



African American Women and Breast Cancer

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For decades, researchers have been aware that African American women tend to be diagnosed with later stage breast cancer than white women and that they are more likely to die from the disease. Statistics also indicate that African American women under the age of 45 have a higher incidence and mortality from breast cancer than white women under the age of 45. The reasons for these differences in breast cancer incidence and mortality remain unclear.

In 2002, and again in 2004, scientists, breast cancer advocates, and policy makers gathered for a Summit Meeting on Breast Cancer Among African American Women. The Summit attendees focused their efforts on developing a research agenda that would get women and their doctors the answers they need as quickly as possible. The research areas determined to be most critical included:

- ethnic-related variations in breast cancer risk factors, such as family history, births and menstrual factors, use of hormones, postmenopausal obesity, mammographic density of women's breasts, and the types of cancers being found
- environmental factors, such as possible exposure to pesticides or other carcinogens
- the development of a risk assessment tool more accurate than the Gail Model
- exploration of whether there may be a gene, like BRCA1 or BRCA2, that may be prevalent in certain groups of African American women
- the impact of breast cancer in young African American women
- ethnic variations in tumor markers such as hormone receptors, p53, and HER2 (also sometimes referred to as HER-2 or Her-2/neu or erb-b2)
- whether African American women have more side effects from treatment
- nutritional factors that may be related to ethnicity that may affect incidence of premenopausal breast cancer, as well as overall incidence or mortality

Difficult Questions

Exploring the role of race in breast cancer raises an array of difficult questions. Studies have found that social, economic, and cultural factors—such as lack of health insurance, poor access to mammography, and cultural beliefs about medicine—all appear to contribute to a later stage breast cancer diagnosis. Yet other research has pointed to potential differences between African American and white women in the biology of their tumors.

Researchers agree that social, economic, and cultural factors undoubtedly explain some of the breast cancer disparities seen in white women and African American women. But when it comes to the issue of biology as an explanation for the cancer disparities, controversy arises. That's because "race" is not a biological category. Furthermore, researchers don't agree on what "race" really means—or that racial categories even exist.



The National Institutes of Health drew attention to the issue of race and medical research with the NIH Revitalization Act of 1993. The Act required that all researchers receiving NIH funding recruit people from different races into their clinical trials as a means of exploring whether certain treatments are more or less effective in people of different races.

While no one disagreed that it was important to expand the range of people in clinical trials, many cancer experts questioned the explanation the NIH provided.

“The preamble to this legislation attributes many of the disparities in health between blacks and whites to a failure to understand differences in drug activity among racial groups,” writes Otis Brawley, MD, a professor at Emory University and director of the Georgia Cancer Center, in a 2004 editorial in the *Journal of Clinical Oncology*.

“This belief,” he argues, “ignores the real and difficult problems in health disparities research. Many have documented racial differences in the receipt of cancer treatment. In the case of breast cancer, many have noted that poor or minority women tend to get less than optimal therapy for their disease, including surgery, chemotherapy, or radiation. For many black patients, it is not that the drugs do not work; it is that blacks are less likely to get optimal treatment. Indeed, several institutions have demonstrated that equal treatment yields equal outcome among patients, regardless of race.”

But despite the findings from those studies, a number of researchers continue to believe biology may play a role and continue to explore whether there are biologic or genetic differences in the tumors that develop in African American and white women that may explain the disparities seen in breast cancer mortality.

[You can read more about this controversy in Medical Editor Sue Rochman’s article, “Race and the Cure: The Debate Rages Over How (Or If) Race Should Be Used in Cancer Research,” which appeared in the September/October 2003 issue of *MAMM*, [here](#). (You will need Adobe Acrobat to read this article. You can download it [here](#).)]

Social, Economic, and Cultural Factors

Differences in access to care may explain, in part, why African American women are diagnosed with breast cancer at a later stage, and a number of researchers have conducted studies designed to explore this hypothesis. Below are findings from just three of these many studies. Taken as a whole, they highlight the array of social, economic, and cultural factors that may contribute to the disparity in breast cancer mortality between African American women and white women.

In one study that was designed to explore the role access to care and use of cancer treatments may play in mortality disparities, researchers from the Center to Reduce Cancer Health Disparities at the National Cancer Institute studied racial differences in six-year survival based on the cancer’s stage, the woman’s age, and the treatments she was given.



Overall, the researchers found that for each cancer stage, six-year survival rates were lower for African American women. But when they looked more closely, they found that only African American women younger than 50 with estrogen receptor (ER)-positive tumors and women younger than 65 with ER-negative tumors had lower survival rates at each cancer stage.

But they also found that for women age 65 and older there was no significant difference in stage-specific survival, regardless of whether the tumor was ER-negative or ER-positive. The authors suggest this may be because Medicare helps to alleviate the racial disparities in cancer treatment that are seen in women younger than 50 and that result in lower stage-specific survival.

The study also found that African American women at every age had less Stage I breast cancer. This finding points to the need for more to be done to bring African American women into screening programs, so they can be diagnosed as early as possible.

A second study looked at racial differences in the dose and dose intensity of chemotherapy used for adjuvant (after surgery) treatment in women treated in 10 different treatment sites in the United States from 1985 to 1997.

The researchers found that African American women received lower chemotherapy doses and a lower dose intensity than white women did. African American women are more likely to be overweight than white women, and obesity was found to be associated with a lower dose and lower dose intensity of chemotherapy. Yet the researchers also found that the dose and dose intensity were more likely to be lower in non-overweight African American women than in non-overweight white women.

These findings led the researchers to conclude that “systemic differences in the administration of chemotherapy given to African American and overweight women” could be one reason why African American women are more likely to die from breast cancer than white women are. Thus, even if African American women are treated promptly, they may not always be receiving the optimal treatment, which could influence breast cancer mortality.

A third study explored whether delays in the interval between the diagnosis and treatment of breast cancer were greater for African American women than they are for white women. The researchers studied 251 African American women and 580 white women, ages 20 to 54, who lived in Atlanta, Georgia, and were diagnosed with invasive breast cancer between 1990 and 1992. They found that although most women in both groups were treated within three months of their initial consultation with a doctor, 22.4 percent of African American women and 14.3 percent of white women did not begin receiving treatment until more than three months after they first saw a doctor. Even after adjusting for contributing factors such as poverty and insurance, African American women were still more likely to have a delay in treatment, and that treatment delay could be another factor contributing to the disparity in cancer mortality.

Biology and Genetics



The problem that arises when trying to link race to biology and genetics is that race is actually a social construct that has changed over time. As the US Census, which regularly collects information on race and ethnicity, notes, racial categories are “sociopolitical constructs” that “should not be interpreted as being scientific.”

If race is not based on biology, then it becomes questionable to what extent race can be used to explain why someone may or may not respond to a certain drug, or—as in the case of African American women—may be more likely to die of breast cancer.

Even if race is not based on biology, there are, as some researchers have pointed out, genetic differences that can be traced back to ancestry or geographic origin. But the genetic variations that exist in people who are from the same region or of the same ancestry are not due to race or ethnicity, per se. For example, researchers have found that the BRCA1 mutation that increases breast cancer risk is more prevalent among Ashkenazi Jews. But that is not because of their ethnicity; it is due to their long history of only marrying within their religion. If that had not occurred, neither would the prevalence of the genetic mutation among this specific group of people.

Still, some researchers believe that even if people of different races are more similar than they are different, the very small part that is different may contribute in some way that we don't yet understand to breast cancer incidence and mortality. It is for this reason that a number of scientists are investigating whether there are specific differences between the tumors that develop in African American women and white women.

The most recent study to explore this possibility appeared in the August 2004 issue of the online edition of the journal *Cancer*. In this study researchers analyzed tumor tissue that had been taken from 145 African American women and 177 white women who had been diagnosed with breast cancer between 1987 and 1989.

The researchers analyzed the tumors to see if there were genetic differences between the cancers African American and white women developed. They looked for alterations in three specific genes: HER2—a gene that can make cancer more aggressive; p53—a tumor-suppressor gene; and c-met—a gene that can be an indicator that metastases have occurred.

The study found that African American women were more likely to have tumors that had alterations in the p53 tumor-suppressor gene. (Twenty-eight [24.5 percent] of the African American women had tumors that were p53-positive compared with 9 [7.1 percent] of the white women.) This is significant because mutations in the p53 gene are associated with poorer outcomes, possibly because the mutations make chemotherapy less effective. No differences were seen between the two groups in the number of tumors that were HER2-positive or c-met positive.

Like previous studies, this study found that African American women were more likely than white women to be diagnosed with later stage breast cancer, to have larger tumors, and to have had their cancer spread to their lymph nodes. The African American women were also more likely to have Grade 3 tumors (the grade refers to how abnormal the



cells appear), and tumors that were hormone-negative. (The study found that 53 [46.5 percent] of the African American women had tumors that were ER-positive compared with 79 [61.2 percent] of the white women; 35 [31 percent] of the African American women had tumors that were progesterone receptor (PR)-positive compared with 48 [37.5 percent] of the white women.) [You can read more about this study **here.**] **link to: http://www.susanlovemd.org/community/flashes/hotflash040826_1.htm**

The researchers note, “This is the first population-based investigation to report that there are significant differences between African American and white women with regard to the prevalence of tumors that overexpress p53.” And they emphasize that their findings are “consistent with the emerging literature showing that African American women are more likely than white women to be diagnosed with aggressive tumors.”

Even so, this study does not prove that race is the sole reason for the difference in mortality between white women and African American women. Yes, the study did find a difference between the two groups of women: 28 (24.5 percent) of the African American women had tumors that were p53-positive compared with 9 (7.1 percent) of the white women. But it also found that most of the women, regardless of their race, did not have tumors that were p53-positive. So while it is possible that race may provide some clues as to who is more likely to have a tumor that is p53-positive, it's not the whole story.

Putting the Pieces Together

To find the whole story, all the pieces of the puzzle are going to have to be put together: social factors, economic factors, cultural factors, biology, and genetics.

The research conducted to date has provided some interesting clues. But much more research needs to be done before we will be able to fully explain why African American women are being diagnosed with later stage breast cancer and are more likely to die of the disease.

Until then, more attention needs to be paid to raising awareness about breast cancer among African American women and to ensuring that African American women have access to regular mammography screening, to funds to pay for treatment if they can't afford it, and that these treatments are of the same quality as those offered to any other woman with breast cancer.

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