# Cancer survivors at risk for heart failure during, after pregnancy

October 15 2018

Young women previously treated for cancer with chemotherapy or radiation therapy with a prior history of cardiotoxicity are more likely to develop clinical congestive heart failure (CHF) during and after pregnancy, according to a study published today in the *Journal of the American College of Cardiology*.

According to the American Cancer Society, there are approximately 60,000 new cancer cases in young adults each year in the U.S., and young women are more likely to be diagnosed than young men. Previous studies have shown that cancer treatments can lead to heart disease in women of child-bearing age.

In this study, researchers retrospectively looked at female cancer survivors who were given potentially cardiotoxic cancer treatments, such as chemotherapy or radiation therapy to the thorax, to evaluate the impact of a cardiotoxicity history on the risk of heart failure during or soon after pregnancy. The researchers aimed to identify the rate at which adverse cardiac events occurred in women exposed to cancer therapy, specifically cardiac death, CHF, acute coronary syndrome or arrhythmia.

Researchers followed 78 cancer survivors from a high-risk pregnancy clinic who had 94 pregnancies over a 10-year period. All the women had received cancer therapy as children, adolescents or young adults. Of the total women, 55 had received anthracycline-based chemotherapy, while 23 received non-anthracycline chemotherapy or radiation therapy only.

Of survivors exposed to anthracyclines, 13 women had a prior history of cardiotoxicity, and 12 of these women had been treated with anthracycline-based chemotherapy. During pregnancy or soon after delivery, CHF occurred in 31 percent of women with a history of cardiotoxicity, with no reports of acute coronary syndrome or arrhythmia. There was no difference in the age of cancer diagnosis, age at pregnancy, cancer type or exposure to anthracyclines between the women diagnosed with CHF and without. There were no maternal deaths.

"For women without a history of cardiotoxicity, their risk of developing CHF during pregnancy is very low," said Paaladinesh Thavendiranathan, MD, SM, director of the Ted Rogers Program in Cardiotoxicity Prevention at Toronto General Hospital. "However, for women who have been exposed to cardiotoxic treatments and have had prior cardiotoxicity, there's approximately a 1 in 3 chance of developing CHF with pregnancy. These women should receive close cardiac surveillance during pregnancy."

According to previous studies, the rate at which CHF occurs in young female cancer survivors can vary anywhere from 0 to 5.4 percent. These study methods varied, making the ability to determine a single percentage difficult. Some studies did not have pre- and post-pregnancy cardiac assessments, relied on self-reporting or included extraneous events too far outside the pregnancy.

"Our study followed the cardiac outcomes in consecutive pregnancies of cancer survivors. We collected data on any cardiac events occurring immediately before, during and after pregnancy," Thavendiranathan said. "From this streamlined approach, we could pinpoint just how high the risk of developing CHF was for young, pregnant women exposed to anthracyclines."

**More information:** *Journal of the American College of Cardiology* (2018). DOI: 10.1016/j.jacc.2018.07.085