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Drop in Breast Cancer Rates Directly Tied to Reduced Hormone Therapy, Large Study Finds

In a new UCSF study of more than 2 million mammogram screenings performed on nearly 700,000 women in the United States, scientists for the first time show a direct link between reduced hormone therapy and declines in ductal carcinoma in situ (DCIS) as well as invasive breast cancer. The researchers saw such a striking decrease; they believe they also have uncovered indirect evidence that hormones promote breast tumor growth. The declines occurred in the age groups that most widely embraced then abandoned hormone therapy.

For nearly a decade, postmenopausal women have been strongly advised to refrain from long-term hormone therapy or to use the lowest dose possible for the shortest time to relieve hot flashes and night sweats. Numerous studies have suggested that women taking a combination of progestin and estrogen faced a higher risk of breast cancer and other potential health hazards.

The new findings suggest that hormones helped promote breast tumor growth of pre-existing, clinically latent hormone-dependent cancers, not only increasing the incidents of invasive cancer, but also the risk of ductal carcinoma in situ (DCIS).

"We show that the incidence of breast cancer decreases, if you take the hormones away," said senior author Karla Kerlikowske, MD. "The fact that we're continuing to see a decrease in invasive cancer means that the effects of stopping the hormones may be long-lasting."

The study has been published online by the Journal of Clinical Oncology.

The use of hormone therapy surged in the 1980's and 90's, an estimated six million American women found that the medications alleviated postmenopausal symptoms. But at the same time, there was a steady increase in the rate of breast cancer.

In mid-2002, following a landmark report of the Women's Health Initiative indicating that the risks of estrogen plus progestin therapy outweighed its benefits, hormone therapy fell into widespread disfavor. Women by the millions gave up hormones cold turkey or incrementally.

In the new UCSF study, scientists reviewed 2,071,814 screening mammography examinations performed between January 1997 and December 2008 on nearly 700,000 women between the ages of 40 and 79 as part of routine regular screening mammography.

They uncovered a clear pattern: women 50 to 69 years old had the highest level of hormone usage -- and showed the biggest reduction in invasive breast cancer when they stopped, from 40 cancers per 10,000 mammograms in 2002 to 31 cases in 2005, 35 cancers in 2006. Likewise, rates of DCIS markedly dropped in the same age group after hormone therapy ended.

There was a parallel drop in cancer among women older than age 70.

Strikingly, the scientists found that among women 40 to 49 years old, who were less likely to have been on hormone therapy, breast cancer rates did not change over the course of the decade studied.

The results corroborate previous declines in invasive cancer between 2000 and 2003 reported for women aged 50 to 69 by the same group of scientists as well as other researchers. To the authors, the statistics offer convincing evidence that hormone therapy cessation reduces breast cancer risk.

The scientists say major questions remain unanswered: Does a halt in hormone therapy correlate to a delay in the clinical detection of tumors, leading to a short-term reduction in cancer rates, but not a long-term drop. Do the effects apply long term for all tumors influenced by hormone therapy?

"The study supports the idea that by giving the hormones we were promoting tumor growths by giving the hormones," said Kerlikowske, professor of medicine, and epidemiology and biostatistics at the UCSF Helen Diller Family Comprehensive Cancer Center, and co-director of the Women Veteran's Comprehensive Health Center at SFVAMC. "When the promoter is taken away, the incidence of breast cancer decreases."

While scientists continue to investigate the relationship between hormones and cancer, Kerlikowske said that using hormone therapy on a short term basis is "probably OK. But long term, it is not OK."

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