Breast Cancer Disparities

How Can We Leverage Genomics to Improve Outcomes?

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KEYWORDS

• Disparities • Genetics • Genomics • African ancestry

KEY POINTS

- Advances in breast cancer genomics will provide important insights regarding explanations for variations in incidence, as well as disparate outcomes, between African American and white American breast cancer patients.
- Germline genomics are essential in genetic counseling and risk assessment programs; somatic or tumor-based genomics will be critical in defining prognostic and therapeutic algorithms.
- It is imperative that the oncology community be prepared to apply these technologies equitably to diverse patient populations.

BACKGROUND

Disparities in breast cancer risk and outcome related to racial-ethnic identity in the United States have been documented by population-based statistics from the Surveillance, Epidemiology, and End Results (SEER) Program over the past several decades. These patterns are further supported by data from a variety of health care systems and oncology programs. Variations in the breast cancer burden of African Americans (AA) women compared with white American (WA) women have been the subject of rigorous study[1] because of the magnitude of the observed differences and are the focus of this article. **Table 1** summarizes these divergent patterns.

Breast cancer mortality rates are higher for AA compared with WA women, and this is at least partly explained by a more advanced stage distribution, with AA women being diagnosed more frequently with larger, node-positive disease. Breast cancer incidence

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Table 1
Breast cancer in African Americans and European or White Americans

			African American	White American
Population-based incidence rates (per 100,000), female breast cancer	Overall, age-standardized		122.9	124.4
	Age-stratified	35–39 y	70.6	59.9
		40–44 y	118.2	122.2
		45–49 y	180.4	188.1
		50–54 y	231.6	220.3
		55–59 y	270.7	260.4
		60–64 y	332.0	332.4
		65–69 y	399.5	428.7
Population-based mortality rates (per 100,000), female breast cancer	Overall, age-standardized		28.2	20.3
	Age-stratified	35–39 y	10.2	5.8
		40–44 y	22.1	11.5
		45–49 y	30.7	18.3
		50–54 y	47.3	27.3
		55–59 y	57.4	36.6
		60–64 y	71.3	49.2
		65–69 y	80.4	62.2
Stage distribution at diagnosis, female breast cancer		Localized	53%	64%
		Regional	35%	28%
		Distant	8%	5%
		Unknown	4%	3%
5-y cause-specific survival, female breast cancer		All stages	80%	89%
		Localized	93%	96%
		Regional	78%	87%
		Distant	24%	34%
TNBC population-based incidence rates, female breast cancer			27.2	14.4
Population-based incidence rates, male breast cancer			2.04	1.25

Abbreviation: TNBC, triple-negative breast cancer.
Data from Refs.[4,5,72]