Association between hormone replacement therapy use and breast cancer risk varies

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Breast cancer risk associated with use of hormone replacement therapy (HRT) among postmenopausal women was variable when analyzed by race/ethnicity, body mass index (BMI), and breast density, according to a new study published September 3 in the *Journal of the National Cancer Institute*.

Studies have reported HRT use is associated with an increase in breast cancer risk. However, differential risks by BMI and breast density have been reported. Also, studies on the effect of HRT use on breast cancer risk among black women have reported inconsistent results.

Ningqi Hou, M.H.S., Ph.D., from the University of Chicago, in Chicago, IL, and colleagues analyzed 1,642,824 screening mammograms, which included 9,300 breast cancer cases, from postmenopausal women from the Breast Cancer Surveillance Consortium, a US registry of mammography screening. Data on HRT use were analyzed by race/ethnicity, age, BMI, and breast density using statistical methods to accommodate missing information on HRT use and other covariables. Statistically significant interactions between HRT use and each covariable were calculated.

A greater than 20% increased risk in breast cancer was associated with HRT use among white women and Hispanic women, but not black women. HRT use was more strongly associated with breast cancer risk in women with low or normal BMI but no association was observed among women with a high BMI. In addition, women with denser breasts had an increased likelihood of breast cancer among those who reported HRT use as well. The authors went on to investigate the combined effect of BMI and breast density because the two are correlated. They found a statistically significant interaction between breast density and HRT independent of BMI and identified high and low risk subgroups: HRT use was not associated with breast cancer for women with high BMI with low breast density whereas HRT use was associated with a statistically significant higher risk of breast cancer for women with low or normal BMI and high breast density.

These findings indicate HRT may be used for some women without increasing breast cancer risk, and could be used to help identify women who may use HRT to relieve postmenopausal symptoms without increasing their risk of breast cancer. Hou and colleagues conclude, "Black women, obese women, and women with breast tissue composed largely of fat may benefit from HRT use with minimal excess breast cancer risk." Further studies to confirm these findings and provide more information on other modifiable risk factors for breast cancer in relation to HRT use are needed.

In an accompanying editorial, Mary Beth Terry, Ph.D., and Parisa Tehranifar, Dr.P.H., from the Department of Epidemiology and the Herbert Irving Comprehensive Cancer Center at Columbia University, New York, NY, note that this study is the largest to investigate the association between HRT use and breast cancer risk by race/ethnicity, BMI, and breast density together. However, they also caution that the results were based on data for which details on HRT type and duration of use were not available and that the study was not adequately powered to investigate some interactions. cannot be used to draw They conclude, "Ultimately, efforts that improve risk stratification, whether made through improved risk models or through measuring valid intermediate biomarkers such as breast density, will inform appropriate use of not only HRT, but also other medications, including chemopreventive drugs."

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