



July 2013

Heart Disease and Cancer



Nebraska Heart Disease and Stroke Prevention Program
Nebraska Comprehensive Cancer Control Program

Risk factors and prevention

The best way to manage your risk of heart disease and cancer is to maintain a healthy lifestyle. The American Heart Association has designed a helpful guide for preventing heart disease, Life's Simple 7, available [here](#). There is a lot of overlap between the risk factors for heart disease and cancer, so taking steps to prevent one condition means you are also preventing the other. The American Cancer Society also offers a guide to staying healthy [here](#). Age is another important, but unavoidable, factor that determines how susceptible a person will be to these conditions. As people born just after World War II (Baby Boomers) get older, the prevalence of heart disease and cancer is expected to rise due to the strong connection between chronic disease and age.¹

Treatment of cancer can trigger heart problems

While heart disease and cancer have little in common in terms of how they affect the body, they are connected when it comes to cancer treatment. Heart disease here refers broadly to coronary heart disease, heart attack, congestive heart failure, and congenital heart disease.² The strongest connection between heart disease and cancer is that heart problems can arise from chemotherapy, radiation, and hormone cancer treatments. Patients who have heart or vascular conditions at the time they are diagnosed with cancer will be especially vulnerable to the cardiovascular effects of cancer treatments. Some impacts of cancer treatment which show up immediately in the cardiovascular system include spasms of the blood vessels or irregular heart rhythms. Other effects, such as atherosclerosis (buildup of plaque on the inner wall of veins and arteries) and heart failure, can emerge years after treatment is completed and the cancer is gone.

Cardio-oncology (Or Onco-cardiology)

The field of cardio-oncology (sometimes referred to as onco-cardiology) addresses both the cardiovascular side effects of cancer treatment as well as problems associated with concurrent diagnoses of heart disease and cancer. This field is still relatively new, and is based on emerging evidence that side effects of cancer treatment that have previously been considered normal actually indicate heart damage.³ Oncologists and cardiologists often work together to manage cases where patients with cancer are vulnerable to the cardiac effects of treatment.



Chemotherapy

Chemotherapy drugs are strongly associated with cardiotoxicity (poisoning of heart muscle tissue). The effects of these drugs include loss of heart muscle, decreased ability to pump blood, insufficient blood supply to the heart, irregular heartbeat, and inflammation of the pericardium (the protective sac around the heart). Patients who are undergoing chemotherapy should have their heart health evaluated by their medical provider, especially if they have had past heart health problems.

Chemotherapy's ill effects on the heart may be reduced by adjustments in heart medicine.⁴

Chemotherapy treatments for cancers of the breast, uterus, lung, and ovary, as well as leukemia and lymphoma, have been noted to lead to heart problems.⁵ When using these drugs for treatment, physicians take precautions to keep the dosage below a certain lifetime threshold for their patients. Cumulative exposure to these drugs may weaken the left ventricle of the heart and decrease the heart's ability to effectively pump blood. Some drugs can cause damage to arteries that leads to chest pain, spasms, and poor circulation in the extremities. The effects of these treatments on cardiovascular health may be seen immediately, but they can also emerge years after treatment is completed.⁶

Radiation

Sometimes radiation treatment for breast, lung, esophageal cancers or lymphoma damages heart tissue or irritates the protective sac around the heart (the pericardium). Radiation therapy may also affect valve function and heart rhythm regularity, and lead to hardening of the arteries. These effects can increase a patient's chances of having a heart attack and can also complicate heart surgery further down the road.⁷ Patients who received radiation treatments in past decades may be more susceptible to heart problems as they get older. There is some good news, however; developments in radiation techniques within the past 20 years have reduced the risk of damage to heart tissue near the cancer site.

Hormone Therapy

In the case of cancers that are strongly influenced by hormones, most notably breast and prostate, treatment that involves hormone adjustment can inhibit cancer growth very effectively. These treatments may increase the risk of blood clots, heart attack, and diabetes.⁸

Heart Cancer

The chance of having cardiac (heart) cancer (a tumor that originates in heart tissue) is very low. A heart tumor most often arises because cancer from another part of the body has spread to heart tissue. Cancers that spread throughout the chest to the heart include melanomas, sarcomas, and lymphomas. Cancer in the heart can strain blood flow through the heart, stiffen heart muscle and damage heart valves.⁹

The effects of cancer treatments on cardiovascular health may be seen immediately, but they can also emerge years after treatment is completed.

Nebraska Heart Disease and Stroke Prevention Program
Nebraska Comprehensive Cancer Control Program

301 Centennial Mall South
Lincoln, Nebraska 68509

For more information:

American Heart Association: www.heart.org

American Cancer Society: www.cancer.org

Sources

1. <http://circ.ahajournals.org/content/109/25/3244.long>
2. http://www.heart.org/HEARTORG/Conditions/Conditions_UCM_001087_SubHomePage.jsp
3. <http://medicine.yale.edu/cancer/patient/support/cardiotoxicity.aspx>
4. <http://www.ncbi.nlm.nih.gov/pubmed/21184556>
5. http://www.health.harvard.edu/newsletters/Harvard_Heart_Letter/2010/March/protecting-the-heart-from-cancer-therapy
6. <http://circ.ahajournals.org/content/109/25/3122.long>
7. http://www.nlm.nih.gov/medlineplus/news/fullstory_135826.html
8. <http://newsroom.heart.org/news/936>
9. <http://www.mayoclinic.com/health/heart-cancer/AN01288>