

**Original Article****Aggressiveness and increased lymph node involvement in younger patients (<40 years) suffering from breast cancer**Nisha Gupta<sup>1</sup>, Asha Satwara<sup>1</sup>, Gunjan Bala<sup>1</sup>, Jignasha Mungra<sup>1</sup>, Pravina M Santwani<sup>1</sup><sup>1</sup>Department of Pathology, Shri M P Shah Gov Medical College, Jamnagar, Gujarat, India.

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**ABSTRACT**

**Introduction:** Breast cancer is 4<sup>th</sup> leading cause of death in many parts of world. Unexplained increase in aggressiveness and more number of lymph node involvements in young females with breast cancer is of interest.

**Objective:** This study is designed to assess the lymph node involvement in younger patients (<40 years) suffering from breast cancer

**Method:** This study has been done on MRM specimen of 90 females of breast cancer from (Jan 2014-jan 2015) in pathology department of Shri. M. P. Shah. Govt. Medical College, Jamnagar. This study includes the age, lymph node status, grading and staging.

**Results:** After analyzing, only 2(2.22%) females <25 years , 42(46.7%)females between 25- 40 years , 46(51.1%) females >40 years has been diagnosed as invasive breast cancer. 63% females <40 years showing >3 lymph node positive while only 34% females >40 years showing >3 lymph node positivity. Out of this statistics younger patients showing most of lymph nodes out of total to be positive as compared to older age group as it affects TNM staging and treatment protocol.

**Conclusion:** Increase in risk of lymph node involvement in younger patients (25-40). All the young women in their 20s and 30s should examine herself and every 3 years by her health care professionals.

**Key words:** Breast cancer, younger age, lymph node status.

**INTRODUCTION**

Approximately 7% of women with breast cancer are diagnosed before the age of 40 years, and this disease accounts for more than 40% of all cancer in women in this age group. Survival rates are worse when compared to those in older women[1]. Their cancers tend to be larger and higher grade with poorer prognostic characteristics, resulting in a higher risk of recurrence and death from breast cancer when compared to older women. Many of the usual risk factors for breast cancer in older women also increases risk in younger women including increasing age, Black race, family history, later age at first birth and menarche, radiation exposure and lack of physical activity. Risk factors that have specific relevance to young women include reproductive factors, history of induced abortion or miscarriage, oral contraceptive use, smoking, and radiation

exposure, most specifically for treatment of Hodgkin Disease [2].

The present study raised concerns regarding increasing rates of aggressive breast cancer in young women especially because the increases were largest for age 25–39 years in the most recent time period examined (i.e., 2014-15) showing more axillary lymph node positivity in younger patients. Moreover, a review of the National Cancer Data Base revealed that patients younger than 35 years had more advanced disease at diagnosis and a poorer 5-year survival than older premenopausal patients [1]. Similar findings have been reported in the past from the US National Cancer Institute SEER database the Finnish Cancer Registry [3]and other sources [4-6]. Tumour size, grading and Staging procedure are included in this study. The aim of the study is to prove that Increase in risk of lymph node involvement and aggressiveness in younger patients (25-40 years).

## MATERIALS AND METHODS

Sample size and study duration and area: This study has been done on MRM specimen of 90 females of breast cancer from (Jan 2014-Jan 2015) in pathology department of Shri. M. P. Shah Gov. Medical College, Jamnagar.

**Methodology:** This study has been done on MRM specimen of females of breast cancer. This study includes the age, lymph node status, grading and staging. Data on the patient's medical history, concurrent diseases, surgery, pathological evaluation and results of staging procedures were required. Pathological assessment included evaluation of the primary tumour size, histological type and of lymph nodes status, including a sentinel node biopsy[7] when applicable. Tumour grade was evaluated according to Elston et al [8].

## RESULTS

Table 1: Distribution of cases

Variables	Young (<40)	Elderly (>40)
<b>Tumour size</b>		
<2cm	15(34%)	20(43.4%)
>2 to <5cm	23(52.3)	24(52.2%)
>5cm	6(13.7%)	2(4.4%)
<b>Histological grading</b>		
grade -1	4(9%)	8(18%)
grade -2	31(70%)	33(71.7%)
grade-3	9(21%)	5(10.8%)
<b>TNM staging</b>		
stage 0- 1	7(16%)	15(32.6%)
stage 2	22(50%)	24(52.1%)
stage 3	15(34%)	7(15.3%)
<b>Axillary lymph node metastasis</b>		
Yes	35(79.5%)	27(58.7%)
No	9(20.4%)	19(41.3%)
<b>Numbers of axillary lymph node metastasis</b>		
0	9(20.4%)	19(41.3%)
1-3	12(27.2%)	11(23.9%)
4—9	12(27.2%)	10(21.7%)
>10	11(25%)	6(13.0%)

## Analysis and comparison of pathological characteristics between the young and elderly breast cancer patients

Breast cancer patients diagnosed and admitted to our hospital had significantly increased. There were total 90 female patients (Table-1 shows the distribution of all the cases); among these young breast cancer patients; only 2(2.22%) females <25 years, 42(46.7%) females between 25- 40 years, 46(51.1%) females >40 years has been diagnosed as invasive breast cancer. In the following sections, the tumour number and size, histological grading, TNM pathological staging, and lymph node metastasis status in these young and elderly breast cancer patients were analysed and compared.

### Tumour number and size

The tumour number and size were analysed and compared between the young and elderly groups. From the above table-1 showing that the percentage of patients with tumour size T3 (diameter > 5 cm) in the young group (13.7%) was significantly higher than that in the elderly group (4.4%); results suggest that young breast cancer patients were prone to suffer from large-size tumours compared with the elderly patients.

### Histological grading

Histological grading of breast cancer was determined according to the criteria established by Elston and Ellis, which was classified into grades I-III [9]. These results indicate that in the young group, histological grading was as follows: 4 cases (9%), grade I; 31 cases (70%), grade II; and 9 cases (21%), grade III. On the other hand, in the elderly group, there were 8 cases (18%) of grade I, 33 cases (71.7%) of grade II, and 5 cases (10.8 %) of grade III comparison with the elderly patients, breast cancer in young patient was poorly differentiated, with high malignancy.

### TNM pathological staging

Pathological stage was determined with the clinical staging system of the TNM classification [10]. In the young group, TNM staging was as follows: 35 cases (79.5 %) showing lymph node positivity; 7 cases (16 %) stage 0-I, 22 cases (50%) stage II; and 15 cases (34%), stage III. In the elderly group, there were 15 cases (32.6%) TNM stage 0-I, 24 cases (52.1%) at stage II, and 7 cases (15.3%) at stage III. These results suggest that, there were obvious disease progression in young breast cancer patients, and most young patients were in the late or advanced stage at clinical diagnosis.

### Lymph node metastasis status

Lymph node metastasis status was next investigated in these breast cancer patients. As shown in Table-1, there were 35 cases (79.5%) of axillary lymph node metastasis in young breast cancer patients, while 27 cases (58.69%) of axillary lymph node metastasis were found in elderly patients. These results suggest that the young breast cancer patients might be more prone to suffer from axillary lymph node metastasis.

### DISCUSSION

In recent years, the number of new-onset young cases has been increasing throughout the world. In some researches, diagnosis age  $\leq 45$  years old has been considered as an independent risk factor for the clinical outcome and prognosis of the disease [11]. Breast cancer tumour size, histological grading, pathological staging, and lymph node metastasis status are important prognostic factors. Studies have shown that histological grading of tumours is associated with the 5-year survival rate, and the higher histological grading might indicate the poorer prognosis [12].

A retrospective study from Zhou et al [13] involving 484 breast cancer patients indicates that female patients between 41 and 50 years old are associated with the high incidence of breast cancer, and young patients always have large-size tumour. Our study showed that the percentage of patients with tumour size T3 (diameter  $> 5$  cm) and the proportion of patients with histological grade III in the young group are significantly higher than the elderly group, which is in line with the study from Wang et al [14]. For TNM pathological staging, patients at stages 0 - I and II in the young group were less than, while patients at stage III was more than, in the elderly group. Furthermore, the axillary lymph node metastasis rate and the number of axillary lymph node metastasis were higher in the young group, compared with the elderly group.

**Limitations** of this study included its retrospective nature with small sample size and a relatively short follow up. As a single institution study at a tertiary care centre, the cohort presented may not represent the general population as a whole. Although variation in patient management over time, particularly in multicentre studies, is a potential bias in any retrospective study, this effect is minimal in this report since the same breast oncology treated patients in the recent years.

### CONCLUSION

Our results showed that, compare with the elderly breast cancer patient. Young patients were characterized by large-size tumours, higher histological grades, more advanced TNM stages and elevated lymph node metastasis rates. Breast cancer in young female patients is associated with increased aggressiveness and potential malignancy. These findings might contribute to future diagnosis and treatment of breast cancer in young women.

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