to 2010 and compared them with matched controls—people without cancer who were the same age and sex, and who had similar risk factors for heart disease.

Some people with breast cancer or lymphoma are "treated with therapies that can be toxic to the heart, particularly anthracyclines," explained Larsen. Among the patients with cancer included in the analysis, nearly all had been treated with chemotherapy and 84 percent had received an anthracycline.

Within 5 years of their cancer diagnosis, the risk of heart failure was three times higher in people treated for breast cancer or lymphoma than in people without cancer, the researchers found. Within 20 years, 10 percent of the cancer survivors had developed heart failure, compared with 6 percent of control subjects.

The risk of heart failure was even higher for certain people with cancer. For example, people who were diagnosed with cancer at age 80 or older had three times the risk of heart failure as those who were diagnosed at a younger age. And heart failure risk was twice as high for survivors who had diabetes compared with those without diabetes.

In addition, they found that the risk of heart failure was two times higher for patients who were treated with doxorubicin (an anthracycline-based chemotherapy drug) compared with patients who received other cancer treatments.

What the Results Mean for People with Cancer

The study findings "add more information about the long-term risk after chemotherapy to the existing knowledge base and provide that data in an epidemiology study rather than a clinical trial—so the findings may be more applicable to a general population of breast cancer and lymphoma patients," Larsen said.

Many clinical trials exclude patients with heart disease from participating, Minasian explained. Consequently, data from clinical trials may not reveal the extent to which heart failure risks are increased in those with pre-existing risk factors.

Nevertheless, Larsen stressed that “not every breast cancer or lymphoma patient is going to develop heart failure.”

Overall, 7 percent of those in the study treated for cancer developed heart failure, compared with approximately 3 percent of those in the control group. “It’s the minority” of people who develop heart failure, she said.

The researchers’ main goal, she added, “is to raise awareness of the risk of heart failure and to encourage a heart-healthy lifestyle in cancer survivors.” A heart-healthy lifestyle includes healthy

eating, managing weight and stress, maintaining physical activity, and quitting smoking.

In addition, breast cancer and lymphoma survivors should be assessed for signs or symptoms of heart failure and for additional risk factors such as high blood pressure, diabetes, and smoking, Larsen said. Treating or controlling those risk factors may mitigate heart failure risk

Patients should also “be mindful that the risk of heart failure doesn’t end when they finish their cancer treatment,” Minasian added.

Ongoing Cardiotoxicity Research

Researchers are actively investigating approaches to lessen or prevent heart damage from cancer treatments. One trial—sponsored by NCI and the National Heart, Lung, and Blood Institute—is testing the cholesterol-lowering medication atorvastatin for reducing heart damage in women with breast cancer who are receiving anthracycline treatment.

Along the same lines, two studies presented at the ACC conference found that cardiac drugs may protect women with breast cancer from cardiotoxicity of cancer treatment.

In one study, the drugs lisinopril and carvedilol both prevented cardiotoxicity in women with breast cancer who were receiving the targeted therapy trastuzumab and who had been previously treated with anthracycline chemotherapy. In the other study, carvedilol reduced some measures of heart damage in women with breast cancer who were receiving anthracycline chemotherapy.

Organizations such as the ACC are also helping to better educate cardiologists and oncologists about heart failure risk factors in people with cancer “so we’re better able to take care of these patients,” Minasian said.

Earlier this year, for example, the American Heart Association published its first-ever statement on breast cancer and heart disease.

In it, the organization stressed the importance of managing cardiac risk factors in older women who have been treated for breast cancer, “because [cardiovascular disease], if not recognized and treated, can pose a greater health risk than the cancer itself.”

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