

Some Childhood Cancer Survivors More Likely to Have Heart Problems

In a recent study, researchers discovered that childhood cancer survivors who have one of two specific variations of a gene, called *CBR1* and *CBR3*, were more likely to develop anthracycline-related heart problems than those without the gene. Anthracyclines are a type of drug used to treat many childhood cancers, but one long-term side effect can be future heart problems. The most common heart problem caused by anthracyclines is called cardiomyopathy, which is when the heart cannot easily pump blood.

Because anthracyclines are dangerous to the heart, higher doses of these drugs are more likely to cause cardiomyopathy in the future. However, for survivors with the *CBR1* and *CBR3* gene variations there is less of a difference in the risk of heart problems when comparing low and high doses of anthracyclines. This is because these gene variations can take low doses of anthracyclines and change them into substances that are also dangerous to the heart, further increasing the risk of cardiomyopathy. When compared with survivors without these gene variations who received low-dose anthracyclines, survivors with the *CBR1* gene variation are about five times more likely to develop cardiomyopathy, and those with the *CBR3* gene variation are about three times more likely to develop cardiomyopathy.

What This Means for Patients

“Although we depend heavily on anthracyclines for treating children with cancer, we are fully aware of the side effects to the heart. We also know that some patients - despite receiving higher doses - don't develop heart problems, while others who received lower doses do,” said senior author Smita Bhatia, MD, MPH, Professor and Chair of the Department of Population Sciences at the City of Hope National Medical Center in Duarte, California. “Our results are a good example of how understanding the genetic makeup of a person with cancer can help us better tailor individual therapies.” Research on this topic is ongoing, and tests for these genes may not be available outside of clinical trials. In the future, doctors may be able to test for these genes to find out which children with cancer have a higher risk of heart problems from anthracyclines. These children could receive treatments that are less likely to damage the heart.

What to Ask Your Doctor

- What type of cancer did I have?
- What treatments did I receive?
- What are the long-term side effects of the treatments? How can these side effects be managed?

For More Information

[Childhood Cancer Survivorship](#) [1]

[Late Effects of Childhood Cancer](#) [2]

Links:

[1] <http://www.cancer.net/patient/Survivorship/Childhood+Cancer+Survivorship>

[2] <http://www.cancer.net/patient/All+About+Cancer/Cancer.Net+Feature+Articles/After+Treatment+and+Survivorship/Late+Effects+of+Childhood+Cancer>