No increased risk of fatal CV events for breast cancer patients on newer hormone therapy

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In a new study from Kaiser Permanente, researchers found the use of aromatase inhibitors, hormone-therapy drugs used to treat patients with breast cancer, was not associated with an increased risk of fatal cardiovascular events, including heart attacks or stroke, compared with tamoxifen, another commonly prescribed anti-cancer drug that works on hormones and which has been associated with a serious risk of stroke.

While women taking aromatose inhibitors did not have an increased risk of death from heart attacks or stroke, the study, published today in *JAMA Oncology*, found that those who only used aromatase inhibitors or used the drugs after tamoxifen treatment had a 26 to 29 percent higher risk of less serious cardiovascular events, such as abnormal heart beat and pericarditis (a swelling and irritation of the thin membrane surrounding the heart), compared with those who only used tamoxifen.

Cardiovascular disease is a leading cause of death in older breast cancer survivors. Although aromatase inhibitors are considered superior in reducing risk of cancer recurrence compared to tamoxifen in postmenopausal women with hormone receptor positive breast cancer, previous studies have provided inconclusive or mixed results on the potential cardiovascular risk associated with aromatase inhibitors.

"Our study is a comprehensive assessment of the impact aromatase inhibitors have on cardiovascular risk and provides reassurance that the

hormone therapy to reduce breast cancer recurrence does not increase risk of the most fatal cardiovascular events," noted Reina Haque, PhD, MPH, research scientist, Kaiser Permanente Southern California Department of Research & Evaluation. "A particular strength of our study is that we accounted for women's other potential cardiovascular risk factors as well as medication used to treat high blood pressure and high cholesterol."

Estrogen and progesterone are hormones produced by women that can promote the growth of some breast cancers. Aromatase inhibitors work by blocking the activity of an enzyme called aromatase, which the body uses to make estrogen in the ovaries and in other tissues. Tamoxifen binds to estrogen receptors and interferes with estrogen's ability to stimulate the growth of breast cancer cells. Tamoxifen is recommended for five years for women with breast cancer to reduce their chances of developing a recurrence. As part of their treatment plan, some postmenopausal women will use only aromatase inhibitors. Others may use tamoxifen for one to five years and then begin using aromatase inhibitors.

The study included a cohort of 13,273 postmenopausal breast cancer survivors who were diagnosed with a breast cancer, either estrogen or progesterone receptor positive, from 1991-2010. The patients were followed through 2011, or a maximum of 21 years. The study participants were divided into four groups based on the drugs they received: 31.7 percent were treated only with tamoxifen; 28.6 percent only with aromatase inhibitors; 20.2 percent used both; and 19.4 percent did not use any of these drugs.

Provided by Kaiser Permanente

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