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Disease-free, Overall Survival Inferior for Black Women with HR-positive Breast Cancer

- Results are not explained by lack of access to care or more advanced stage.
- Chemotherapy, hormonal therapy adherence was similar among groups.

SAN ANTONIO – Black women with hormone receptor (HR)-positive breast cancer had worse disease-free and overall survival, according to data presented at the CTRC-AACR Annual San Antonio Breast Cancer Symposium, held Dec. 9-13, 2009.

“Black women had a higher risk for disease recurrence and inferior survival compared with women of other races,” said Joseph A. Sparano, M.D., professor of medicine and women’s health at Albert Einstein Medical College of Medicine and associate chairman of the Department of Oncology at Montefiore Medical Center in Bronx, N.Y.

“The worse outcome was seen only in those with HR-positive, HER-2–negative breast cancer, which is the most common type of breast cancer” he added.

Previous research has shown that black women have worse outcomes in operable breast cancer, likely explained by their higher incidence of more advanced-stage disease, more aggressive triple-negative disease, disparities in medical care, and comorbidities.

“When we controlled for these other factors to the extent possible, black race was still associated with a worse outcome, but only in HR-positive disease — this was a new and surprising finding,” said Sparano.

The researchers evaluated survival outcomes in 4,817 women (405 were black) with stage 1 to 3 axillary lymph node-positive or high-risk node-negative breast cancer who had undergone surgery. The women were part of the Eastern Cooperative Oncology Group and Breast Cancer Intergroup trial E1199; they received doxorubicin and taxane-containing chemotherapy plus standard hormonal therapy.

“We found that black patients exhibited similar adherence to the chemotherapy and hormonal therapy, and they didn’t do worse if they had other breast cancer subtypes. This indicates that black women with HR-positive breast cancer are more prone to have disease recurrence despite state of the art medical care,” said Sparano.

The researchers are planning additional studies to evaluate whether these findings can be attributed to differences in black women’s ability to metabolize hormonal therapies.

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The mission of the CTRC-AACR San Antonio Breast Cancer Symposium is to produce a unique and comprehensive scientific meeting that encompasses the full spectrum of breast cancer research, facilitating the rapid translation of new knowledge into better care for breast cancer patients. The Cancer Therapy & Research Center (CTRC) at The University of Texas Health Science Center at San Antonio, the American Association for Cancer Research (AACR), and Baylor College of Medicine are joint sponsors of the San Antonio Breast Cancer Symposium. This collaboration utilizes the clinical strengths of the CTRC and Baylor, and the AACR’s scientific prestige in basic, translational and clinical cancer research to expedite the delivery of the latest scientific advances to the clinic. The 32nd annual symposium is expected to draw more than 8,500 participants from more than 90 countries.

Presenter Name: Joseph A. Sparano, M.D.

Institution: Montefiore Medical Center

Abstract Number: 37

Abstract Title: Black Race Is Associated with a Worse Outcome in Patients with Hormone Receptor Positive, HER2-Normal Breast Cancer Treated with Adjuvant Chemohormonal Therapy

Abstract Body:

Background: Black race has been associated with worse outcome in operable breast cancer, which has been attributed to a higher incidence of “triple negative” (TN) disease, disparities in care, and comorbidities. We evaluated the effect of black race on outcomes by hormone receptor (HR) and HER2 expression in patients treated with standard adjuvant therapy in trial E1199 (N Eng J Med 2008; 358: 1663)

Methods: This study included 4950 eligible women with axillary lymph node positive or high-risk node-negative breast cancer, all of whom received doxorubicin and taxane-containing chemotherapy, plus standard endocrine therapy if HR-positive (but not trastuzumab if HER2-positive). Endocrine therapy included tamoxifen alone (38%) or followed by an AI (57%), or an AI alone (5%). The effect of black race was evaluated using Cox's proportional hazards model method (1) as a single variable, (2) in a model that included race, phenotype (TN vs. HER2-pos vs. HR-pos, HER2-neg/unknown [HR+]) and their interaction, and (3) in a multivariate model considering age, tumor size, number of positive lymph nodes, body mass index (BMI), and treatment arm. The stepwise method was used for model selection. The endpoints evaluated included disease free survival (DFS) and overall survival (OS). Results are expressed as hazard ratios (HR), with a HR > 1 indicating a worse outcome for black race. All p-values are two sided.

Results: Of 4950 eligible patients, 416 (8.4%) were black. Black race was associated with significantly higher rates of TN disease (34% vs. 19%; $p < 0.0001$) and higher BMI (median 32.0 vs. 27.7, $p < 0.0001$). Black race was also associated with inferior DFS (HR 1.35, $p = 0.002$) and OS (HR 1.37, $p = 0.01$) in the entire population. Black race was also associated with inferior DFS (HR 1.62, $p = 0.001$) and OS (HR 1.59, $p = 0.03$) in the HR+ group, but not in the TN or HER2-pos group. In a model including black race, phenotype, and their interaction, the interaction term for the HR+ group was significant for DFS ($p = 0.03$) and demonstrated a strong trend for OS ($p = 0.08$). In the multivariate model adjusted for other prognostic variables and BMI in the HR+ group, black race was significantly associated with inferior DFS (HR 1.82; 95% C.I. 1.36, 2.44, $p < 0.0001$) and OS (HR 1.81; 95% C.I. 1.18, 2.78, $p = 0.007$).

Conclusions: We observed significantly inferior DFS and OS in black subjects who received chemohormonal therapy with HR+ disease (adjusted for other prognostic factors and BMI), but not in other phenotypes. This observation suggests that factors other than disparities in care or more advanced or aggressive disease may have contributed to recurrence. Potential explanations include poorer adherence to endocrine therapy, obesity and associated hyperinsulinemia, or other factors, which merit further investigation.