



INCIDENCE OF BREAST CANCER IN YOUNG FEMALES-OUR EXPERIENCE

Oncology/Radiotherapy

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ABSTRACT

Background: Breast cancer is one of the most common cancer in females worldwide. Previously it was seen in older women but in recent years its incidence is increasing in younger female population. **Materials and Methods:** This study is retrospective observational hospital based study which includes total 488 breast cancer young female aged <40 years over the time 2011-2024. We analyzed breast cancer patients data with respect to their age, site, marital status, family history, stage, grade, hormonal characteristics. **Results:** Maximum cases were found in year 2020 (10.6%). Right breast was the common site of disease presentation (61%). We observed 22.3 % women with positive family history. The maximum number of patients presented with Clinical Stage III (36.2%) followed by stage II which comprised of 120 patients. High grade was seen in 60.4% of patients while low grade in 39.5%. With regards to hormonal status, ER positivity was seen in 47.9% of patients and PR Positivity in 40.5% and 47.9% had Her2 positivity. 31.5% were Triple Negative and 20% were Triple Positive. **Conclusion:** Breast cancer diagnosed in young age represents a distinct subgroup with poor prognosis.

KEYWORDS

Incidence, Breast Cancer, Young Women.

INTRODUCTION

Breast cancer remains one of the most commonly diagnosed cancers worldwide. Its incidence and mortality vary significantly across countries. In 2022, an estimated 2.3 million new breast cancer cases and 666,000 breast cancer-related deaths occurred globally, accounting for 23.8 % and 15.4 % of all cancer cases and deaths in women respectively (1). In India, breast cancer tops the female-centric cancers, representing nearly 27% of all cancers. India reports over 1.4 million cancer cases and 0.9 million cancer-related deaths annually (2).

Previously breast cancer cases were seen in most commonly women with 50 years of age or older (3). Hence majority of studies were conducted with sample from 50 years and older to study breast cancer overall (4). But in recent years there is increasing trend of incidence of young breast cancer and in India it accounts for 10 -20 % of all breast cancers (5-7). Young age at diagnosis of breast cancer is associated with higher risk of relapse and death in several large studies [8-10]. Risk factors for developing cancer at younger age may include both internal and external hormonal factors: age at first menarche, age at menopause, age of first pregnancy (11). Multiple studies have reported that breast cancer in younger patients generally presents with higher grade, advanced stage, negative hormonal status and human epidermal growth factor receptor 2 over-expression (11-13). In the present study, we retrospectively analysed the breast cancer patients who had been treated at our hospital or had been referred to our hospital after surgery for adjuvant treatment. The objective of study was to find the incidence of young breast cancer patients and their clinicopathological profile and hormonal characteristics.

MATERIAL AND METHODS

We retrospectively analyzed total 3436 breast cancer patients who were registered and treated at our institute from January 2011 to December 2024. This study was approved by the institutional review board. All female patients who were diagnosed with breast cancer and confirmed with histology were included in the study. The exclusion criteria was patients with other malignant breast causes like phyllodes tumor, sarcoma or lymphoma, patients with unknown subtype. Breast cancer patients under or equal to the age of 40 years were stratified from the total breast cancer patients. The patient's demographic characteristics including age, marital status at the time of diagnosis, co-morbid condition were collected. Other variables included in the study were tumor characteristics like size, location, histology, extension, metastasis, hormone receptor status, stage and grades of the tumor (high grade: grades III and IV; low grade: grades I and II). Hormone receptor was considered positive if either estrogen or progesterone receptor was positive. Estrogen and progesterone

receptor statuses were considered positive if more than 10% of the cells were positive. For ERBB2 over-expression, patients with immunohistochemistry grades 0 or 1 were considered negative and those with grade 3 or higher were considered positive. Patients with grade 2 were further evaluated using fluorescence in situ hybridization. For staging purpose we used pathologic TNM staging for patients who had up-front surgery and clinical TNM staging for those who underwent neoadjuvant chemotherapy. TNM stage was assigned according to the American Joint Committee on Cancer Staging classification. The data was entered into Microsoft Excel for statistical analysis.

RESULTS

A total 488 patients of breast cancer below or equal to 40 years of age who were biopsy proven or referred to our department after surgery were included in study. Year wise distribution of breast cancer cases is shown in Table 1. Maximum cases were found in year 2020 (10.6%) followed by year 2019 (10%).

Table 1: Year Wise Distribution of Breast Cancer Cases from Year 2011 to 2024.

Year	Breast cancer cases below or equal to 40 years of age at the time of diagnosis
2011	26
2012	14
2013	29
2014	32
2015	34
2016	41
2017	35
2018	46
2019	49
2020	52
2021	44
2022	36
2023	32
2024	18
Total	488

The Patient and Tumor Characteristics are shown in Table 2. Mean age of 36 years (range: 28-40 years) was noted. Maximum patients were in age group of 35-40 years (68.4%). Right breast was the common site of disease presentation (61%). Out of total study population 80.5% women were married while 19.4% women were unmarried. We observed 22.3 % women with positive family history. The maximum number of patients presented with Clinical Stage III (36.2%) followed

by stage II which comprised of 120 patients. 23.9% of total patients were in stage IV. High grade was seen in 60.4% of patients while low grade in 39.5%. With regards to hormonal status, ER positivity was seen in 47.9% of patients and PR Positivity in 40.5% and 47.9% had Her2 positivity. 31.5% were Triple Negative and 20% were Triple Positive.

Table 2: Patients and Tumor Characteristics

Characteristics	Group	No of patients	Percentage
Age	<30-34	154	31.5
	35-40	334	68.4
Site	Right	298	61
	Left	190	38.9
Marital Status	Married	393	80.5
	Unmarried	095	19.4
Family History	Yes	109	22.3
	No	379	77.6
Stage	I	74	15.1
	II	120	24.5
	III	177	36.2
	IV	117	23.9
Grade	Low	193	39.5
	High	295	60.4
ER Status	Positive	234	47.9
	Negative	254	52
PR Status	Positive	198	40.5
	Negative	290	59.4
Her2	Positive	234	47.9
	Negative	254	52
Triple	Positive	098	20
	Negative	145	31.5

In Treatment, Surgery was the standard of treatment in all the patients except metastatic breast carcinoma patients. Patients and Treatment Details are given in Table 3. About 84.2 % of total patients underwent surgery. Among them 66.8% had undergone Modified Radical Mastectomy (MRM) and 17.4% Breast Conservation Surgery (BCS). All the patients received chemotherapy as neoadjuvant (43.4%), adjuvant (40.7%) or palliative (15.7%) intent. A total of 448 patients were undergone radiation as a part of Breast Conservation Therapy or with high-risk features in patients who underwent MRM and as a part of palliative intent like bony metastasis or whole brain radiation. Total 76.02% patients had received adjuvant radiation either by 3DCRT (3D Conformal Radiotherapy) or IMRT (Intensity Modulated Radiotherapy) while 7.5% patients received palliative radiation because of metastatic presentation.

Table 3: Patients and Treatment details

Sr.no	Treatment Modality	Patients	Percentage
1	Surgery		
	BCS	85	17.41
2	Chemotherapy		
	NACT	212	43.44
	Adjuvant	199	40.77
3	Palliative	77	15.77
	Radiation		
	Adjuvant	317	76.02
	Palliative	37	7.58

DISCUSSION

Breast carcinoma is one of the most common cancer in females having hormonal, genetic and environmental etiologic factors. Age is the important risk factor for breast cancer. Incidence of breast cancer increases with age. But in recent years the increasing incidence of it also observed in young females. The incidence varies from 2 to 6% in west to 10–20% in Asia [14-16]. As per the study among Asian women, the incidence in India was 16.2% [15]. In our study, the proportion of young breast cancer patients was 14.2% of total breast cancer. According to the one previous study, the mean age of diagnosis, was 34.8 years while in our study it was 33 years (17). Left breast was the predominant site of occurrence 50.8%, in some studies (18) however in our study it was the right. Family history is another risk-factor for breast carcinoma. It has been noted that women with positive first degree relative breast cancer have higher risk than general population and the risk further increased if the relative was affected at an early age and/or had bilateral disease. In our study, 109 (22.3%) out of 488 cases had history of breast or ovarian malignancies in their family. In another study family history was seen in only 8% cases (19).

Young women are more likely to develop breast cancer with more aggressive characteristics compared to older women like advanced tumour stage, negative hormone receptors status and over expression of the HER2 (20,21) and these characteristics are contributing to the poorer prognosis among young female patients with breast cancer. We had 47.9% cases with ER and 40.5% PR positivity and 47.9 % cases with HER2 positivity. In our study high Grade was most common histologic grade. Stage III was the most common disease stage in our population, which is similar to western study (22). The studies done in young breast cancer patients show that young patients are increasingly treated with Neoadjuvant Systemic therapy followed by locoregional treatment (23,24). In our study total 212 patients received neoadjuvant treatment followed by locoregional treatment. Previous studies described that young patients are more likely to undergo mastectomy (25,26). In our study also 66.8% patients underwent mastectomy.

In conclusion, breast cancer diagnosed in young age represents a distinct subgroup with poor prognosis which indicates there is need for increasing screening programs and cancer awareness for early diagnosis and treatment.

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