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Original research paper

A clinicopathological study of breast cancer in elderly women at a tertiary care hospital

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Abstract

Breast cancer is the most common cancer in women worldwide and the second most common cause of cancer related deaths in women. Incidence of breast cancer is increasing with age as there is improvement in survival rate. It has attracted considerable interest in the study of carcinoma breast in elderly. Study was conducted on all the clinically diagnosed cases of breast cancer in the elderly women aged above 60years. Data was collected from the patient after obtaining a written informed consent. Detailed history, clinical examination and relevant laboratory investigations were done and clinical diagnosis confirmed perioperatively and postoperatively based on histopathological examination in the elderly patients. 4(8%) patients presented with clinical T1 stage, 22 (44%) patients presented with T2 Stage, 15 (30%) patients with T3, 5(10%) patients with T4a and 4 (8%) patients with T4b tumor status. 25 (50%) patients had clinically N0 Status at presentation. 20 (40%) patients were N1 at presentation, 5(10%) patients presented with N2 nodal status and 1 (2%) patients with N3 status. Infiltrating ductal carcinoma was the most common histological variant constituting 22 (44%) of the population. Clinico pathological features and treatment vary in elderly compared to young patients, Infiltrating ductal carcinoma is the most common histological variant of breast cancer seen.

Keywords: Breast carcinoma, neoadjuvant therapy, modified radical mastectomy, histopathological profile

Introduction

Breast cancer is the most common cancer in women worldwide and the second most common cause of cancer related deaths in women [1]. Breast cancer begins in the breast tissue made up of glands for milk production, called lobules and the ducts that connect to the nipple. Remainder of the breast is made up of fatty connective tissue and lymphatic tissue. Most of the patients with breast cancer present with a lump in the breast. Age being an important risk factor for development of breast cancer, incidence increases with age. With improvement in health care facilities the life expectancy of population has increased further leading to increase in number of patients.

The median age for breast cancer diagnosis is approximately 60 years and over 40% of breast

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cancers diagnosed are in women aged 65 year or older. It is anticipated that by 2030, approximately 20% of population will be aged over 65 years, therefore proportion of older women with breast cancer will grow in future [2]. Risk factors and clinicopathological features vary in elderly women when compared to younger women. According to Pappo *et al*., there is significantly lower incidence of family history of breast cancer in elderly patients [3]. Elderly women are found to have overall more favourable biological tumor profile [4, 5] higher percentage of estrogen/progesterone receptor positivity, lower expression of Her-2, P53 protein and low proliferation rate.

According to a case control study in Mumbai, single women as compared to married women, had a 4-5 fold higher risk for developing breast cancer [6]. Another study suggested nulliparous women had an increased incidence of 2.2 fold than parous women [7].

Nulliparity and late age at first child birth are consistently observed reproductive risk factors. The age standardized incidence rates range from 6.2 to 39.5 per 100000 Indian women. The age standardized incidence rates vary from region, ethnicity and religion with highest incidence of 48.3 per 100000 women reported in the Parsi community of Mumbai [8]. The possible reasons of high breast cancer in Parsi community are their westernized life style, consanguineous marriages and late age of marriage and child birth.

Existence of comorbidities affects the choice of treatment modality and overall survival rate in elderly breast cancer patients. 20% of the patients older than 80 years suffered from more than two concomitant conditions and more elderly patients received less than optimal treatment [9].

Methodology

Source of data

All clinically diagnosed cases of breast cancer in elderly women admitted under department of general surgery.

All clinically diagnosed cases admitted during study period from October 2016 to September 2018 were included in the study.

Inclusion criteria

All clinically diagnosed cases of breast cancer in elderly women (aged above 60years) admitted in department of general surgery.

Exclusion criteria

1. Patient aged below 60 years of age.
2. Patients of breast cancer previously treated in other institute.
3. Recurrent breast cancer cases.

Method of data collection

This study was conducted on all the clinically diagnosed cases of breast cancer in elderly women aged above 60, who underwent treatment based on clinicopathological diagnosis of breast cancer during the study period. Data collected after obtaining written informed consent.

Study type: Hospital based case series study.
Number of cases: 50 cases of carcinoma breast in elderly
Sampling technique: Non-probability purposive sampling technique.

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Results

Table 1: Type of Surgery among the Patients

Type of surgery	Frequency	Percentage
MRM	44	88
BCS+ALND	6	12

Among 50 patients, 44 (88%) patients underwent modified radical mastectomy and only 6(12%) patients opted for breast conservative surgery with axillary lymph node dissection.

Table 2: Laterality among the Patients

Laterality		Percentage
Right Side	33	66
Left Side	17	34

Among 50 patients, 33(66%) patients had right side breast cancer and 17(34%) patients had left sided breast cancer.

Table 3: Age Wise Clinical T Stage among the Patients

	T1	T2	T3	T4a	T4b
60-65	1	11	11	3	4
66-70	1	5	3	2	0
71-75	2	4	1	0	0
76-80	0	2	0	0	0

Among 50 patients, 4(8%) patients presented with clinical T1 stage, 22(44%) patients presented with T2 Stage, 15(30%) patients with T3, 5(10%) patients with T4a and 4(8%) patients with T4b tumor status.

Table 4: Age Wise Clinical N Status among the Patients

	N0	N1	N2	N3
60-65	16	11	2	1
66-70	4	6	2	0
71-75	5	1	1	0
76-80	0	2	0	0

Among 50 patients, 25 patients had clinically N0 Status at presentation.
20 patients were N1 at presentation, 5 patients presented with N2 nodal status and 1 patients with N3.
Among 50 patients, 6% had T1 disease, 48% had T2, 26% patients had T3, 8% had T4a and 2% T4b.
In the age group 60-65, 2% patients had T1 stage, 28% had T2, 24% had T3, 4% HAD T4a and T4b had 2%.
In the age group 66-70, 2% had T1 stage, 8% had T2, 10% had T3, 2% T4a.

Table 5: Age Wise Pathological N Status among the Patients

Age Group	No	N1	N2	N3
60-65	12	11	5	2
66-70	6	2	1	2
71-75	3	4	0	0
76-80	0	2	0	0

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Among 50 patients, 42% patients had pathological N0 Status, 38% had N1 status, 12% had N2 and 8% had N3 nodal status.
In a age group of 60-65, 24% had N0, 22% N1, 10% N2 and 4% had N3 status. In a age group of 66-70, 12% had NO, 4% N1, 2% N2 and 4% had N3 Status.
In a age group of 71-75, 6% had N0, 8% had N1, In a age group of 76-80, 4% had N1 nodal status.

Table 6: Lymphovascular Invasion among the Patients

Lymphovascular invasion	Frequency	Percentage
60-65	17	34
66-70	7	14
71-75	4	8
76-80	2	4

Among 50 patients, lymphovascular invasion was present in 30 patients.
In 60-65 age group, lymphovascular invasion present in 34%. In 66-70 age group LI was present in 14%, 8% in the age group of 71-75, 4% in 76-80 age group.

Table 7: Harmonal Status among the Patients

TRIPLE + (ER,PR, Her 2)	6	12%
TRIPLE - (ER,PR, Her 2)	14	28%
ER +, PR+ Her 2-	25	50%
ER+ PR - Her 2-	2	4%
ER- PR - Her 2+	3	6%

Among 50 patients, 12% are found to be triple positive, 28% as triple negative.
50% are found to be ER +, PR+, and HER 2-, ER +, PR- and Her 2- status in 4% and ER- PR- Her 2+ in 6%.

Discussion

Histological Variant of Ca infiltrating ductal carcinoma account for 44%of tumor type in our studies. Other studies also quote infiltrating ductal carcinoma-NST as most common tumor variant among all tumor types. It is the most common variant in both young and elderly.
In our study, number of case with oestrogen positivity are 56% in the age group of 60-65, 45% in the age group of 66-70, 100 % in 71-75 and 100% in 76-80 years of age.
Progesterone positive cases are 46% in age group of 60-65, 71% in the age group of 66-70 years, 100% in 71-75 and 100% in the age group of 76-80years.
Her 2 negative status is seen in 76% in 60-65, 81% in 66-70 years age group, 100% in 71-75 and 50% in the age group of 76-80.
According to diab SG [5], the number of tumors with estrogen receptors increased from 83% in patient of age group 55-64 to 87% in 65-74 y old to 90% in patients aged 75-84.
Number of progesterone positive tumor increased from 57% in age group of 55-64, 63% in age group of 65-74 and 64% in the age group of 75-84.
With age Her 2 negativity increased from 83% in the age group of 55-64 to 85% in 65-74 and 89% in 75 -84 years of patients.
Elderly patients present with less aggressive disease with favourable hormonal status (ER +, PR+ and Her 2-ve. finding of our study are in agreement with these studies.
According to diadone *et al*., in younger patients aged < 35years, ductal carcinoma -NST, is the most common variant of ca breast. Based on tumor size 4.9% presents with tumor size <1cm, 25.1% with size of 1-1.9, 58.6% with 2-4.9cm and 11.4% with size more than 5cm.

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32.6% with N0 status, 33.1% with 1-3 positive lymph node and 34.3% with >4 positive nodes. Estrogen receptor positivity seen in 58%, negativity in 42.8%. Progesterone receptor positivity in 49% negativity 51%.[10]

According to fredholm *et al*., younger patient with age < 35years,15 % presents with tumor size less than 1cm, 33% with size 1-1.9cm, 42% with 2-4.9, 8.5 % with size >5cm. according to nodal status 51% present with N0 status, 28% with 1-3 nodes positive and 20% with > 4 nodes positive. Estrogen receptor positivity is 58% and negativity 42%. Progesterone positivity is 49% and progesterone negative cases are 51% and Her 2 receptor receptor positivity in 20.4 and negativity in 79.6% [11].

According to chollethinton *et al*., younger patient in age group < 40 years, tumor size less than 2cm is seen 38.4% of patients, 61.6% with tumor size >2cm. estrogen positivity is seen in 55% and negativity in 44%. Progesterone receptor positive status seen in 46.4% and neagative status in 53.6%. HER 2 receptor positive status in 23% and negative status in 77%.

In our study, ductal carcinoma is found to be most type of breast cancer accounting for 44% of the cases. Tumor with size <2cm are 6%, those with 2-5cm are 24% and those with >5cm are 26%. Estrogen receptor positive status is seen in 66% 0f patients, negative receptor status in34%.positive progesterone receptor in62% and negative in 38%. HER 2 receptor status positive in 18% and negative in 82%.

Comparing all the studies, ductal carcinoma-NST is the most common variant of ca breast in both young and elderly. There is no significant difference between tumor size and nodal status in comparison to different age group [12].

Percentage of ER + PR+ and Her -ve cases are more in elderly patients compared to young.

They have favourable prognosis

Our results confirm the international studies indicating elderly have favourable biological profile of tumor, and elderly receive less than optimal treatment compared to young.

Number of patients for elder age group >60yrs in 2years study period are 50, compared to 30 patients in younger age group of <40years. Indicates increase in incidence of breast cancer with age. Number of nulliparous women with no history of breast feeding are 2% in the elderly whereas 55% in the younger age group. Marriage rate, number of pregnancies and births breast feeding rate are lower in younger age group when compared to elderly [13].

Number of patients with clinical T1 stage are 8%, T2- 44%, T3 -30%, T4a-10% and T4b 8% in elderly patients whereas in younger patients T1-0, T2-36%, T3-30%, T4a-30%, T4b 3.3%.

Number of patients with clinical nodal stage N0 are 50%, N1-38%, N2-12%, N3-0 in elderly patients compared to N0 of 46.6%, N1-50%, N2-12%, N3-0 in young patients. There is no significant difference in TNM staging for both study groups.

Number of patients taking neoadjuvant therapy are 28% in elderly and 10% in younger age group.

Number of patients who underwent modified radical mastectomy are 88% in elderly and 53% in younger age. Number of patients opting for breast conservative surgery with axillary lymph node dissection are 12% in elderly compared to 47% in younger patients.

Number of patients opting for MRM in elderly is more as they less concerned about the breast preservation and there is fear of radiotherapy related complications. Even the presence of comorbidities and functional status significantly affect prognosis and treatment choices. The possible explanation for age related difference regarding treatment is complex, it reflects decisions based on the view of physicians, patients, relatives and caregivers and on psychosocial issues.

Lymphovascular invasion present in 34% of elderly patients and 32% of young, though rate of lymphovascular invasion is high, overall prognosis is good in elderly [14]. In elderly patients triple positive constitute 12% of the patients, triple negative constitutes 28%, ER+

PR+ Her 2 -ve constitute 50%, ER + PR-Her 2-constitutes 4% and ER-PR-Her 2+ constitutes 6% compared to younger patients where triple positive constitutes 10%, triple negative -23%, ER+ PR+ Her 2-constitute 30%, ER + PR-Her 2-constitute 30% and ER-PR-Her 2+ constitutes of 7%. When compared to younger patients in same institute, ER+ PR+ Her 2- cases are more in elderly patients indicating good prognosis. Triple negative cases are more in young patients indicating aggressive nature of the tumor [15].

Study carried out in our institute supported the other studies carried out worldwide with regard to histological and biological profile of tumor in elderly and young and the treatment modality followed in elderly. But further study is required as there is variation in sample size between young and elderly, proper conclusion couldn't be drawn and differences not appreciated in relation with stage of disease at presentation and number of patients opting for neoadjuvant therapy.

Conclusion

Comparing our study with world wide study in elderly and young, we drawn the conclusion that there is no significant difference in clinical TNM staging of both the study group. But elderly have favourable histopathological biomarker profile with more number of ER, PR positivity and Her 2 negativity.

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