

Aromatase inhibitors associated with reduced endothelial function in postmenopausal breast cancer patients

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Postmenopausal women with breast cancer who took aromatase inhibitors demonstrated endothelial dysfunction, a predictor of cardiovascular disease, according to study results presented at the 2016 San Antonio Breast Cancer Symposium, held Dec. 6–10.

Aromatase inhibitors (AIs) are a class of drugs that lower estrogen levels, and have been shown to reduce breast cancer-related mortality in women with locally advanced curative intent estrogen receptor-positive disease, which accounts for 75 percent of breast cancer cases.

However, estrogen also protects against heart disease, and recent research has suggested that the suppression of estrogen raises the [risk](#) of cardiovascular disease, said the study's lead author, Anne H. Blaes, MD, MS, an associate professor in hematology and oncology at the University of Minnesota.

"With a growing number of cancer survivors, it is very important that we look to understand the long-term complications from cancer treatment. Most women with [early-stage breast cancer](#) are at greater risk of dying from cardiovascular disease than their breast cancer," Blaes explained. "The development of cardiovascular disease is a multistep process, and the cardiovascular risk of AIs has always been a concern."

In this study, Blaes and colleagues examined the effect of AIs on

[endothelial function](#), the ability of the body's blood vessels to relax and contract. Blaes explained that changes in endothelial function are an early predictor of cardiovascular disease. The study enrolled 25 healthy postmenopausal women and 36 [postmenopausal women](#) with locally [advanced breast cancer](#) who had been prescribed an AI. Women with a history of tobacco use, hypertension, or hyperlipidemia were excluded. The participants underwent biomarker analysis and pulse wave analysis to gauge several components of endothelial function.

The study showed that women who were taking AIs had higher mean systolic blood pressure (128.3 mmHg vs. 114.5 mmHg) and significantly higher levels of d-dimer, a measure of inflammation in the body (21,135 vs. 6,365 nanograms per milliliter).

The participants who were taking AIs also had lower median large-artery elasticity (12.9 vs. 14.6 ml/mmHg) and small-artery elasticity (5.2 vs. 7.0 ml/mmHg). The endoPAT ratio, which measures endothelial function, was 0.8 in the [breast cancer survivors](#) who took AIs and 2.7 in the controls, which Blaes said was a significant difference.

The study showed no correlation between the use of chemotherapy, radiation therapy, the type of AI, or the duration of AI use and the reductions in endothelial function.

In recent years, research has suggested that taking AIs for as long as 10 years could lower the risk of [breast cancer recurrence](#). Blaes said her study's results indicate that physicians should consider the risk of reduced endothelial function and potential cardiovascular damage, and should communicate the risks and benefits clearly to patients.

"It is important for women with breast cancer to look at the pros and cons of each medication being prescribed, as well as their risk of [breast cancer](#) recurrence," she said. For example, a woman whose cancer type

or stage predicts a high rate of recurrence may opt to stay on the AI for 10 years, but a woman with early-stage cancer who has other risk factors for [cardiovascular disease](#) may want to limit her time on the AI.

Blaes said a limitation of the study is its small size, and that further research would be necessary to confirm the researchers' findings.

Provided by American Association for Cancer Research

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