Differences in Breast Cancer Stage at Diagnosis and Cancer-Specific Survival by Race and Ethnicity in the United States

Importance Women with early-stage breast cancers are expected to have excellent survival rates. It is important to identify factors that predict diagnosis of early-stage breast cancers.

Objective To determine the proportion of breast cancers that were identified at an early stage (stage I) in different racial/ethnic groups and whether ethnic differences may be better explained by early detection or by intrinsic biological differences in tumor aggressiveness.

Design, Setting, and Participants Observational study of 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, lymph node metastases, and distant metastases) of small-sized tumors of 2.0 cm or less was estimated. The odds ratio (OR) for being diagnosed at stage I compared with a later stage and the hazard ratio (HR) for death from stage I breast cancer by racial/ethnic group were determined. The date of final follow-up was December 31, 2011.

Main Outcomes and Measures Breast cancer stage at diagnosis and 7-year breast cancer–specific survival, adjusted for age at diagnosis, income, and estrogen receptor status.

Results Of 373 563 women with invasive breast cancer, 268 675 (71.9%) were non-Hispanic white; 34 928 (9.4%), Hispanic white; 38 751 (10.4%), black; 25 211 (6.7%), Asian; and 5998 (1.6%), other ethnicities. Mean follow-up time was 40.6 months (median, 38 months). Compared with non-Hispanic white women diagnosed with stage I breast cancer (50.8%), Japanese women (56.1%) were more likely to be diagnosed (OR, 1.23 [95% CI, 1.15-1.31], $P < .001$) and black women (37.0%) were less likely to be diagnosed (OR, 0.65 [95% CI, 0.64-0.67], $P < .001$). Actuarial risk of death from stage I breast cancer at 7 years was higher among black women (6.2%) than non-Hispanic white women (3.0%) (HR, 1.57 [95% CI, 1.40-1.75]; $P < .001$), and lower among South Asian women (1.7%) (HR, 0.48 [95% CI, 0.20-1.15]; $P = .10$). Black women were more likely to die of breast cancer with small-sized tumors (9.0%) than non-Hispanic white women (4.6%) (HR, 1.96 [95% CI, 1.82-2.12]; $P < .001$); the difference remained after adjustment for income and estrogen receptor status (HR, 1.56 [95% CI, 1.45-1.69]; $P < .001$).

Conclusions and Relevance Among US 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. Much of the difference could be statistically accounted for by intrinsic biological differences such as lymph node metastasis, distant metastasis, and triple-negative behavior of tumors.