

Breast Cancer Screening in a Rural Wisconsin Community

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ABSTRACT

Background—Screening tests have been shown to play an important role in earlier disease stage detection of breast cancer.

Aim—The aim of this study was to assess the acceptance of screening mammography in a rural community in Wisconsin.

Methods—A cohort of 60 patients with breast cancer was analyzed retrospectively for disease stage, screening mammography, and patient compliance.

Results—Of 60 patients with breast cancer, only 25 (42%) underwent screening mammography. Compliance was suboptimal among patients; especially poor in the elderly population.

Conclusion—Promotional steps to increase acceptance of screening tests need to be emphasized especially in patients ≥ 60 years in age to enhance early detection of breast cancer and prolong disease-free interval.

INTRODUCTION

Breast cancer afflicts approximately 170,000 women every year in the United States.¹ Due to its long pre-clinical phase, therapeutic intervention at an early stage can reduce mortality related to breast cancer. On this premise, several screening techniques have been adopted to detect breast cancer at an earlier stage. Screening mammography constitutes the foremost and most widely recommended technique. Several studies have demonstrated that screening mammography can detect carcinoma of the breast at an early stage.^{2,3,4} Other less scrutinized screening modalities include breast self examination (BSE) and clinical breast examination (CBE).⁵

In this paper, we studied a cohort of 60 patients

with breast cancer diagnosed between January 1994 and December 1996 at Burlington Memorial Hospital to determine the acceptance of screening mammography for early detection in a rural community in Wisconsin.

MATERIALS AND METHODS

The medical records of 60 patients with confirmed diagnosis of breast cancer from January 1994 to December 1996 were examined. Personal information, including the patient's name, was deleted before reviewing the chart. Each chart was reviewed for patient's age at the time of diagnosis, stage of cancer, and personal and family history of cancer. Clinical history of each patient was specifically studied for screening mammography, BSE, and CBE.

The number of breast cancer cases per year was determined, as well as the peak age group for breast cancer. As previously reported, stage 0, stage I, and stage II were considered as earlier stages of cancer while stages III and IV were considered as advanced cancer.⁶ The stage of cancer was assessed among various age groups. The number of patients who underwent screening tests among patients with breast cancer was determined. Proportion of patients < 60 years of age and > 60 years of age as well as stages of cancer (early vs. late) were studied among patients who underwent screening and who did not have screening tests.

All patients were followed by primary care physicians (PMDs). Telephone interviews with PMDs were conducted to determine the screening guidelines they employed, patient compliance as well as follow-up steps taken. All PMDs followed similar guidelines for breast cancer screening as follows: baseline mammography starting at age 40 with repeat procedure every year, annual CBE and recommendations for monthly BSE. In high risk patients (personal or family history of breast cancer, history of male breast cancer, benign breast disease) screening mammography is recommended at age 35. Recommendations were made during outpatient clinic visits.

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Noncompliant patients were reminded about the tests during their subsequent clinic visits. A checklist kept in file of each patient highlighting all screening tests such as flexible sigmoidoscopy, mammography, digital rectal examination, etc. was carefully analyzed to determine the acceptance of screening tests.

RESULTS

Over a 3-year study period, 60 patients ranging from 31 to 79 years were diagnosed with breast cancer. Distribution of these 60 patients for each year was 26 patients (1994), 17 patients (1995), and 17 patients (1996). The majority of patients²¹ belonged to the 61–70 years of age group (Figure 1). Thirty-one of 60 patients gave family history of cancer; 14 had carcinoma of the breast. Screening mammography was performed in only 25 of 60 patients, 22 of whom also conducted routine BSE. For the remaining 35 patients who did not have any screening tests, diagnosis was suspected based on patients' complaints of feeling a mass in the breast or mass felt by physicians during CBE. The diagnosis was established by mammograms followed by biopsy in these patients. Of the 25 patients who underwent screening tests, 21 patients (84%) were <60 years of age, while only 5 of 35 (14%) patients without screening were <60 years of age (Figure 2). At the same time, 30 out of 35 (85%) nonscreened patients were >60 years of age and only 3 out of 25 (12%) screened patients were >60 years of age. With regard to the stage of cancer, 22 of 35 (63%) nonscreened patients presented with late stage cancer, whereas only 4 out of 25 (16%) screened patients had late stage cancer. Similarly 22 of 25 patients (88%) who had screening presented with early stage cancer, while only 13 of 35 (37%) of the non-screened patients had early stage cancer (Figure 3). Thus, compliance for screening tests was generally greater among younger patients than patients who were >60 years of age.

DISCUSSION

Breast cancer is the most common malignancy in women.⁷ Several risk factors have been identified for breast cancer.⁸ Aside from prior history of breast cancer, age is the single most important risk factor.⁹ There is a steady increase in the incidence of breast cancer over age 40. It reaches a peak around age 70. In our patient population, the highest incidence was noted among patients >60 years of age. Another important risk factor is family history of cancer, especially breast cancer.¹⁰ Nearly half of the patients in this study had a family history of cancer. Recently, 2 genetic mutations have been associated with breast

Figure 1. Incidence of breast cancer by age groups

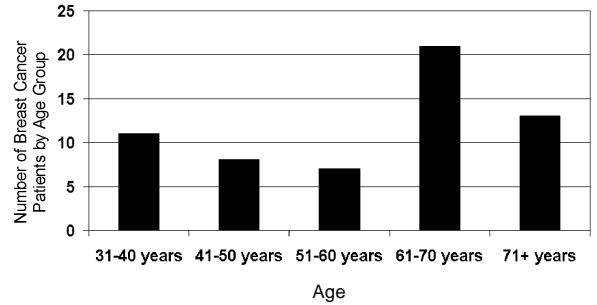


Figure 2. Patient Age and Screening

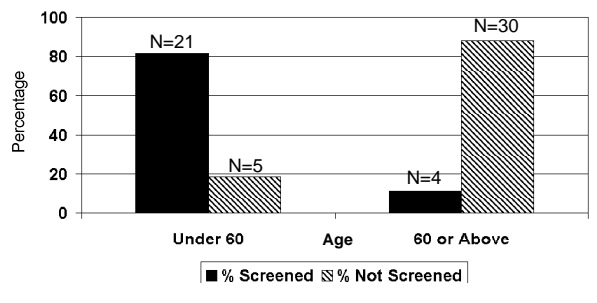
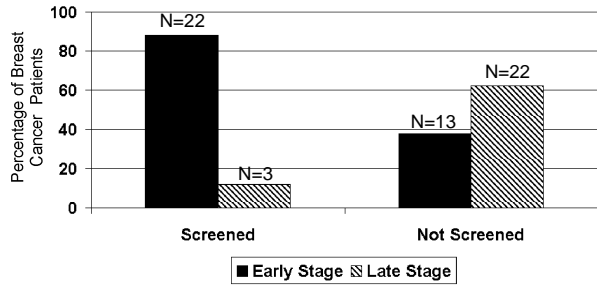


Figure 3. Cancer Stage and Screening



cancer.¹¹ A variety of family history risk factors such as known genetic mutation, breast and ovarian cancer, two or more family members under age 50 with breast cancer, male breast cancer, ovarian cancer with Ashkenazi ancestry have been reported for those who might carry genetic mutation. Such patients with these risk factors might benefit from screening at an earlier age. In this highrisk group, nearly all of the PMDs in Burlington recommended initial screening mammography at age 35, however, genetic counseling was not offered.

Recognition of these and other risk factors, as well as the prevalence of breast cancer, have led to the advocacy of breast cancer screening nationally. It has been reported that 80% to 90% of patients with carcinoma of the breast, measuring 1 cm or less and nega-

tive lymph nodes have a 20-year disease-free interval. On the other hand, the disease free interval decreases to 66% in patients with more advanced disease and axillary node involvement.¹² Also, earlier stage disease offers better therapeutic outcome with less morbidity.⁶ Screening mammography in women <50 years old has been shown to reduce mortality from breast cancer by approximately one-third.¹³ Several studies have substantiated that screening mammography is an effective tool for early detection of breast cancer.^{14,15} May et al reported results of 284,503 mammographic examination from a nationwide breast cancer early detection study.¹⁵ The detection rate was 5.1 per 1000 examinations for the first round and 2.0 after subsequent rounds. More cases were observed in the older age group, which is similar to our finding in which more carcinomas were diagnosed in patients >61 years of age. Many other reports have also noted earlier stage cancer detected by screening mammography. In our patient population, earlier stage cancers were more prevalent among younger patients (<60 years).

Nevertheless, the number of patients following the recommendation for screening tests, such as screening mammography, seems to be quite variable in different parts of the country. In a study similar to ours, MoodyAyers et al studied a cohort of 233 patients with breast cancer.⁶ Of the 233 patients with breast cancer evaluated by MoodyAyers et al, only 97 (42%) underwent screening mammography. Earlier stage cancers were detected in only 97 (42%) in this study. Similarly in our study only 25 out 60 patients (42%) had screening mammography while the remaining 35 patients (58%) did not comply with screening recommendations. Interestingly, most patients who didn't comply with screening recommendations were over age 60, whereas the majority of patients who were under age 60 underwent screening tests. All PMDs expressed a consensus opinion that older patients are generally reluctant to undergo screening tests and particularly reluctant to undergo screening mammography. The reasons for such poor compliance are unclear, although various psychological factors may play a role.¹⁶ Other factors not studied in this report for noncompliance might include socioeconomic and ethnic background.

In summary, a cohort of 60 patients with breast cancer was studied to assess the compliance towards screening modalities. Contrary to expectations, the acceptance for screening tests remains suboptimal, notably among older patients in this rural community. Since screening tests assume a major role in early detection of breast cancer leading to early therapeutic

intervention and prolonged disease-free interval, additional health promotional steps need to be undertaken to enhance the acceptance rate.

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