

Age shift: Breast cancer is occurring in younger age groups - Is it true?

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ABSTRACT

Context: Carcinoma of the breast is the most common malignancy in females. At present carcinoma breast is the leading cancer in urban India and has overtaken cancer cervix in incidence. Epidemiological studies at regional and global levels suggest the occurrence of carcinoma breast at a younger, premenopausal age in Indian and Asian women as compared with western women. Knowledge of this factor emphasizes the need to modify the timing of modalities of detection of early carcinoma and its management. According to literature, majority of carcinoma breast cases in the western countries present in Stages I and II of the disease whereas in India majority cases present in Stage III of the disease. The objective of this study is to observe age of occurrence of breast cancer and stage of cancer in this health facility. Other epidemiological factors such as diabetes and obesity were also recorded. **Materials and Methods:** A record based descriptive study was conducted in 100 patients of histopathologically confirmed breast cancer. **Results:** Mean age of subjects was 50.1 ± 10.5 years. Age distribution showed two peaks at 41-50 years and 51-60 years with 42 and 24 patients, respectively. Subjects who also had co-existing diabetes, hypertension, and obesity were 14, 14 and 6%, respectively. This study shows that 45% of the total patients were having advanced carcinoma breast (Stage III) at the time of reporting and 77% of these patients were below 50 years of age. **Conclusion:** Breast cancer is now occurring increasingly in younger age groups in India when compared with western countries and a more aggressive nature of the disease strikes Indian women in their reproductive period. This stresses the need for change in modalities of early cancer detection, modifying, and adjusting control efforts and multidisciplinary therapeutic efforts.

Key words: Breast, carcinoma, younger ages

INTRODUCTION

Carcinoma of the breast is the commonest malignancy of females worldwide. It is the most frequent cancer and cause of cancer deaths in developed and developing countries.^[1] Breast cancer accounts for 23% of all newly occurring cancers in women worldwide and represents 13.7% of all cancer deaths.^[1] Breast cancer is the second most common cancer after cervical cancer in India with 115,251 new diagnoses seen in 2008,^[1] the second most common cause of cancer related deaths with 53,592 breast cancer deaths in 2008,^[1] leading site of cancer in metropolitan cities of India.^[2]

According to National Cancer Registry Program (2001-2004) of Indian Council of Medical Research (ICMR), breast was leading cancer site among females in all registries in urban centers except Barshi.^[3]

In India, the average age of developing breast cancer has shifted over the last few decades and younger women are being affected. Epidemiological studies at regional and global levels suggest that this cancer occurs at a younger premenopausal age in Indian and Asian women^[1,4] compared to western women who get it more than a decade or more later.^[5] Studies suggest that the disease peaks at 40-50 years in Indian women.^[1]

The stage of disease at the time of reporting is worse in younger patients. Literature shows that in India majority of new cases are advanced stage-locally advanced or higher stage at the time of diagnosis.^[6,7] According to various studies majority of carcinoma breast cases in the west report in Stages I and II of disease, whereas in India 45.7% report in advanced stages.^[5,8]

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India may face a potential breast cancer epidemic over the next decades as women adopt western lifestyles, marrying, and bearing children later in life, decreasing parity, shorter duration of breast feeding and change in dietary habits. Knowledge of all these factors means we need to modify our modalities of detection of early carcinoma and its management so that the outcome of the disease is not compromised.

MATERIALS AND METHODS

A record based descriptive study was conducted covering a period of 4 years from 2009 to 2012. After obtaining approval from the Institutional Ethics Committee, the case files of all female breast cancer cases during the said period were obtained from the Medical Records Department. Inclusion criteria were histopathologically confirmed female breast cancer cases. A total of 100 patients were included in the study and their data regarding age, stage of disease, medical history, past history and family history were collected on a predesigned proforma.

Data were entered and analyzed.

All these cases were first staged clinically and then pathologically.

TNM system was followed where T stands for Tumor, N for Nodes and M for Metastasis. This TNM system is internationally accepted and is based on American Joint Committee on Cancer system and was adhered to in this study.^[9,10]

RESULTS

A total of 100 patients were treated for breast cancer in the 4 years period. Mean age of patients was 51 years (standard deviation = 10.48). Minimum age was 28 years and the maximum was 80 years and median age was 49 years [Table 1]. Number of patients 50 years and below 50 years of age was 60. Out of 60 patients 19 (31.6%) were 40 and below 40 years of age [Table 2]. The age distribution showed two peaks at 41-50 years and 51-60 years with 42 and 24 patients, respectively in both the age groups [Graph 1]. Number of patients in age groups 21-30, 31-40, 41-50, 51-60, 61-70 and 71-80 were 1, 18, 42, 24, 11 and 4, respectively [Graph 1].

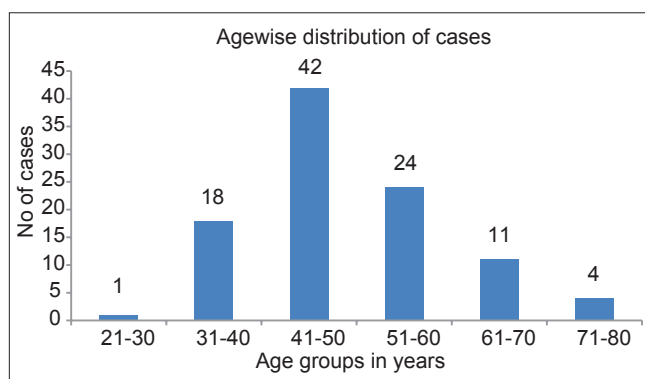
Of the total 100 patients 45 presented with advanced stage (Stages III and IV) of breast cancer. About 77.7% of these advanced stage cases were below 50 years of age whereas 42% were below 40 years of age [Table 2]. Age-wise distribution of cases with advanced carcinoma breast is shown in Graph 2.

Table 1: Minimum and maximum age

Patient data	Age of patients
Minimum age	28 years
Maximum age	80 years
Mean age	50.1 years
Standard deviation	10.48

Table 2: Summary of results

Result data	Number of patients	% of patients
Total number of cases	100	
Patients <50 years age	60	60
Patients with stage III carcinoma	45	45
Patients with stage iii carcinoma <50 years	35	77
Patients with stage iii carcinoma <40 years	19	42
Patients from rural background	61	61
Patients from rural background with stage III carcinoma	26	42



Graph 1: Age-wise distribution of cases

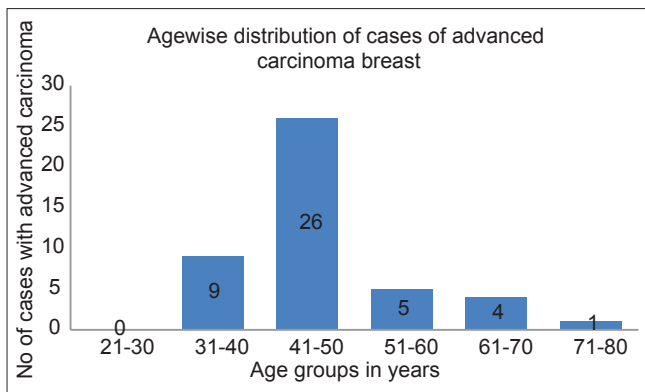
In our hospital, 61% patients of breast cancer belonged to a rural background and out of these 42% had advanced stage cancer.

Ethnically 71% of total patients were of Sikh religion. Only one patient out of the total 100 patients had past history of breast cancer that is, had bilateral breast cancer. Family history of breast cancer was seen in only 2% of cases.

There was a history of diabetes mellitus in 14% of patients, and hypertension in 14% of cases. Obesity was present in 6% of patients. Both diabetes mellitus and hypertension were present in 5% cases, whereas 2% patients had both diabetes and obesity.

DISCUSSION

Age is one of the most important risk factors for breast cancer. It is a common observation that risk of breast cancer increases with age. Median age of 49 in our patients with breast cancer is much lower than median age seen in American population at 62 years.^[11] The mean age of women with breast cancer in our study is 50.1 years, which



Graph 2: Age-wise distribution of cases of advanced carcinoma breast

is younger than seen in epidemiological reports on breast cancer elsewhere in developing countries.^[12] Other Indian studies have shown lower mean age that is closer to that in the present study.^[13,14]

In a study of 569 cases by Saxena *et al.* and in a separate study by Goel *et al.* in 2003 the most common age group for incidence of breast cancer in India was 45-54 years that is, a decade earlier than western women.^[15,16] This shows that Indian population have lower age at presentation in contrast to the western population so the timings of our modalities of detection and treatment have to be modified.

Our study shows that there are two peaks in the age at diagnosis of breast cancer at 41-50 years and 51-60 years. The latter peak is common with peak in western countries, but the peak at 41-50 years shows that the disease occurs at a younger age in Indian patients as compared to the west.^[1] Data of Delhi from 2001 to 2003 under National Cancer Registry Program of ICMR recorded 529, 544, and 601 cases of breast cancer in age groups 40-44, 45-49, and 50-54 years respectively out of a total of 3777 breast cancer cases recorded.^[17] Therefore, 44.6% cases were < 54 years of age. This is in line with findings of Saxena *et al.* and Goel *et al.*^[15,16] This shows rising incidence in younger age groups in urban India.

Well-established risk factors for breast carcinoma include age, ethnicity, family history of breast or ovarian cancer, age of menarche, age at menopause, age of first full term pregnancy.^[18]

The lifestyle factors such as later age at marriage, reduced breast feeding, and westernization of diet may be associated with occurrence of breast cancer in younger population in India.^[19-21] This may be the reason for presence of diabetes mellitus, hypertension and obesity seen in large number of our patients. Early menarche and late menopause also increase risk of disease.^[22]

Yet the western population themselves who have same risk factors do not have onset at younger ages, implying that there may be some genetic tendency of Asian population to develop breast cancer earlier or there might be a role of environmental factors yet to be explored.^[21] Therefore westernization may be responsible for increasing incidence of breast cancer, but may not be the reason for its occurrence in younger age groups.

Breast cancer is a hormone dependent malignancy and the hormonal factors might be affecting Asian women differently who get menarche and menopause earlier in an average shorter life span compared with western women.

However, all above factors only explain the increasing incidence of carcinoma breast but does not explain development of carcinoma in younger age. Ethnic, social factors and age span may play a role toward development of this disease in younger women in India.

Our study highlights the occurrence of premenopausal cancer with 61% cases in age group below 50 years. Cancers in premenopausal group have advanced stage of cancer with poor prognosis.^[6,7,23]

Staging of the disease is essential on three accounts: (1) For estimating prognosis, (2) for planning treatment, (3) for interpretation and comparison of outcome. In this study, 45% patients presented in Stages III and IV of disease which is similar to other studies according to which, in India 45.7% patients reported in Stages III and IV.^[5,8] The most common stage at presentation was found to be locally advanced Stage IIIB by Das *et al.*^[24] Of these advanced cases of our study 77.7% patients were below 50 years of age confirming that the disease is more aggressive in younger patients.^[6,7,23]

This study underlies the fact that in our population this malignancy is very aggressive and younger the age of getting this malignancy more aggressive is the disease. Delayed reporting with advanced carcinoma may be due to economic, social factors, lack of awareness, and paucity of health and medical facilities.

Hence, it is important to implement screening programs for breast cancer detection very early and educate women regarding various risk factors.

CONCLUSION

Occurrence of breast cancer has undergone an age shift. It is now presenting at younger ages in Indian population with more advanced stage of cancer at presentation and occurrence of morbidities such as diabetes mellitus,

hypertension and obesity. It is vital that women be educated regarding the importance of screening at younger ages as this is important for better survival of patients. They should also be educated about increased risk with intake of high fat diet, alcohol, smoking, late age at child birth, reduced breast feeding and physical activity.

The timing of modalities of detection of the cancer and its management has to be modified as our patients present at younger ages thereby compromising the outcome of the disease.

REFERENCES

1. Ferlay J, Bray F, Pisani P, *et al.* GLOBOCAN 2000: Cancer Incidence, Mortality and Prevalence Worldwide, Version 1.0. IARC Cancer Base No. 5. Lyon: IARC; 2001.
2. Programme NCR. Time Trends in Cancer Incidence Rates 1982-2005. Bangalore, India: Indian Council of Medical Research; 2009.
3. National Cancer Registry Programme (ICMR). Consolidated Report of Population Based Cancer Registries 2001-2004. Ch. 2, 11. Bangalore: Published by the Coordinating Unit, National Cancer Registry Programme (ICMR); 2006.
4. Organization WH. The Global Burden of Disease: 2004 Update. 20 Avenue Appia, 1211 Geneva 27, Switzerland: Department of Health Statistics and Informatics, WHO Press, World Health Organization; 2008. Report No: ISBN 978b 941563710.
5. Kakarala M, Rozek L, Cote M, Liyanage S, Brenner DE. Breast cancer histology and receptor status characterization in Asian Indian and Pakistani women in the U.S. - A SEER analysis. *BMC Cancer* 2010;10:191.
6. Advani S. Partner profile: Cancer in India. *INCTR News* 2004;5:18
7. Chopra R. The Indian scene. *J Clin Oncol* 2001;19:106s-11.
8. Leong SP, Shen ZZ, Liu TJ, Agarwal G, Tajima T, Paik NS, *et al.* Is breast cancer the same disease in Asian and Western countries? *World J Surg* 2010;34:2308-24.
9. Stephen B, Edge MD, Carolyn C, *et al.* The American Joint Committee on cancer: The 7th Edition of the AJCC Cancer staging manual and the future of TNM. *Ann.Surg.Oncol.* 2010;17:1471-74
10. Kirby IB, Samuel WB. Definition of TNM and TNM breast cancer stages. *Mastery of Surgery*. 5th ed., Vol. 1. Lippincott Williams and Wilkins. 2006. 530-43.
11. Anderson WF, Pfeiffer RM, Dores GM, Sherman ME. Comparison of age distribution patterns for different histopathologic types of breast carcinoma. *Cancer Epidemiol Biomarkers Prev* 2006;15:1899-905.
12. Anderson WF, Reiner AS, Matsuno RK, Pfeiffer RM. Shifting breast cancer trends in the United States. *J Clin Oncol* 2007;25:3923-9.
13. Sandhu DS, Sandhu S, Karwasra RK, Marwah S. Profile of breast cancer patients at a tertiary care hospital in north India. *Indian J Cancer* 2010;47:16-22.
14. Gupta P, Sharma RG, Verma M. Review of breast cancer cases in Jaipur region. *J Indian Med Assoc* 2002;100:282-3, 286-7.
15. Saxena S, Rekhi B, Bansal A, Bagga A, Chintamani, Murthy NS. Clinico-morphological patterns of breast cancer including family history in a New Delhi hospital, India - A cross-sectional study. *World J Surg Oncol* 2005;3:67.
16. Goel A, Bhan CM, Srivastava KN. Five year clinico pathological study of breast cancer. *Indian J Med Sci* 2003;57:347-9.
17. National Cancer Registry Programme (ICMR). Consolidated Report of Population Based Cancer Registries 2001-2004. Individual Registry Data, 2001-2003;161.
18. Hulvat MC, Hansen NM, Jeruss JS. Multidisciplinary care for patients with breast cancer. *Surg Clin North Am* 2009;89:133-76, ix.
19. Moore MA, Ariyaratne Y, Badar F, Bhurgri Y, Datta K, Mathew A, *et al.* Cancer epidemiology in South Asia-past, present and future. *Asian Pac J Cancer Prev* 2010;11 Suppl 2:49-66.
20. Anderson WF, Chatterjee N, Ershler WB, Brawley OW. Estrogen receptor breast cancer phenotypes in the surveillance, epidemiology, and end results database. *Breast Cancer Res Treat* 2002;76:27-36.
21. Chauhan A, Subba SH, Menezes RG, Shetty BS, Thakur V, Chabra S, *et al.* Younger women are affected by breast cancer in South India-A hospital-based descriptive study. *Asian Pac J Cancer Prev* 2011;12:709-11.
22. Singletary SE. Rating the risk factors for breast cancer. *Ann Surg* 2003;237:474-82.
23. Gajalakshmi CK, Shanta V, Hakama M. Risk factors for contralateral breast cancer in Chennai (Madras), India. *Int J Epidemiol* 1998;27:743-50.
24. Das K, Sarkar DK, Karim R, Manna AK. Preoperative ultrasound guided needle localisation for non-palpable breast lesions. *Indian J Surg* 2010;72:117-23.

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