

# Breast cancer and lymphoma treatments save lives, but may make heart failure more likely for some

February 28 2018

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Patients with a history of breast cancer or lymphoma were more than three times as likely to develop heart failure—a condition in which the heart can't pump enough blood to meet the body's needs—compared with a similar group of patients who did not have cancer, according to data being presented at the American College of Cardiology's 67th Annual Scientific Session.

A team of researchers at Mayo Clinic found the elevated risk of [heart failure](#) occurred as early as one year after [cancer](#) diagnosis and persisted 20 years after patients completed cancer therapy. Among those with cancer, having diabetes or receiving high doses of doxorubicin—a type of chemotherapy—were found to be especially risky for future heart health.

The study, part of Mayo Clinic's Rochester Epidemiological Project, is one of the the first to the researchers' knowledge to directly compare the rate of heart failure in cancer versus non-cancer patients who were well-matched for age, gender and [heart disease](#) risk factors, such as diabetes and [high blood pressure](#). Researchers tracked heart failure cases in 1,550 people without cancer and in 900 [breast cancer](#) and lymphoma patients in Olmsted County, Minnesota, from 1985 to 2010. About 7 out of every 100 cancer patients developed heart failure during the median follow-up of 8.5 years. People with breast cancer or lymphoma were three times as likely to develop heart failure within five years of their cancer diagnosis,

and 20 years following cancer treatment were still nearly twice as likely to have been diagnosed with heart failure compared to similar patients who didn't undergo cancer therapy.

"The risk of heart failure doesn't go away after a couple of years. It's a long-term issue that patients need to discuss with their doctors and use as motivation to stay heart healthy," said Carolyn Larsen, MD, assistant professor of medicine at Mayo Clinic and the study's lead author.

"Cancer patients need to have good primary care and cardiology follow-up to make sure all of their risk factors for heart disease are optimally controlled. They should also be assessed for signs and symptoms of heart failure every year so that they can be diagnosed and started on appropriate medical treatment early on."

Among those who had cancer, some had a higher likelihood of facing a heart failure diagnosis than others. For example, when controlling for multiple heart disease risk factors (e.g., age, diabetes, high blood pressure), receiving higher doses of doxorubicin ( $> 300$  mg/m<sup>2</sup>) and diabetes emerged as the greatest risk factors in the studied population of cancer patients, more than doubling a patient's risk of heart failure. Larsen said additional research is needed to determine why diabetes carries a greater risk than other traditional risk factors, such as high blood pressure, in this group. Anthracycline drugs, such as doxorubicin, are known to cause heart failure because they cause changes in the DNA structure of the heart muscle cells, leading to irreversible cardiac damage. The damage is related to the cumulative dose of these drugs patients receive over the course of their treatment. In order to reduce the risk of heart damage, clinicians today use the lowest effective dose of anthracyclines or avoid anthracyclines all together when other equally effective treatment options are available.

Still, Larsen said the findings raise important questions about what the appropriate surveillance should be for heart problems post-cancer

treatment and suggested that more frequent cardiac imaging may be warranted in some patients to detect signs of heart failure earlier.

"It's an area that needs to be better defined. An echocardiogram is usually done six to 12 months after cancer treatment with an anthracycline, but how often should it be done after that?" she said, explaining there are many differing expert recommendations on the subject with opinions ranging from annually to only if signs or symptoms of heart failure develop. "We need to be more vigilant in making sure we try to prevent or control heart issues post-cancer care, especially in light of the growing appreciation of the connection between some cancer treatments and heart disease."

Larsen emphasized that heart failure is by no means inevitable in patients receiving chemotherapy treatment. One in 10 cancer patients were diagnosed with heart failure in the 20 years following their [cancer diagnosis](#). Additionally, even with heightened risk, a heart healthy lifestyle—maintaining a normal body weight, regular exercise and controlling other risk factors such as high blood pressure, diabetes and high cholesterol—can help lower the risk of heart disease and heart failure.

"If patients know they have received a drug treatment that might increase their risk of heart failure, it's even more important to take care of the aspects of their life that they can control to reduce their risk as much as possible and to work with their medical care team to detect issues as early as possible," Larsen said.

More than 6 million Americans live with heart failure, a number that is projected to jump to 8 million by 2030. Heart failure signs and symptoms include: shortness of breath, swelling especially in the legs or abdomen, fatigue, feelings of weakness, rapid or irregular heartbeat, fast weight gain, and pressure or heaviness in the chest when lying flat. This

was a retrospective study and some patients moved away from Olmsted County during the study period, which may have led to underestimated rates of heart failure in cancer patients and non-cancer patients alike.

Provided by American College of Cardiology

Citation: Breast cancer and lymphoma treatments save lives, but may make heart failure more likely for some (2018, February 28) retrieved 24 April 2024 from <https://medicalxpress.com/news/2018-02-breast-cancer-lymphoma-treatments-heart.html>

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