Breast cancer diagnoses, survival varies by race, ethnicity

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Among nearly 375,000 U.S. women diagnosed with invasive breast cancer, the likelihood of diagnosis at an early stage, and survival after stage I diagnosis, varied by race and ethnicity, with much of the difference accounted for by biological differences, according to a study in the January 13 issue of *JAMA*.

In the United States, incidence rates of breast cancer among women vary substantially by racial/ethnic group. Race/ethnicity and sociodemographic factors may influence a woman's adherence to recommendations for clinical breast examination, breast self-examination, or screening mammogram and the likelihood of her seeking appropriate care in the event that a breast mass is noticed. A growing body of evidence suggests that biological factors may also be important in determining stage at diagnosis (i.e., the growth rate and metastatic potential of small-sized breast cancer tumors may vary between women due to inherent differences in grade and other or unknown pathological features), according to background information in the article.

Javaid Iqbal, M.D., of Women's College Hospital, Toronto, and colleagues examined the proportion of breast cancers that were identified at an early stage (stage I) in different racial/ethnic groups in the United States and whether ethnic differences may be better explained by early detection or by intrinsic biological differences in tumor aggressiveness. The study included women diagnosed with invasive breast cancer from 2004 to 2011 who were identified in the

Surveillance, Epidemiology, and End Results (SEER) 18 registries database (n = 452,215). For each of 8 racial/ethnic groups, biological aggressiveness (triple-negative cancers [negative for estrogen receptor, progesterone receptor, and ERBB2 (formerly HER2 or HER2/neu)], lymph node metastases, and distant metastases) of small-sized tumors of 2.0 cm or less was estimated. In addition, the odds were determined for being diagnosed at stage I compared with a later stage, as was the risk of death from stage I breast cancer by racial/ethnic group.

Of 373,563 women with invasive breast cancer, 268 675 (71.9 percent) were non-Hispanic white; 34,928 (9.4 percent), Hispanic white; 38,751 (10.4 percent), black; 25,211(6.7 percent), Asian; and 5,998 (1.6 percent), other ethnicities. Average follow-up time was 40.6 months. The researchers found that Japanese women were significantly more likely to be diagnosed at stage I (56.1 percent) than non-Hispanic white women (50.8 percent), while black women were less likely to be diagnosed at stage I (37.0 percent), as were women of South Asian ethnicity (Asian Indian, Pakistani) (40.4 percent).

The 7-year actuarial risk for death from stage I breast cancer was highest for black women (6.2 percent) compared with white women (3.0 percent); it was 1.7 percent for South Asian women. The probability of a woman dying due to small-sized breast cancer tumors (2.0 cm or less) was significantly higher for black women (9.0 percent) compared with non-Hispanic white women (4.6 percent).

The authors write that much of the difference in diagnosis and survival could be statistically accounted for by intrinsic biological differences such as lymph node metastasis, distant metastasis, and triple-negative behavior of tumors.

In an accompanying editorial, Bobby Daly, M.D., M.B.A., and Olufunmilayo I. Olopade, M.B.B.S., F.A.C.P., of the University of

Chicago, write that there is an unprecedented opportunity to deliver high quality precision medicine regardless of race/ethnicity or socioeconomic status.

"Access to the use of genetic or molecular markers to guide choice of targeted therapy and reduce the costs of care can be made more equitable. For women with triple-negative disease, access to prompt diagnosis and initiation of chemotherapy can be lifesaving because these tumors metastasize early. Closing the survival gap will only occur once health care leaders initiate system changes that improve access to high-quality care along with a more comprehensive study of breast cancer biology through inclusion of a substantial number of minority patients in 'omics' research and in clinical trials."

More information: *JAMA*, DOI: 10.1001/jama.2014.17322
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