

Evaluation of Clinicopathological Factors and Outcome in Young Women with Breast Carcinoma

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ABSTRACT

Background: Breast cancer has emerged as the most prevalent cancer among women worldwide. Individuals diagnosed with breast cancer at or before the age of 40, particularly those diagnosed at or before 35, are typically classified as part of a younger demographic. Hence; the present study was conducted to evaluate clinicopathological factors and outcome in young women with breast carcinoma.

Materials and Methods: A total of 100 breast cancer patients were enrolled. Complete demographic details of all the patients were enrolled. All the patients were less than 45 years of age. Clinical data were collected from patient records. Each patient underwent mammography or sono-mammography radiological imaging, and the diagnosis of breast cancer was established by using fine-needle aspiration cytology or core biopsy. Treatment details including the surgical procedure, chemotherapy details, and radiation treatment were collected from the medical records. Histopathology reports were evaluated. Lymph nodes were assessed. Outcome was evaluated. Risk factors of mortality were also evaluated.

Results: A total of 100 patients were evaluated. The mean age of the patients was 38.7 years. 67 percent of the patients belonged to the age group of more than 30 years. 59 percent of the patients had Locally advanced breast cancer while the remaining 41 percent of the patients had early breast cancer. 62 percent of the patients were of grade III cancer. Tumour size was more than 2 cm in 53 percent of the patients. Lymph

node involvement was positive in 56 percent of the patients. Infiltrating ductal carcinoma was the most common type of carcinoma encountered in the present study. Mortality occurred in 12 percent of the patients. Presence of locally advanced breast cancer of higher grade and with involved lymph nodes were significantly associated with higher mortality.

Conclusion: In young women diagnosed with breast cancer, the key factors that were significantly linked to survival included the clinical stage at the time of presentation, the histological grading of the tumor, and the status of lymph nodes.

Keywords: Breast Cancer, Clinicopathological.

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INTRODUCTION

Breast cancer has emerged as the most prevalent cancer among women worldwide. Individuals diagnosed with breast cancer at or before the age of 40, particularly those diagnosed at or before 35, are typically classified as part of a younger demographic. The occurrence of breast cancer in females under the age of 39 is relatively low, estimated at approximately 0.50%, but this rate rises to 3.78% for women aged 40 to 59.^{1,2} Research has shown that the mortality rates for these two age groups are nearly equivalent. Although it has been proposed that younger breast cancer patients may experience poorer prognoses, the underlying reasons for this association remain inadequately understood. Various studies have identified factors such as unfavorable

pathological characteristics, delays in diagnosis, and the absence of effective screening measures for younger women as possible contributors to the adverse outcomes observed in this population.³ Previous research efforts have sought to identify the biological traits associated with breast cancer in younger women.^{4,5} Findings indicate that younger patients are more prone to having estrogen receptor-negative tumors and higher histological grades. Additionally, there is a significant rise in the incidence of the triple-negative subtype, accompanied by a more pronounced intraductal component, while cases of ductal carcinoma in situ are less common. Overall, tumors in younger women tend to display more aggressive biological characteristics. Even when these factors are

taken into account, age remains a significant independent prognostic factor in numerous studies.⁶⁻⁸ Hence; the present study was conducted to evaluate clinicopathological factors and outcome in young women with breast carcinoma.

MATERIALS AND METHODS

A total of 100 breast cancer patients were enrolled. Complete demographic details of all the patients were enrolled. All the patients were less than 45 years of age.

Clinical data were collected from patient records. Each patient underwent mammography or sono-mammography radiological imaging, and the diagnosis of breast cancer was established by using fine-needle aspiration cytology or core biopsy. Treatment details including the surgical procedure, chemotherapy details, and radiation treatment were collected from the medical records. Histopathology reports were evaluated. Lymph nodes were assessed. Outcome was evaluated. Risk factors of mortality were also evaluated.

All the results were recorded in Microsoft excel sheet and were subjected to statistical analysis using SPSS software.

RESULTS

A total of 100 patients were evaluated. The mean age of the patients was 38.7 years.

67 percent of the patients belonged to the age group of more than 30 years. 59 percent of the patients had Locally advanced breast cancer while the remaining 41 percent of the patients had early breast cancer.

62 percent of the patients were of grade III cancer. Tumour size was more than 2 cm in 53 percent of the patients. Lymph node involvement was positive in 56 percent of the patients. Infiltrating ductal carcinoma was the most common type of carcinoma encountered in the present study. Mortality occurred in 12 percent of the patients. Presence of locally advanced breast cancer of higher grade and with involved lymph nodes were significantly associated with higher mortality.

Table 1: Demographic and clinical profile

Variable		Number	Percentage
Age group	Less than 30 years	33	33
	More than 30 years	67	67
Clinical staging	EBC	41	41
	LABC	59	59
Grade of tumour	I + II	38	38
	III	62	62
Tumour size	≤ 2 cm	47	47
	> 2 cm	53	53
Lymph node status	Positive	56	56
	Negative	44	44

EBC=Early breast cancer; LABC=Locally advanced breast cancer

Table 2: Histopathological type and outcome

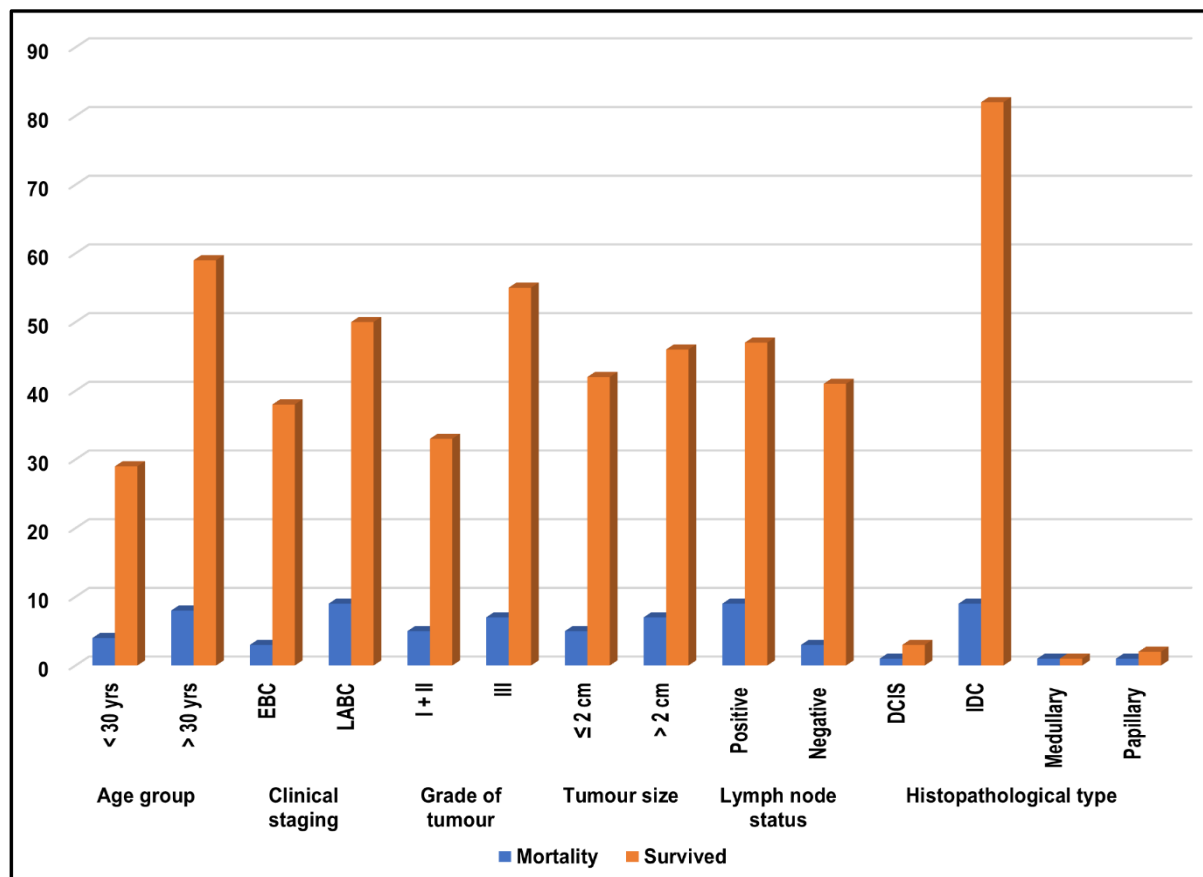
Variable		Number	Percentage
Histopathological type	DCIS	4	4
	IDC	91	91
	Medullary	2	2
	Papillary	3	3
Outcome	Mortality	12	12
	Survived	88	88

DCIS=Ductal carcinoma in situ; IDC=Infiltrating ductal carcinoma

Table 3: Risk factors of mortality

Variable		Mortality	Survived	Total	p-value
Age group	Less than 30 years	4	29	33	0.714
	More than 30 years	8	59	67	
Clinical staging	EBC	3	38	41	0.001*
	LABC	9	50	59	
Grade of tumour	I + II	5	33	38	0.003*
	III	7	55	62	
Tumour size	≤ 2 cm	5	42	47	0.185
	> 2 cm	7	46	53	
Lymph node status	Positive	9	47	56	0.002*
	Negative	3	41	44	
Histopathological type	DCIS	1	3	4	0.691
	IDC	9	82	91	
	Medullary	1	1	2	
	Papillary	1	2	3	

*: Significant



Graph 1: Risk factors of mortality

DISCUSSION

Breast cancer represents the most prevalent non-skin malignancy, constituting nearly one-third of all cancer diagnoses among women in the United States, and it ranks as the second leading cause of cancer-related mortality globally.^{11,12} Approximately 6.6% of breast cancer cases are identified in women under the age of 40, with 2.4% occurring in those under 35, and 0.65% in women younger than 30.^{13,14} When graphed, the cumulative incidence of breast cancer appears to follow an exponential trajectory prior to age 40, after which it exhibits a linear increase.¹⁵ The global incidence of breast cancer has doubled from 1975 to 2000, a trend attributed to rising life expectancy and the widespread adoption of a Western lifestyle, which encompasses various risk factors.¹⁶ In contrast, the rates of early-onset breast cancer have remained relatively stable across most countries over the past two decades. Mortality rates have shown a consistent decline, particularly among younger women, largely due to advancements in treatment and early detection methods.¹⁷ Nevertheless, breast cancer in younger women continues to pose significant challenges for patients, their families, and healthcare providers. Although the occurrence of breast cancer is considerably less frequent in women under 40, its implications can be more severe compared to older patients, as it often presents at a more advanced stage, tends to be more aggressive, and is associated with a poorer prognosis.^{5,18}

A total of 100 patients were evaluated. Mean age of the patients was 38.7 years. 67 percent of the patients belonged to the age group of more than 30 years. 59 percent of the patients had Locally advanced breast cancer while the remaining 41 percent of the patients had early breast cancer. 62 percent of the patients were of grade III cancer. Tumour size was more than 2 cm in 53

percent of the patients. Deshmukh SP et al conducted a study involving 86 breast cancer patients under the age of 40, all treated at a single institution. Among a total of 613 breast cancer cases, 91 (14.8%) were identified as being younger than 40 years. Five patients were excluded due to incomplete data, resulting in a final cohort of 86 individuals for analysis. The median size of the tumors was recorded at 3 cm, with a lymph node positivity rate of 56.9%. Lymphovascular emboli were detected in 48.8% of the cases, while perinodal extension was observed in 41.8%. The positivity rates for hormone receptors were 34.8% for estrogen and 45.3% for progesterone, with triple-negative cases also accounting for 45.3%. The median duration of follow-up was 27 months, during which disease-free survival was noted at 73.2% and overall survival at 87.2%. Univariate analysis revealed that survival was significantly associated with the stage at diagnosis, the presence of lymphovascular emboli, perinodal extension, and tumor grade. However, in the multivariate analysis, only tumor grade emerged as a significant factor. Thus, in young women diagnosed with breast cancer, critical survival determinants included clinical stage at presentation, lymphovascular emboli presence, perinodal extension, and tumor grade.¹⁹

In the present study, lymph node involvement was positive in 56 percent of the patients. Infiltrating ductal carcinoma was the most common type of carcinoma encountered in the present study. Mortality occurred in 12 percent of the patients. Presence of locally advanced breast cancer of higher grade and with involved lymph nodes were significantly associated with higher mortality. Sidoni A et al conducted a study examining the clinicopathologic features of 50 patients aged under 40, comparing them with patients over 60 years of age. The findings revealed that younger patients exhibited a higher prevalence of a family history of breast

cancer (24% compared to 17% in older patients) and had a greater likelihood of having used oral contraceptives (29% versus 13%). Additionally, these younger individuals experienced menarche approximately one year earlier on average. The study also noted a greater incidence of grade 3 tumors in the early-onset breast carcinomas (38% versus 17%) and a higher rate of estrogen receptor negativity (46% compared to 20%). Furthermore, the carcinomas in younger patients were predominantly DNA aneuploid (78% versus 58%), exhibited an increased proliferation rate (48% versus 26%), and showed more frequent overexpression of c-erbB-2 (48% versus 26%) and alterations in p53 (30% versus 8%). The results indicate that breast cancers in younger women possess a markedly distinct biopathological profile compared to those in older patients, characterized by a higher prevalence of unfavorable prognostic factors.⁴

CONCLUSION

In young women diagnosed with breast cancer, the key factors that were significantly linked to survival included the clinical stage at the time of presentation, the histological grading of the tumor, and the status of lymph nodes.

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