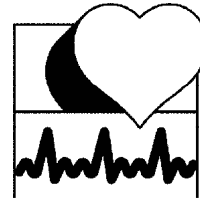


Heart and Blood Vessel Disease after Treatment for Wilms Tumor

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The success in treating children with Wilms tumor has made it possible to study the long-term side effects of cancer therapy. These studies have shown that some of the lifesaving therapies may affect the health of the heart and blood vessel system. These problems result from two treatments used in children with advanced stage Wilms tumor: anthracycline chemotherapy and radiation therapy.

Doxorubicin (also known as Adriamycin) is a type of anthracycline chemotherapy used in some Wilms tumor treatments. High doses of Adriamycin weaken the pumping muscles of the heart and may lead to a condition known as cardiomyopathy. In severe cases, cardiomyopathy can lead to heart failure. The risk of heart failure is related to the dose of Adriamycin. When doses are kept below 300 mg/m² in children, the risk of developing heart failure is less than 5%. But sometimes lower doses of Adriamycin may cause heart damage that cannot be detected by heart screening tests like an echocardiogram. These “subclinical” changes in heart function may increase the risk of heart problems in long-term survivors of Wilms tumor as they get older.

Radiation therapy can also injure the heart muscle, valves or blood vessels. In Wilms tumor patients, the left ventricle, the main pumping chamber of the heart, is likely to be in the radiation treatment field when radiation is delivered to the lungs or the left side of the abdomen. As a result, patients with Wilms tumor involving the lungs or the left kidney usually have some radiation to the left ventricle. Higher radiation doses (more than 3000 cGy) may cause the heart muscle to become stiff, which makes it difficult to pump blood through the heart chambers and into the bloodstream. Radiation may also lead to heart failure by causing the heart valves to become leaky or stiff. Finally, radiation may cause scarring in the coronary arteries, the blood vessels that feed the heart. This increases the risk of atherosclerosis, or blockage by fatty deposits circulating in the blood stream. Once blood flow to an area of the heart is blocked, severe chest pain (angina) may occur. If blood flow is not restored, the heart muscle tissue in the blocked area may die. This condition is known as a myocardial infarction (heart attack).

Compared to adults, children’s hearts are more sensitive to the effects of Adriamycin and radiation therapy. To avoid heart and blood vessel damage, Adriamycin and radiation doses are kept as low as possible in modern treatments for children with Wilms tumor. In patients who received older treatments, heart failure is uncommon unless therapy included high doses of Adriamycin, for example, after a relapse. Combining Adriamycin with lung or left abdominal radiation also increases the risk of heart failure. Some studies show that female patients have a higher risk of heart failure compared to male patients. The reason for this is not

clear, but it may be due to a difference in how girls break down (metabolize) the Adriamycin.

There are several steps Wilms tumor survivors should take to keep their hearts healthy.

1. Know your cancer history. Ask the doctors at your cancer center to review the details of your treatment and tell you if you received any treatment that affects heart health.
2. Share your cancer history with your primary care doctor. Be sure your doctor knows about the specific health risks related to your cancer treatment.
3. Have regular check-ups and periodic heart tests if you were treated with anthracycline chemotherapy or radiation to the chest or left upper abdomen.
4. Remember that most survivors of Wilms tumor have normal heart function on examination and screening tests such as an echocardiogram or electrocardiogram. Subclinical injury that cannot be detected may increase the risk of heart problems as you get older.
5. Report persistent symptoms (like chest pain, rapid or erratic heart beats) to your doctor, even though serious heart disease is not a common occurrence.
6. Talk to your doctor about other medical conditions that can affect your heart and blood vessels. Keep blood pressure, cholesterol, and blood sugar in good control with diet or medication as recommended by your doctor.
7. Since pregnancy and childbirth can stress a heart that has been weakened by cancer treatment, be sure to get your doctor’s advice before becoming pregnant. Notify your doctor if you become pregnant so you can be monitored more closely for complications related to your cancer treatment.
8. Review your health habits and practice healthy behaviors that reduce the risk of heart disease. The following advice is a prescription for a heart healthy lifestyle:
 - Do not smoke. If you smoke, quit. Avoid smoke filled rooms.
 - Maintain a healthy weight. Reduce if you are overweight.
 - Exercise regularly for 20-30 minutes at least 3 times a week—every day is even better. Be sure to get your doctor’s advice before starting an exercise program.
 - Eat a heart healthy diet including a variety of fruits and vegetables—5 or more servings a day. Limit fat in your diet. Get protein from fish, beans, fat-free and low-fat milk products, skinless poultry, and lean meats.
 - Do not use cocaine or other recreational drugs. 