

Third world issues in breast cancer detection

Farhana Badar¹, Zia Salman Faruqui², Ammar Ashraf³, Najam Uddin⁴

Cancer Registry and Clinical Data Management¹, Department of Radiology²⁻⁴, Shaukat Khanum Memorial Cancer Hospital and Research Center, Lahore..

Abstract

Objective: To determine the statistics for age, distributions of the type of mammography, ultrasonic evaluation, laterality, assessment category, risk factors, and financial status, amongst females undergoing mammography.

Methods: A descriptive review of consecutive records of women undergoing mammography during January and February 2005 at a tertiary care cancer facility, the Shaukat Khanum Memorial Cancer Hospital and Research Center in Lahore, Pakistan.

Results: Of a total of 87 patients, only 12 had attended the hospital for mammographic screening. These 12 females could financially afford the cost of their images. The median age of all the females at the time of mammography was 47 years and the mode was 40 years. Of the total, 40 and 32 patients were found in assessment categories 1 and 2 respectively. Only 19 females underwent bilateral mammography whereas forty were evaluated further by ultrasound imaging. Sixteen women had family history of breast cancer among their first degree relatives, twenty eight gave history of Hormone Replacement Therapy and fifty could afford their entire imaging expenses.

Conclusion: Most patients received their first mammograms when they already had clearly palpable disease. This was partly be due to economic reasons and mainly because of low leve of awareness (JPMA 57:137;2007).

Introduction

Breast cancer ranks first among cancers affecting females worldwide with over one million cases occurring annually; of these, nearly 42% occur in the developing countries of the world.¹ In affluent societies, the age-adjusted incidence has been recorded to be more than 80 per 100,000 population, per year.¹ In 1998, 412,000 deaths were attributed to breast cancer accounting for 1.6% of all female deaths.¹ Recent research conducted on 210,000 women in Sweden has shown that in women aged 40-49 years, there was a significant 48% reduction in breast cancer mortality in those exposed to screening, whereas there was none in those unscreened.²

At the Shaukat Khanum Memorial Cancer Hospital and Research Center (SKMCH & RC) in Lahore, Pakistan, cancer of the breast has been registered as the commonest malignancy amongst women during a ten-year period extending from December 1994 till December 2004; here it accounted for nearly 42% (5,060) of the total malignancies in females diagnosed or treated at the hospital.³ Despite this, educational and awareness programs about the significance of breast self-examination and mammographic screening for early detection of breast carcinoma have been lacking. These may contribute to late stage at diagnosis of the cancer resulting in marked mental and physical debility of the females experiencing this disease. A study was therefore conducted to determine the statistics for age, distributions of the type of mammography, ultrasonic evaluation,

laterality, assessment category, risk factors, and financial status, amongst females undergoing mammography.

Patients and Methods

During January and February of 2005, the staff of the radiology department collated information already being obtained through systematic prospective interview and examination of women who were visiting the radiology unit at SKMCH & RC, to undergo mammography. The objectives of this descriptive study were to determine the ratio of asymptomatic females reporting to the cancer facility to undergo mammographic screening to those coming for diagnostic follow-up following recent or past history of breast cancer or symptoms, and to stratify according to various factors as age distribution, financial status, assessment category, laterality, history of Hormone Replacement Therapy, further evaluation through ultrasonography, and family history of breast cancer. Complete information was collected from eighty-seven patients on a simple form designed for this purpose. Analysis was done by the Statistical Package for Social Sciences (SPSS) software, version 10.0. The study was approved by the local scientific review committee.

Results

Of the 87 patients evaluated for this study, only 12 (13.8%) asymptomatic females, who did not have any prior history of breast disease, had come for screening for latent disease, whereas, seventy-five (86.2%) had turned up as

Table 1. Laterality of the organ viewed and, distribution according to evaluation through ultrasound examination, assessment category, and financial status.

Type of mammography	Screening	Diagnostic
Laterality of the organ		
Right	2	34
Left	1	31
Bilateral	9	10
Ultrasonic examination		
Yes	4	36
No	8	39
Assessment category		
0	0	1
1	6	34
2	4	28
3	1	1
4	1	4
5	0	5
6	0	2
Financial status		
Fully paying	12	38
Partly paying	0	07
Non-paying	0	30
Total	12	75

Table 2. Age distribution for the two groups undergoing screening or follow-up mammography.

Age (years)	Asymptomatic women undergoing screening	Women undergoing diagnostic work-up
N	12	75
Mean	48.9	47.2
Median	48.0	47.0
Standard Deviation	7.8	9.3
Minimum	40.0	27.0
Maximum	61.0	74.0
Range	21.0	47.0
Percentiles	Age (years)	
5	40.0	31.6
10	40.0	35.0
25	41.0	40.0
50	48.0	47.0
75	56.5	53.0
90	60.7	60.0
95	-	64.2

they had either been diagnosed with breast cancer in the past or had complaints as breast pain, lump, or nipple retraction or a combination of these. Of the 12, six were in assessment category 1, four in 2, and 1 each in 3 and 4. Co-incidental-

ly, of those in the diagnostic follow-up group, majority (34/75) were also in assessment category 1. Table 1 depicts the frequencies of the patients in each category.

Nine of the 12 patients had undergone bilateral imaging, whereas, the rest had only one breast screened. Of those who had come for diagnostic screening, 10 had both their breasts X-rayed. Table 1 gives details about laterality of screening.

Of a total of 87 patients, further evaluation through ultrasonography was done only in 40 females, of whom, 36 had come for diagnostic follow-up. Table 1 also clearly shows the proportion of females who underwent further work-up at the hospital. Among 4 patients who underwent ultrasonic screening, only one was found to have a solid nodule in her left breast. Subsequently, on excision of the lump, a 3.5 x 1.5 x 1 cm. lesion was found and the final histologic diagnosis was reported as fibroadenoma.

The patients in the study were also evaluated for history of Hormone Replacement Therapy (HRT) and family history of breast cancer. None of those who had come for screening without any signs or symptoms of the disease gave a history of HRT. However, twenty-eight of the 75 patient group admitted to having received HRT in the past (Table 1). Further, only 12 of 75 in the diagnostic-, (16%) and 4 of 12 (33%) in the screening-mammography group, gave a family history of breast cancer in their first degree relatives.

Age distribution was computed for the two groups under study. No statistically significant difference was found between these two groups ($p > 0.05$). Table 2 illustrates the descriptive results for age in each group and also gives the distribution according to percentiles. The interquartile range for those in the diagnostic group was 40 to 53 years and for those undergoing screening for latent disease was 41 to 56.5 years.

Finally, socio-economic status of the patients was also determined. Women were categorized into three depending on the extent of payment they had made for their mammography. This was taken as a surrogate end-point for socio-economic status. All of the 12 asymptomatic patients who had undergone screening for latent disease had made complete payment for their work-ups. Of the remaining 75, nearly 50% could afford their images, whereas, the rest had to be supported by the hospital. Table 2 gives a synopsis of the financial status of the women in the study.

Discussion

From our limited hospital data, it was found that only 14% of the 87 patients had attended the hospital to undergo screening mammography. The age of these females ranged from 40 to 61 years. All of these 12 women could

afford the cost of receiving their mammograms. More alarming was the fact that the age range of the symptomatic 86% females was 27-74 years and nearly 50% of them could themselves bear the cost of undergoing mammography. However, in each group, most of the women were in assessment category 1, followed by 2 (Table 1). This scenario where nearly 40/87 females had negative mammograms and were advised yearly follow-ups and 32/87 women had negative mammograms with benign findings may reflect improving awareness amongst women about the importance of undergoing mammography in our society.

Also, in a study based on mammography carried out on 250 females in Rawalpindi, of the 134 asymptomatic females, 3 cases (2.2%) and, of the 71 women with vague symptoms, 9 (12.6%) were diagnosed as having carcinoma of the breast.⁴ In another study done primarily on 179 women of various strata living in Karachi, it was found that on the whole, only 46% were aware of mammography and, of these, 73% belonged to the upper socio-economic stratum, 48% to the middle, and 10% to the lower.⁵ A high percentage of the individuals in the upper stratum in the aforementioned review may be the result of confounding by the level of education. Further, a cross-sectional survey on 200 health carers (female doctors and nurses) at a hospital in Lahore showed that 72% of the women had good/fair knowledge about screening for breast cancer and the risk factors associated with the disease.⁶ In another hospital in Lahore, a study on 25 patients revealed that of the seven patients with dense breasts, on ultrasound examination, the results were normal in 4 patients whereas in 3 patients, fibroadenoma was detected.⁷ In our study, of the 4 in the group undergoing screening for latent disease, only one was found to have fibroadenoma on ultrasonic examination.

Although, establishing an organized program in a broad segment of the population is considered as an ideal situation, in a country like ours with limited resources, the chances of organizing a formal screening program remain bleak. Accordingly, it seems reasonable to state that the first step in early detection strategy must entail educating the masses and health care providers to respond to the signs and symptoms of breast cancer. This will also mean diagnosing cancers at earlier stages and improving the quality of life of women having been treated for breast malignancies.

Another option may be to encourage opportunistic screening where individual, affording women can obtain screening tests outside of a formal program.⁸ This type of screening will cater only to a fraction of the population and women without any symptoms of breast cancer will be referred for screening tests as bilateral mammography, and if any abnormality shows up, for further evaluation.

Considering that the interquartile range for each group in our study was nearly 40-55 years, it can be recommended to establish opportunistic mammographic screening in this age group starting at about age 40 years and to conduct it at a 1-2 year interval. Although, the vast majority in our limited study did not give any family history of breast cancer or the use of HRT, in this high-risk group, following

the American Cancer Society's recommendations seems reasonable.⁹ These include, initiating mammography at about 30 years, shorter mammography screening intervals, and addition of MRI and ultrasound screening.

In summary, despite claims of lowered mortality rates from breast cancer in those exposed to mammographic screening in technologically advanced countries of the world, the chances of initiating an organized population-based screening program in a developing country like ours, though still present, seem remote and subject to funding by donor agencies. Meanwhile, it seems practical to start awareness campaigns about early detection of breast cancer and to encourage opportunistic screening at an already established comprehensive cancer care facility.

Competing Interests

The authors declare that they have no competing interests and the study was not funded by any agency.

Authors' Contributions

ZSF and NU, radiologists, assisted in designing the form, read the mammograms, and guided the resident working on the study. AA the radiology resident, collected information on the forms designed for data collection. FB, epidemiologist and biostatistician, assisted in designing the form and preparing the dataset, conducted analysis, and wrote the paper.

Acknowledgements

The entire work was done at a cancer hospital in Lahore, where the vast majority of cancer patients are treated free of cost. We thank Ms. Shama Murad, the Radiology Manager, and the entire radiology staff in their efforts in collecting information and Ms. Ayesha Sabeena Toor in creating the dataset required to run analysis for the study.

References

1. Stewart BW, Kleihues P, editors. Breast Cancer. In World Cancer Report. World Health Organization; International Agency for Research on Cancer, Lyon: IARC Press, 2003: pp. 188-93.
2. Tabar L, Yen MF, Vitak B, Chen HH, Smith RA, Duffy SW: Mammography service screening and mortality in breast cancer patients: 20-year follow-up before and after introduction of screening. *Lancet* 2003; 26: 1405-10.
3. Cancer Registry and Clinical Data Management (CRCMD), Shaukat Khanum Memorial Cancer Hospital and Research Center (SKMCH & RC). Report based on cancer cases registered at SKMCH & RC in 2004, and from Dec. 1994-Dec. 2004. Released March, 2005. [Online] [cited 2005 May]. Available from URL [<http://www.shaukatkhanum.org.pk/research.htm>]
4. Imran S, Ahmed I. Mammography as a screening procedure for carcinoma breast in females. *Pak Armed Forces Med J* 1996; 46: 35-9.
5. Jaffary A, Mansuri F, Shamin S, Shamim S: Knowledge, attitudes, and practices regarding breast cancer screening in women of various social strata. *J Surg Pak (International)*, 2005; 10: 44-7.
6. Parvez T, Anwar MS: Knowledge, attitude, and preventive practices for breast cancer. *J Coll Physicians Surg Pak*, 2001; 11: 363-6.
7. Khosa HL, Rasheed N, Batool S, Qureshi A, Masood M. Role of ultrasound in dense and normal breasts. Comparison with conventional mammography. *Pak J Radiol* 2004; 15: 12-18.
8. Anderson BO, Braun S, Carlson RW, Gralow JR, Lagios MD, Lehman C, et al. Overview of breast health care guidelines for countries with limited resources. *The Breast J* 2003; 9 Suppl 2: 42-50.
9. Smith RA, Saslow D, Sawyer KA, Burke W, Costanzo ME, Evans WP, et al. American Cancer Society Guidelines for Breast Cancer Screening: Update 2003. *CA Cancer J Clin* 2003; 53: 141-69.