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.


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.

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

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.

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![Number of Breast Carcinoma Cases](image)

**Figure 3. Number of Breast Carcinoma Cases**

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

<table>
<thead>
<tr>
<th>Size (T)</th>
<th>26-30 yrs.</th>
<th>31-35 yrs.</th>
<th>36-40 yrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;2cm</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2-5cm</td>
<td>4</td>
<td>13</td>
<td>27</td>
</tr>
<tr>
<td>&gt;5cm</td>
<td>0</td>
<td>14</td>
<td>17</td>
</tr>
</tbody>
</table>

**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 don't present to breast clinics when the tumour is small <2 cms in size.

![Percentage of Cases according to Histopathological Grade](image)

**Figure 4. Percentage of Cases According to Histopathological Grade**

<table>
<thead>
<tr>
<th>Grade</th>
<th>26-30 yrs.</th>
<th>31-35 yrs.</th>
<th>36-40 yrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>2</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>II</td>
<td>3</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td>III</td>
<td>1</td>
<td>12</td>
<td>13</td>
</tr>
</tbody>
</table>

**Table 3. Percentage of Carcinoma Breast Cases in Each Age Group**

![Number of Cases](image)

**Figure 5. Number of Cases**
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. BCS\(^4\) (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-

<table>
<thead>
<tr>
<th>ER</th>
<th>PR</th>
<th>Number of Cases (65)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>+</td>
<td>+</td>
<td>14</td>
<td>21.5%</td>
</tr>
<tr>
<td>-</td>
<td>+</td>
<td>7</td>
<td>10.8%</td>
</tr>
<tr>
<td>+</td>
<td>-</td>
<td>11</td>
<td>17%</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>33</td>
<td>50.8%</td>
</tr>
</tbody>
</table>

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-

<table>
<thead>
<tr>
<th>Study</th>
<th>Age Group</th>
<th>Incidence Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>I Guerra et al(^5)</td>
<td>&lt;35 yrs.</td>
<td>5%</td>
</tr>
<tr>
<td>Katherina Zabicki et al(^6)</td>
<td>&lt;41 yrs.</td>
<td>10%</td>
</tr>
<tr>
<td>Hanna Fredholm et al(^7)</td>
<td>&lt;40 yrs.</td>
<td>7%</td>
</tr>
<tr>
<td>M. Colleoni et al(^8)</td>
<td>&lt;35 yrs.</td>
<td>2%</td>
</tr>
</tbody>
</table>

In our study, most common histology is invasive ductal 
carcinoma - ‘not otherwise specified’, which is also the 
most common histology worldwide.\(^10\)

<table>
<thead>
<tr>
<th>Histology</th>
<th>Shitalmala, Rajesh Singh, Debnath et al, 2014(^11)</th>
<th>Present Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invasive ductal NOS</td>
<td>85.62%</td>
<td>88%</td>
</tr>
<tr>
<td>DCIS+/- microinvasion</td>
<td>0%</td>
<td>7%</td>
</tr>
<tr>
<td>Medullary</td>
<td>3%</td>
<td>2.4%</td>
</tr>
<tr>
<td>Lobular</td>
<td>8.13%</td>
<td>1.2%</td>
</tr>
<tr>
<td>Papillary</td>
<td>0.6%</td>
<td>1.2%</td>
</tr>
<tr>
<td>Malignant phyllodes</td>
<td>1.25%</td>
<td>0%</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Shitalmala, Rajesh Singh, Debnath et al, 2014</th>
<th>Present Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>11%</td>
<td>12%</td>
</tr>
<tr>
<td>II</td>
<td>34%</td>
<td>52%</td>
</tr>
<tr>
<td>III</td>
<td>47%</td>
<td>35.5%</td>
</tr>
<tr>
<td>IV</td>
<td>8%</td>
<td>Not included in study</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Histological Grade</th>
<th>Ankur Singh, Shamim Sheikh 2014(^12)</th>
<th>Present Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>22.7%</td>
<td>12%</td>
</tr>
<tr>
<td>II</td>
<td>41%</td>
<td>57%</td>
</tr>
<tr>
<td>III</td>
<td>22.7%</td>
<td>31%</td>
</tr>
</tbody>
</table>

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 
cancer patients have been reported to have...
germline BRCA-1 or BRCA-2 mutations in 15-20% of the cases. 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.

<table>
<thead>
<tr>
<th>Receptor Status</th>
<th>Gabriel and Susan 2010</th>
<th>Present Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>ER-, PR-</td>
<td>65%</td>
<td>50.8%</td>
</tr>
<tr>
<td>ER+, PR+</td>
<td>15%</td>
<td>21.5%</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>ER</th>
<th>PR</th>
<th>Ankur Singh, Shamim Sheikh 2014</th>
<th>Present Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>41%</td>
<td>50.8%</td>
</tr>
<tr>
<td>+</td>
<td>+</td>
<td>22.7%</td>
<td>21.5%</td>
</tr>
<tr>
<td>+</td>
<td>-</td>
<td>13.6%</td>
<td>17%</td>
</tr>
<tr>
<td>-</td>
<td>+</td>
<td>9%</td>
<td>10.8%</td>
</tr>
</tbody>
</table>

**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**