

Breast Cancer Disparities

High-Risk Breast Cancer and African Ancestry



Lisa A. Newman, MD, MPH

KEYWORDS

- African American • African ancestry • Breast cancer disparities
- Triple-negative breast cancer • Breast cancer subtypes

KEY POINTS

- Population-based lifetime breast cancer incidence rates are lower for African American women than for white/Caucasian American women.
- Breast cancer mortality rates are higher in African American women than in white/Caucasian American women, and this difference is partially explained by socioeconomic disparities resulting in delayed diagnoses and suboptimal treatment in the African American community.
- Women with African ancestry (African American and Africans) are more likely to be diagnosed with early onset/premenopausal and triple-negative breast cancer (TNBC) than women with Caucasian/European background.
- Male breast cancer is more frequent in populations with African ancestry.
- Genotyping for ancestry informative markers may inform the discussion of how African ancestry may be related to hereditary susceptibility for triple-negative, early onset, and male breast cancer.

INTRODUCTION

Differences in breast cancer burden (represented by incidence and mortality rates) between white/Caucasian Americans and African Americans have been recognized and documented in the United States during the past several decades. These race/ethnicity-related differences are summarized as follows:

1. Population-based incidence rates for breast cancer are lower in African American women than in white/Caucasian American women.
2. The stage distribution for breast cancer is more advanced in African American women than in white/Caucasian American women.

The author has nothing to disclose.

Breast Care Center, University of Michigan Comprehensive Cancer Center, 1500 East Medical Center Drive, Ann Arbor, MI 48167, USA

E-mail address: lanewman@umich.edu

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3. African American women have a younger age distribution for breast cancer at time of diagnosis than white/Caucasian American women.
4. Compared with white/Caucasian American women, African Americans are more likely to be diagnosed with breast cancers that are negative for the estrogen receptor (ER), progesterone receptor (PR), and HER2/*neu* marker.
5. Male breast cancer is more common in African Americans than in white/Caucasian Americans.

Contemporary studies of variation in breast cancer subtypes associated with racial/ethnic identity conclusively demonstrate that individuals with African ancestry (African Americans and sub-Saharan Africans) are more likely to be diagnosed with biologically aggressive patterns of disease, but it is clear that inequities in the socioeconomic structure of the United States also play a significant role in explaining these breast cancer differences, just as they account for increased morbidity and mortality burden among African Americans diagnosed with colorectal cancer, lung cancer, and other nonmalignant medical problems such as diabetes or hypertension. Socioeconomic disadvantages such as poverty and absent/inadequate health care coverage are two to three times higher for the African American community, and these issues clearly account for many of the breast cancer disparities listed earlier, by acting as barriers to effective and optimal access to the health care system. The end results are delays in breast cancer diagnosis, less-efficient delivery of multidisciplinary treatment, and ultimately higher mortality rates.

DISENTANGLING SOCIOECONOMIC RESOURCES FROM RACIAL-ETHNIC IDENTITY IN EXPLAINING BREAST CANCER DISPARITIES

Many investigators have sought to disentangle the confounding effects of socioeconomic disadvantage and race/ethnic identity on cancer survival with interesting and provocative results. In 2004, Ward and colleagues¹ documented that poverty is an adverse oncologic prognostic feature in their landmark study reporting on 5-year survival rates after any cancer diagnosis, stratified by income level. They demonstrated that poverty was associated with worse survival regardless of racial-ethnic identity. As far back as 1994,² the National Cancer Institute tried to address this question within the context of breast cancer, with the Black-White Cancer Survival Study, a case-control analysis of 612 African American and 518 white/Caucasian American patients with breast. This comprehensive epidemiologic study used personal interviews and medical record information to account for sociodemographic factors and clinicopathologic cancer features in explaining breast cancer outcomes. Mortality rates were more than twice as high for the African American patients with breast, and approximately 75% of this survival disparity was explained by the various socioeconomic and clinical features studied, leaving 25% of the disparity unexplained and therefore possibly related to some poorly defined, primary race/ethnicity-related factor. Moreover, when the survival data of Ward and colleagues are analyzed from the perspective of outcome stratified by racial/ethnic identity within specific income strata for female cancers (and therefore data largely driven by outcomes from breast cancer), one continues to see incremental decreases in survival for African American patients compared with white American patients. Delving further into adjustments for socioeconomic status in comparisons of outcome between African American and white American patients, Newman and colleagues³ conducted a meta-analysis of all studies in the medical literature in which a Cox proportional hazard survival analysis had been performed, accounting for racial ethnic identity and some measure of socioeconomic advantage. This pooled analysis yielded a robust sample, more than 13,000 African

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