

Childhood cancer survivors have higher risk of deadly heart disease in pregnancy

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Girls who survive cancer have a higher risk of developing a deadly heart disease when pregnant later in life, according to a study presented today at Heart Failure 2018 and the World Congress on Acute Heart Failure, a European Society of Cardiology congress.

Researchers say young [cancer](#) survivors should be warned of this pregnancy-associated [heart failure](#) called peripartum cardiomyopathy so that they can be closely monitored. Separately, the researchers found that women with existing peripartum cardiomyopathy are at increased risk of developing cancer.

"Our finding that cancer and peripartum cardiomyopathy share some biological markers in the blood suggests that there is a physiological connection between these diseases," said Professor Denise Hilfiker-Kleiner, author of the study and Dean of Research in Molecular Cardiology, Hannover Medical School, Germany.

Peripartum cardiomyopathy is a life-threatening type of [heart](#) failure where the heart becomes enlarged and weak in late pregnancy or after childbirth. It occurs in about one in 1,000 pregnant women worldwide. "Without treatment, up to 30% of women die and less than half of patients fully recover," said Professor Johann Bauersachs, Director of the Department of Cardiology and Angiology, Hannover Medical School.

"It has been suspected, without having real data, that cardiotoxic

anticancer treatment injures the heart and years later a second stress on the heart like pregnancy induces cardiomyopathy," said Professor Hilfiker-Kleiner. "Our study provides evidence for links between the two diseases."

The two-part study was conducted using German registry data. In part one, Stella Schlothauer, a young medical student in Professor Hilfiker-Kleiner's lab, compared the ten-year prevalence of cancer, which occurred before or after peripartum cardiomyopathy in 207 women to the ten-year cancer prevalence in the general population of women aged 0-49 years in Germany.

Thirteen of the 207 women with peripartum cardiomyopathy had cancer during the ten-year period—a prevalence of 6.3%. One woman had two cancers. Of the 14 cancer diagnoses, nine occurred before peripartum cardiomyopathy and five occurred after peripartum cardiomyopathy. The ten-year cancer prevalence in the general population of women in Germany aged 0-49 years was 0.59%.

Professor Hilfiker-Kleiner said: "Women with peripartum cardiomyopathy had ten times more cancer, either before or after their heart failure, than the [general population](#) of women. About two-thirds of cancers occurred in children or young adults who then developed peripartum cardiomyopathy, while one-third were diagnosed two to three years after peripartum cardiomyopathy. We think there may be genetic or epigenetic factors which make women more prone to both diseases. This is on top of the long-term cardiotoxic effects of anticancer therapies."

In part two, the researchers analysed the blood of 47 women with peripartum cardiomyopathy and 29 healthy women of the same age and time since pregnancy to look for peptides and proteins associated with cancer. Levels of several of these cancer markers were higher in the

peripartum cardiomyopathy group—for example human epidermal growth factor receptor 2 (HER2), a protein which is elevated in around one in five breast cancers. Compared to healthy women, cancer markers were elevated in women with peripartum [cardiomyopathy](#) regardless of whether or not they had previous or subsequent cancer during the study.

"Cancer survivors should be warned that they are at increased risk of pregnancy-associated heart failure," said Professor Hilfiker-Kleiner. "These are high-risk pregnancies and women need close monitoring of their hearts for any sign of heart failure. We need more data so that we can tell pregnant [women](#) with a history of cancer how high their risk of developing a second deadly disease is."

"Women who develop [peripartum cardiomyopathy](#) are at higher risk of subsequent cancer and should make sure they attend routine cancer screening," she said.

More information: The abstract 'High prevalence of cancer in patients with peripartum cardiomyopathy: is there a pathophysiological connection between these two entities?' will be presented during the session Young Investigator Award: Clinical which takes place on 27 May.

Provided by European Society of Cardiology

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