

A STUDY ON CARCINOMA BREAST IN YOUNG FEMALES

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ABSTRACT

BACKGROUND

The incidence of breast carcinoma in young females is increasing worldwide. Breast cancer in young is known to be more aggressive in behaviour than in older age group.

MATERIALS AND METHODS

This is a prospective analytical study in surgical oncology department of a tertiary hospital in past 5 years. In this study, we aimed to know the incidence, tumour biology (histopathology, grade, ER and PR status) and management of carcinoma breast in young females (<41 years age).

RESULTS

We studied a total of 320 cases of carcinoma breast of which 84 (26%) were below 41 years of age. The most common histology was ductal invasive carcinoma- 'not otherwise specified.' Stage IIb and grade 2 was the most common presentation. More than 50% of the cases showed ER/PR negative hormonal receptor status, which predicts poor prognosis in these young females of carcinoma breast.

CONCLUSION

We conclude that incidence of breast malignancies in young female (≤ 40 years of age) are increasing, while tumour of young age females found biologically aggressive as per histopathological findings and ER and PR status.

KEYWORDS

Modified Radical Mastectomy, Carcinoma Breast, ER/PR Status, Histological Factors.

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BACKGROUND

In the west, approximately 7% of women with breast cancer are diagnosed before the age of 40 years¹ and this disease accounts for more than 40% of all cancer in women in this age group. In India, we are now witnessing more and more numbers of patients being diagnosed with breast cancer to be in the younger age groups.²

Survival rates in young females are worse when compared to those in older women and multivariate analysis has shown younger age to be an independent predictor of adverse outcome. Inherited syndromes, specifically BRCA1 and BRCA2, must be considered when developing treatment algorithms for younger women.³ Chemotherapy, endocrine and local therapies have the potential to significantly impact both the physiologic health including future fertility, premature menopause and

bone health and the psychological health of young women as they face a diagnosis of breast cancer. As incidence of breast malignancy in young females increasing promptly, the present study is aimed with evaluating incidence and prognosis of breast cancer in females ≤ 40 yrs.

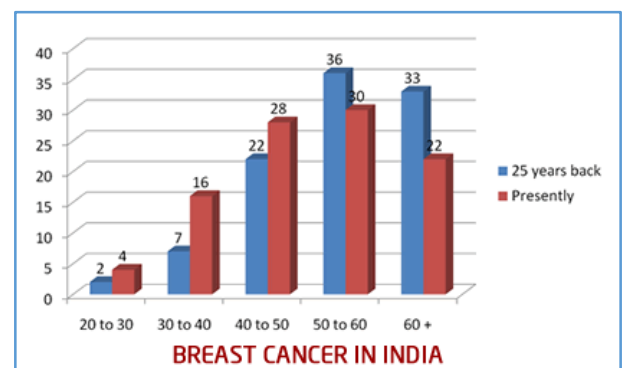


Figure 1. Breast Cancer in India

(Horizontal line-Age groups. Vertical line-Percentage of breast cancer cases).

AIMS AND OBJECTIVES

The present study aimed to evaluate incidence and management of breast malignancy in females ≤ 40 yrs. of

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age and to evaluate prognosis through tumour size, histological grade and IHC, i.e. ER/PR/Her2/neu status.

MATERIALS AND METHODS

A prospective analytical study of 320 breast cancer patients in our surgical oncology department from December 2011 to November 2016 for a period of 5 years. 84 cases of breast cancer were identified in patients under 41 years of age and were included in the study.

Inclusion Criteria

All cases of breast cancer in females less than or equal to 40 years of age proven by FNAC or biopsy and mammogram.

Exclusion Criteria

Patients with metastasis (M1 disease) and male breast cancers are excluded from the study.

A detailed clinical history, thorough clinical examination and relevant investigations done. Appropriate management of each case of carcinoma breast based on stage was done. All of 84 cases were followed up after surgery with HPE (histopathological examination) reports and IHC markers (ER/PR/Her2/neu). Unfortunately, Her2/neu couldn't be done in all cases due to economic constraints and local health policies. Her2/neu could be done only in 19 cases while ER/PR was done in all cases.

RESULTS

We studied total of 320 cases of breast malignancy cases during five years (from December 2011 to November 2016). Out of these, 84 cases were ≤40 years. So, the incidence of breast malignancy in ≤40 years age group patients is 26%. These patients were further divided into age groups - <25yrs., 26 to 30yrs., 31 to 35 yrs. and 36 to 40yrs. No cases were found in <25yrs. age group, six cases in 26 to 30yrs. age group, thirty cases in 31-35yrs. age group and forty eight cases were seen in 36-40yrs. age group.

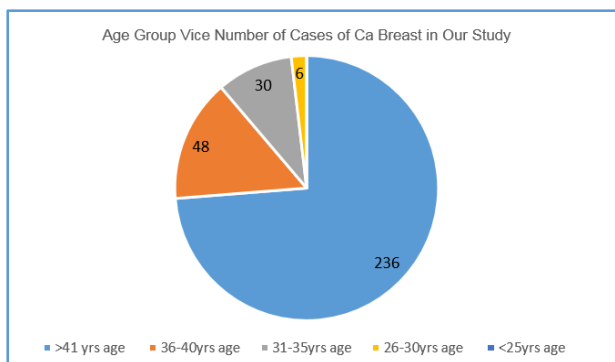


Figure 2. Age Group Wise Number Of Cases of Ca Breast in Our Study

Age Group	Cases (84)	Percentage
36-40 yrs.	48	57%
31-35 yrs.	30	35.7%
26-30 yrs.	6	7.1%
<25 yrs.	0	0

Table 1. Percentage of Carcinoma Breast Cases in Each Age Group

In 84 cases, 74 were of invasive intraductal type- NOS, 4 were DCIS, 2 DCIS with microinvasive type, 2 medullary carcinoma variety, 1 lobular cancer and 1 case of intraductal papillary carcinoma.

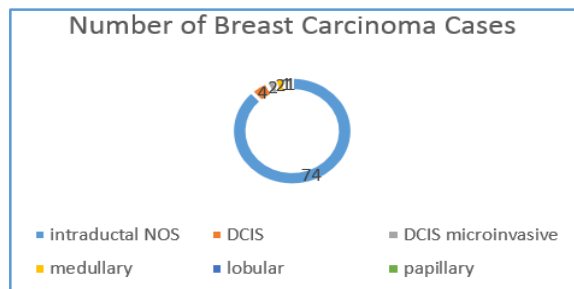


Figure 3. Number of Breast Carcinoma Cases

Based on HPE report, we further classified the patients according to tumour size, grade and tumour stage.

Size (T)	26-30 yrs.	31-35 yrs.	36-40 yrs.
<2cm	2	3	4
2-5cm	4	13	27
>5cm	0	14	17

Table 2. Distribution of Size of the Tumour (pT) in Each Age Group

It is clear from the above table that in India most of the patients doesn't present to breast clinics when the tumour is small <2 cms in size.

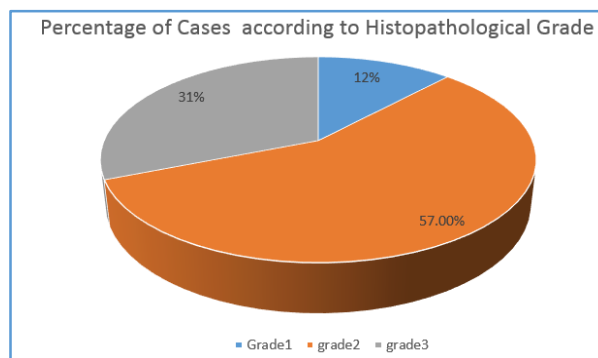


Figure 4. Percentage of Cases According to Histopathological Grade

Grade	26-30 yrs.	31-35 yrs.	36-40 yrs.
I	2	3	5
II	3	15	30
III	1	12	13

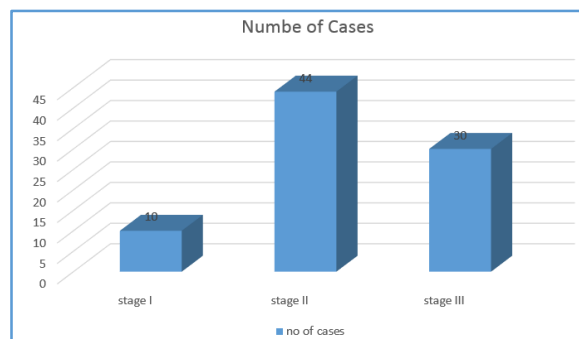


Figure 5. Number of Cases

Stage	Number of Cases (84)	Percentage
I	10	12%
Ia	16	19%
Ib	28	33%
IIa	22	26%
IIb and IIc	8	9.5%

Table 3. Distribution of Carcinoma Breast Cases According to Pathological Stage

Most of the young patients presented with either stage IIb or stage IIIa disease. Eight patients received neo-adjuvant chemotherapy in view of T4b disease. In rest of all the other cases, upfront surgery was done. BCS⁴ (breast conservation surgery) was done in total of 11 cases while rest of all the cases (73) were treated with MRM. After surgery, patients underwent chemotherapy/chemoradiation as appropriate. Hormonal therapy was constituted in ER/PR positive cases. All the patients were kept under followup. Patient apprehension and family influences were the key factors in patients choosing modified radical mastectomy (MRM) than breast conservation surgery (BCS) even when breast conservation was possible.

ER/PR testing was done in all cases while Her2/neu could be done in 19 cases only due to financial constraints and local health issues. We therefore classified our cases based on immunohistochemistry markers separately depending on the availability of Her2 report.

We got Her2 negative in 12 cases and Her2 positive in 7 cases. In those 12 cases where Her2 was negative, we found that ER and PR were also negative in 9 cases ('triple negative') while ER/PR positive in remaining 3 cases. In 7 cases where we got Her2 positive, we found ER/PR negative in 3 cases ('only Her2 positive') and both ER and PR positive in rest of 4 cases (can be termed 'triple positive').

The incidence of ER/PR in remaining 65 cases after excluding Her2 data can be tabulated as follows-

ER	PR	Number of Cases (65)	Percentage
+	+	14	21.5%
-	+	7	10.8%
+	-	11	17%
-	-	33	50.8%

From the above table, it is clear that ER/PR negative type of breast cancer is more prevalent in younger women, which is a poor prognostic marker.

DISCUSSION

In this study, breast carcinoma in young females <41yrs. age is seen in 26% of cases. Incidence of the same in various other similar studies is as follows-

Study	Age Group	Incidence Percentage
I Guerra et al ⁵	<35 yrs.	5%
Katherina Zabicki et al ⁶	<41 yrs.	10%
Hanna Fredholm et al ⁷	<40 yrs.	7%
M. Colleoni et al ⁸	<35 yrs.	2%

N. Kromanet et al ⁹	<35 yrs.	2%
Present study	<41 yrs.	26%

In our study, most common histology is invasive ductal carcinoma - 'not otherwise specified', which is also the most common histology worldwide.¹⁰

Histology	Shitalmala, Rajesh Singh, Debnath et al, 2014 ¹¹	Present Study
Invasive ductal NOS	85.62%	88%
DCIS+/- microinvasion	0%	7%
Medullary	3%	2.4%
Lobular	8.13%	1.2%
Papillary	0.6%	1.2%
Malignant phyllodes	1.25%	0%

Table 4. Comparison of Histology of Carcinoma Breast Cases between Present Study and Shitalmala et al 2014 Study

In our study, 33% of cases presented in stage IIb and 26% of cases presented in stage IIIa. Overall, stage II was most common stage of presentation in young females with carcinoma breast.

Stage	Shitalmala, Rajesh Singh, Debnath et al, 2014	Present Study
I	11%	12%
II	34%	52%
III	47%	35.5%
IV	8%	Not included in study

Table 5. Comparison of Stage Distribution between Present Study and Shitalmala et al, 2014

In our study, most of the young patients presented as grade II on histology while data from western literature shows grade III as most common histology in patients of carcinoma breast <40yrs. In other studies, I Guerra et al and Hanna Fredholm et al grade III is higher, which is 51.85% and 22.45%, respectively.

Histological Grade	Ankur Singh, Shamim Sheikh 2014 ¹²	Present Study
I	22.7%	12%
II	41%	57%
III	22.7%	31%

Table 6. Comparison of Histological Grade between Present Study and Ankur-Shamim 2014 Study

Many studies across the globe have demonstrated that most of the breast tumours in young women are Oestrogen Receptor (ER) and Progesterone Receptor (PR) negative indicating a poorer prognosis.¹³ Moreover the percentage of the known aggressive triple negative (ER/PR, human epidermal growth factor receptor 2 (HER2/neu) tumours were reported to be higher in young patients. Younger breast cancer patients have been reported to have

germline BRCA-1 or BRCA-2 mutations in 15-20% of the cases.¹⁴ These mutations are believed to be associated with higher grade, lack of ER receptor and a higher proliferative rate. Poorer prognosis in younger patients could be due to lack of proper screening, delayed diagnosis and advanced stage of the disease as also reported by Corpron et al. Data suggests that breast carcinoma in young women have different transcriptomic profile with about 63 genes specific tumours and integrative genomic analysis can pinpoint biomarkers for the detection of disease progression in young women. Assi et al also highlighted that breast cancer in young women is associated with high-grade tumours, hormone receptor negativity and HER2/neu overexpression. All these factors finally have a significant negative impact on the prognosis.

Receptor Status	Gabriel and Susan 2010 ¹⁵	Present Study
ER-, PR-	65%	50.8%
ER+, PR+	15%	21.5%

Table 7. Comparison of ER/PR Status between Present Study and Gabriel-Susan Study 2010

ER	PR	Ankur Singh, Shamim Sheikh 2014	Present Study
-	-	41%	50.8%
+	+	22.7%	21.5%
+	-	13.6%	17%
-	+	9%	10.8%

Table 8. Comparison of ER/PR Status between Present Study and Ankur-Shamim 2014 Study

CONCLUSION

The following conclusions are arrived after the present study-

1. Breast cancer in young females is increasing in incidence.
2. In young females, 36 to 40 yrs. age group is most commonly affected by breast cancer. Youngest age of presentation was 26 years in our study.
3. The most common histology was ductal invasive carcinoma- not otherwise specified.
4. Stage IIB and grade 2 was the most common presentation.
5. BCS (breast conservation surgery) was done in total of 11 cases. Though, BCS is a good option, most of the patients' chosen MRM owing to various patient and family factors in spite of our counselling. Patient decision ultimately decides the management.
6. Neoadjuvant chemotherapy was given 9.5% of cases in view of T4 disease.
7. ER and PR negative tumours are more prevalent in the younger population suggest poorer prognosis.

REFERENCES

[1] Bottom, O'Leary, Sheaffer, et al. Cancer epidemiology in older adolescents and young adults 15 to 29 years of age, including SEER incidence and survival: 1975-

2000. National Cancer Institute, NIH Pub. No. 06-5767. Bethesda, MD 2006.

[2] Breast cancer statistics in India. Three year report of the population based cancer registries 2012-2014. Consolidated report of the hospital based cancer registries 2012-2014. <http://www.breastcancerindia.net/statistics/trends.html>.

[3] Love RR, Duc NB, Dinh NV, et al. Young age as an adverse prognostic factor in premenopausal women with operable breast cancer. Clin Breast Cancer 2002;2(4):294-298.

[4] Cao JQ, Olson RA, Tyldesley SK. Comparison of recurrence and survival rates after breast-conserving therapy and mastectomy in young women with breast cancer. CurrOncol 2013;20(6):e593-e601.

[5] Guerra I, Algorta J, de Otazu RD, et al. Immunohistochemical prognostic index for breast cancer in young women. Mol Pathol 2003;56(6):323-327.

[6] Zabicki K, Colbert JA, Dominguez FJ, et al. Breast cancer diagnosis in women ≤40 versus 50 to 60 years: increasing size and stage disparity compared with older women over time. Annals of Surgical Oncology 2006;13(8):1072-1077.

[7] Fredholm H, Eaker S, Frisell J, et al. Breast cancer in young women: poor survival despite intensive treatment. Plos ONE 2009;4(11):e7695.

[8] Colleoni M, Rotmensz N, Robertson C, et al. Very young women (< 35 years) with operable breast cancer: features of disease at presentation. Annals of Oncology 2002;13(2):273-279.

[9] Kroman N, Melbye M, Mouridsen HT. Prognostic influence of age at diagnosis in premenopausal breast cancer patients. Scandinavian Journal of Surgery 2002;91:305-308.

[10] Marrett LD, Frod J, Nishri D, et al. Cancer incidence in young adults in Canada: preliminary results of a cancer surveillance project. Chronic Dis Can 2002;23(2):58-64.

[11] Thangjam S, Laishram RS, Debnath K. Breast carcinoma in young females below the age of 40 years: a histopathological perspective. South Asian J Cancer 2014;3(2):97-100.

[12] Kshatriya AS, Sheikh S, Santwani PM. Incidence and prognosis of breast malignancies in young female (≤40 Years of Age). 2014;13(7):44-47.

[13] Siadati S, Sharbatdaran M, Nikbakhsh N. Correlation of ER, PR and HER-2/Neu with other prognostic factors in infiltrating ductal carcinoma of breast. Iran J Pathol 2015;10(3):221-226.

[14] Rosenberg SM, Ruddy KJ, Tamimi RM, et al. BRCA1 and BRCA 2 mutation testing in young women with breast cancer. JAMA Oncol 2016;2(6):730-736.

[15] Gabriel CA, Domchek SM. Breast cancer in young women. Breast Cancer Res 2010;12(5):212.