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Mammographic Findings and Family History Risk for Breast Cancer in American Indian Women

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Access to annual screening mammography among American Indians is limited, and data regarding breast cancer risk factors or mammography in these women are scarce. Although average breast cancer mortality rates are lower than those of all races in the United States, rates vary widely between tribes (3.9–24.6/100,000; 1991–1993), with the highest mortality rates in the Aberdeen Area of the Indian Health Service (AAIHS).

A retrospective study of 351 American Indian women in the AAIHS (North Dakota, South Dakota, Iowa, and Nebraska) reviewed screening mammograms, mammographic records, and family history for breast cancer and determined mammographic density. A dense mammogram was defined as one with >50% mammographic density. Rates of dense breasts were compared with a database of non-American Indian women of Ann Arbor, Michigan.

Of 351 women, 11.1% had abnormal mammograms, and 0.8% had breast cancer. Family history of breast cancer in ≥ 1 first-degree relative occurred in 10.0% of women. Dense breasts occurred in 25% of women ages 40–49 years and in 11.4% of women ages 50–59 years. In non-Indians, 67% of women ages 40–49 years ($P = 0.000001$) and 25% of women ages 50–59 years ($P = 0.068$) had dense breasts.

Rates of positive family history, abnormal mammograms, and detected malignancy were similar to other published rates, which validates the importance of breast cancer screening in this group. A statistically significant smaller proportion of American Indian women had dense mammograms, suggesting that mammography may be more sensitive in the detection of breast cancer in women in the AAIHS region. *Cancer* 1998;83:1830–2. © 1998 American Cancer Society.

KEYWORDS: breast malignancies, North American Indians, risk factors, mammography.

Cancer was once a rare event in indigenous women of North America, but it has now become the second leading cause of death in American Indian women.^{1,2} Although breast cancer has a lower average incidence rate in American Indians than other racial groups, the 5-year relative survival, historically, is the lowest of any racial group studied.^{1–3} Furthermore, there is tremendous variation in age-adjusted breast cancer mortality rates among tribes, (3.9–24.6/100,000; 1991–1993), with the highest rate in the Aberdeen Area of the Indian Health Service (AAIHS; North Dakota, South Dakota, Iowa, Nebraska) exceeding the U.S. all races rate (22.4/100,000; 1991–1993).³ The incidence and mortality data in the Southwestern tribes have been used to suggest that screening mammography is not cost effective where incidence and mortality rates are low.⁴ Cancer rate variability necessitates further data sampling in areas where the rates are high.¹ Little data exist concerning mammography in American

TABLE 1
Rates of Dense Mammograms

Group	Age 40–49 yrs	Age 50–59 yrs
AAIHS women (n = 204)	29 in 116 (25%)	10 in 88 (11.4%)
Ann Arbor women (n = 110)	37 in 55 (67%)	14 in 55 (25%)
P value	0.000001	0.068

AAIHS: Aberdeen Area of the Indian Health Service.

Indians. Breast cancer screening rates have been low in the Aberdeen Area, with fixed mammography units available at only 2 of the 12 area hospitals, serving 17 tribes that have approximately 16,000 women 35 years of age and older.

METHODS

A retrospective review was performed of mammograms and accompanying records of 175 women from a reservation-based breast cancer screening clinic that took place in August, 1995 and in December, 1995 with a mobile van and a consecutive sample of 176 women with screening mammography that took place between March and June, 1996 at the Indian Health Service hospital in Rapid City, South Dakota, with a fixed mammography unit. The reservation-based screening clinic was funded by the National Cancer Institute and was performed in a region without previous annual screening mammography. Age, family history of breast cancer, mammographic abnormalities, density, and biopsy results were determined. Mammographic density was assessed visually by an experienced, American College of Radiology- and Food and Drug Administration-accredited mammographer (M.A.R.). A dense mammogram was defined as a mammogram with >50% of the breast tissue appearing radiographically dense. Density data were compared with a database of 162 women from Ann Arbor, Michigan with mammograms that were performed between 1988 and 1995, none of whom reported their race as American Indian. All mammograms were performed with dedicated mammographic equipment at facilities that are accredited by the American College of Radiology.

RESULTS

The average age was 53 years. Mammograms in 38 (11.1%) women were abnormal, with 8 (2.3%) that were highly suspicious for cancer. Of seven biopsies (one woman refused biopsy), three (0.8%) cancers were detected. Positive family history in one or more first-degree relative was found in 35 women (10.0%). Mammogram density data are summarized in Table 1.

CONCLUSIONS

Although our sample size of 351 is too small to judge mammographic detection rates conclusively, this sample suggests that rates of abnormal mammograms (11.1%) and cancers (0.8%) are comparable to other published rates (7.3–8.4% for abnormal mammograms, 0.6–0.8% for cancers).^{5,6} The rate of positive family history (10%) was also comparable to previous reports in non-Indian women and was similar to those previously published by Welty.^{7–9}

Rates of dense mammograms in American Indian women 40–59 years of age were approximately one-half that of the non-Indian comparison group, were lower than published reports of mammogram density, and were consistent with an autopsy study of mammogram density in minority groups.^{10,11} Mammographic density is an impediment to detection of breast cancer, and, because premenopausal women have more dense mammograms, false-negative mammogram rates are higher in women <50 years of age.^{12,13} Therefore, screening mammography may be more effective in early detection of breast cancer in American Indian women, especially in those who are younger than 50 years of age.

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