

ROLE OF MAMMOGRAPHY IN DIAGNOSIS OF BREAST CANCER IN AN INNER-CITY HOSPITAL

Akpofure P. Ekeh, MD, Rebecca S. Alleyne, MD, and Albert O. Duncan, MD

Miami, Florida

Mammography continues to play a strategic role in breast cancer diagnosis. Its place in the urban inner-city population among individuals in lower socioeconomic groups has been shown to differ from contemporary trends. A retrospective review of all women diagnosed with breast cancer over a 5-year period (1993 to 1997) in an inner-city hospital was undertaken. Primary cancers (128) were diagnosed in 123 patients during this period. Only 17 patients (12%) had their disease diagnosed with the help of mammography. All other 111 patients were diagnosed clinically. All 17 patients diagnosed by mammogram evaluation had Stage II carcinoma or earlier in contrast with three-fourths of the clinically detected group of patients.

Twelve percent of the black women were diagnosed by mammography, whereas 21% of white patients were diagnosed by the same modality. All these proportions are lower than those cited in the regular literature.

Better utilization of mammography needs to be applied in inner-city populations to improve early detection of breast cancer. (*J Natl Med Assoc.* 2000;92:372-374.)

Key words: mammography ♦ breast cancer
♦ inner city

Breast cancer is the second leading cause of cancer death in American women. On average, 1 in 9 American women will develop breast cancer by 85 age.¹ An estimated 175,000 new cases of breast cancer are expected to occur among American women in 1999. About 43,300 women were estimated to die from breast cancer in 1999.²

Breast cancer is diagnosed either clinically fol-

lowing self-breast examination or physical examination by a health care professional or following screening mammography (SM). Mammography has the distinct capability of detecting nonpalpable lesions, thus identifying very early breast cancer lesions and carcinoma in situ. Forty-two percent of breast cancers in women over 50 years of age can be detected by mammography alone.³ Studies have conclusively shown that mammography is effective in reducing mortality from breast cancer in women over 50 years by up to 30%.^{4,5} Lesions identified by screening mammography are removed for biopsy via either needle localization or stereotactically to obtain a diagnosis of cancer.

The purpose of this study was to retrospectively determine the role of screening mammography in breast cancer detection at the Caledonian Hospital over a 5-year period.

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MATERIALS AND METHODS

After approval by the institutional review board, all female patients diagnosed with breast cancer from 1993 to 1997 at the Caledonian Hospital, NY, a 200-bed nonprofit inner-city hospital, were identified via the tumor registry. All charts of these patients were reviewed for pertinent information such as mode of diagnosis, age at time of diagnosis, family history, race, histology type, and stage. All patients with carcinoma in situ (Stage 0) lesions were included. Supplemental information was obtained from the tumor registry.

RESULTS

Over the five-year period, a total of 123 patients were diagnosed with 128 primary breast cancer lesions. The average age for the entire group was 58.7 years. Race was identified as black in 94 patients (76%), white in 28 patients (23%), and Chinese in one patient. There were 89 primaries (70%) in patients older than 50 years at the time of diagnosis and 39 (30%) in patients less than 50.

Of the 128 tumors, 17 (12%) were diagnosed by mammographic-directed needle localization biopsy after SM. The mean age in this group was 60.6 years. Fourteen of these 17 patients whose cancers were detected with mammography were older than age 50 at the time of diagnosis.

The remaining 111 lesions were diagnosed by regular breast biopsy following either self-breast examination or physician palpation. Mean age in this group was 58.5. There was no statistical difference between the mean age in both groups ($p > 0.05$).

In women older than 50, 14 of 89 lesions (16%) were diagnosed with mammography, whereas the other 75 (84%) were detected clinically. In women younger than 50 years of age, 3 of 39 lesions (8%) were diagnosed with mammography, and the remaining 92% were detected clinically.

The 17 lesions diagnosed with mammography were Stage II or less at the time of diagnosis. Seven lesions were diagnosed as carcinoma in situ, 5 were stage I, and 5 were Stage II. This differed from the 111 patients whose tumors were detected clinically, in whom only 83 of 111 patients (75%) had Stage II or less tumors. In this group, 15 lesions were diagnosed as carcinoma in situ, 21 lesions were Stage I, 47 were Stage II, and 12 were diagnosed as Stages III and IV.

Of the 94 black patients, 11 (12%) had breast

cancer diagnosed by mammography. Seventy-six patients (81%) were Stage II or less at the time of diagnosis. Six of the 28 white patients (21%) had their cancer diagnosed by mammography, and 22 patients in this group (79%) had tumors Stage II or less at the time of diagnosis.

DISCUSSION

Screening mammography with resultant biopsy of malignant lesions has resulted in earlier diagnosis of breast cancer by identifying in situ and nonpalpable lesions. Studies have shown that mammographic screening, when compared with physical examination, can detect cancers of a smaller size and at an earlier stage.^{6,7} Smaller sized and earlier staged lesions are associated with better prognosis.⁸ Generally, only 2%–4% of all women undergoing SM will undergo biopsy for suspicious lesions, and 70%–90% of them will have benign disease.⁹

SM, when appropriately used, has resulted in reductions in breast cancer mortality.¹⁰ The survival benefit of SM is particularly noted in women older than 50.¹¹ The Health Insurance Plan of Greater New York clinical trial showed 30% reduction in breast cancer deaths as a result of SM.^{4,5} The increasing use of mammography is expected to translate into a higher proportion of nonpalpable lesions being detected, and therefore, treatment of earlier staged lesions. In the study by Cody¹³ at Memorial Sloan-Kettering Cancer Center between 1979 and 1983, 42% of the breast cancer diagnoses in patients over 50 were made by mammography-directed biopsy. In the same study, 28% of patients younger than 50 years of age had breast cancer diagnosed by mammography-directed biopsy. In our review, only 12% of the breast cancer population at Caledonian Hospital were diagnosed by mammography-directed biopsy. Of the patients older than 50, only 16% were diagnosed with the help of SM. In this series, only 3 of the 39 (8%) women under 50 years of age were diagnosed with SM.

Before the widespread application of SM, breast cancer diagnosis was made primarily using clinical methods of self-breast examination and physician detection. Current trends demonstrate the increasing use of mammography in making the diagnosis of breast cancer,^{12–14} and mammography has currently assumed a central role in breast cancer screening.

The proportion of patients diagnosed with SM in

this study is smaller than expected given the contemporary widespread use of mammography. The significance of these findings translates cancers being diagnosed at later stages.

Factors responsible for the low proportion of diagnoses with SM may be related to the demographics of the population involved in this review. Income level, educational status, and marital status have all been linked to increased compliance with recommended SM schedules.¹⁵ We were unable to determine those factors in this study.

CONCLUSION

Over a four-year period, we found that only 12% of our study population had breast cancer diagnoses made with mammography-directed biopsy. These proportions are lower than those observed in similar studies. All patients diagnosed with SM had Stage II or earlier cancer in contrast with only three-fourths of the clinically detected group. Enhancement of the present screening programs and public health education targeted to these high risk groups should help improve compliance with SM schedules.

The American Cancer Society's current recommendations for SM are:

- Baseline study at 35 to 40 years of age.
- Mammogram every 2 years between the ages 40 to 50.
- Annual mammogram after age 50.

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