

Cancer Advances: Chest X-Ray May Increase Breast Cancer Risk Among Women with BRCA 1 and BRCA 2 Mutations

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A new analysis shows that radiation from chest X-rays may increase the risk of breast cancer among women who carry BRCA 1/2 mutations ? genetic abnormalities that are already associated with heightened risk for the disease. The research also shows that exposure before the age of 20 may be associated with particularly heightened risk. The findings will be published online June 26 in the *Journal of Clinical Oncology*.

The study was conducted by a consortium of primarily European cancer centers and involved 1,600 women who had BRCA 1/2 mutations. (Some of these women had already developed breast cancer and some had not.) Each woman completed a questionnaire asking whether she had ever had a chest X-ray, and how many chest X-rays she had received before and after the age of 20.

Researchers suspected that women exposed to X-rays might be more likely to develop breast cancer because the mutations limit the cells' ability to repair damage caused by radiation.

The researchers found that women with BRCA 1/2 mutations who reported ever having a chest X-ray were 54% more likely to develop breast cancer than women who had never undergone the procedure. In addition, women who were exposed to X-rays before age 20 had a 2.5-fold increased risk of developing the disease before age 40, compared with women who had never been exposed.

Researchers noted two main limitations of the study. The first was the potential for "recall bias," meaning that women who had developed breast cancer might be more likely to remember receiving an X-ray than women who had not been diagnosed with the disease. The second was that researchers only looked at the number of X-rays a woman received ? not the specific dose and precise timing of radiation exposure.

What Does This Mean for Patients?

It is important to note that the results of this study must be confirmed by additional studies moving forward. If they are confirmed, women who carry a BRCA1 or BRCA2 mutation, particularly young women, may want to talk to their physicians and consider alternatives to X-ray that involve less radiation in order to help reduce cancer risk, such as MRI. This study also serves as a reminder for women to discuss age appropriate breast cancer screening with their physicians.

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