STUDY ON TWO YEAR SURVIVAL OF STAGE II AND STAGE III BREAST CARCINOMA IN EASTERN INDIA WITH SPECIAL REFERENCE TO PROGNOSTIC MARKERS HER-2/NEU, ER, PR AND Ki-67.

Dr. Deepika Pandey¹, Dr. Rajesh kumar Sinha², Dr. Gautam Mandal³

¹DNB, PGT, Chittaranjan National Cancer Institute, Kolkata

²PGT, RIMS, Ranchi

³Professor, CNCI, Kolkata

Article Info: Received 16 March 2020; Accepted 28 April 2020

DOI: <https://doi.org/10.32553/ijmbs.v4i4.1092>

Corresponding author: Dr. Deepika Pandey

Conflict of interest: No conflict of interest.

Abstracts

Breast cancer is one of the most commonly diagnosed malignancies and leading cause of cancer death in women over the world and the second most common cancer in females in India. Length of survival of cancer patients is an important indicator for knowing the outcome of treatment in any study. As the disease burden and mortality rate is very high, knowing the factors that influence survival rates among women with breast cancer may help design early detection and improve treatment. The immunohistochemistry plays a very important role in prognostication and treatment determination.

Aim: This study aims to correlate the various relevant prognostic pattern like reactivity pattern of ER,PR,Her-2/Neu ,ki-67 and 2-yr overall survival.

Material and method: The proposed study was a cross sectional study with mostly prospective observation and with some retrospective observation, included 74 patients of stage II and stage III breast carcinoma who underwent MRM in Chittaranjan National Cancer Institute from 2017-2018. The various clinical and histopathological prognostic parameters with Estrogen/ Progesterone hormone receptors and Human epidermal growth factor receptor (Her-2/Neu) status in invasive breast carcinoma patients were studied and correlated.

Result: 58.1%, 54.1% and 35.1% of the cases were ER, PR and Her-2/neu positive respectively.

89.2% of cases had Ki-67 level >20%. Her-2 neu negative, ER negative and KI-67>20% were found to be significant factors for mortality. Maximum (66.7%) of patients with recurrence and maximum (53.8%) patients who died in study period had triple negative breast cancer. Triple negative tumours have poor survival as compared to ER + PR + and HER-2/Neu +ve tumours. Disease free survival and overall survival of the patients with Ki-67< 20% was better than that of patients with Ki-67>20% (100%).

Keywords: Breast cancer, Invasive ductal carcinoma, ER,PR,HER-2/Neu , Ki-67 , Two year survival.

Introduction

Prognosis of breast cancer can be assessed by following factors such as; risk of aggressiveness, faster death or recurrence and shortened disease free survival or overall survival. Prognosis of breast carcinoma is dependent on clinical factors, histopathological parameters, hormone receptors and molecular based markers. Hormone receptors are ER, PR, molecular based markers are like oncogenes (eg.myc), protooncogenes(eg.HER-2/Neu) and tumor suppression gene P-53, proliferative marker (eg.Ki-67),apoptosis gene(Bcl-2) and cell cycle regulators (eg.cyclins).Evaluation of ER, PR and HER-2 expression by IHC is routinely performed in breast carcinoma. Estrogen receptor status is regarded at present as the most powerful predictive marker in breast cancer management. Several authors have reported that patients with ER-positive tumor have a longer disease-free survival than the others. HER-2 is individually associated with poor survival

in breast carcinoma but nothing has been proved conclusively to be the best in survival of breast carcinoma in India.

The aim of our study is usefulness of ER, PR, HER-2, Ki-67 as prognostic marker in breast cancer survival.

Materials and Method

This study was performed after obtaining the approval from ethical and scientific committee of Chittaranjan National Cancer Institute, Kolkata.

Study population: 74 Patients those who were getting operated in our hospital for breast Carcinoma were selected for this study after getting proper consent and most importantly after histopathological confirmation of Invasive Ductal Carcinoma(stage II and III)as a diagnosis and those having known ER,PR,HER-2/neu and ki-67 status were included in this study.

Study design: Cross sectional study with mostly prospective observation and with some retrospective observation.

RESULT

Table 1:

		Overall survival		death		p-value	DFS		RECURRENCE		p-value
ER-, PR-, Her2/neu -		14	23	7	53.8	0.314	13	21	8	66.7	0.0316
ER+, PR+, Her2/neu -		21	34.4	2	15.4		22	35.5	1	8.3	
ER+, PR+, Her2/neu+		14	23	1	7.7		15	24.2	0	0	
ER-, PR-, Her2/neu +		8	13.1	2	15.4		8	12.9	2	16.7	
ER+, PR-, Her2/neu +		2	3.3	1	7.7		2	3.2	1	8.3	
ER-, PR+, Her2/neu +		1	1.6	0	0		1	1.6	0	0	
ER+, PR-, HER 2/neu -		1	1.6	0	0		1	1.6	0	0	
KI-67	<20%	8	13.1	0	0	0.166	8	12.9	0	0	0.187
	>20%	53	86.9	13	100		54	87.1	12	100	

Discussion

Association of status of ER, PR, HER2/Neu with DFS and OS

In present study 8 (66.7%) of patients with recurrence were triple negative and 7(53.8%) patients who died in study period had triple negative breast cancer .Which was comparable to study done by **Adedayo A Onitilo et al, Ali Shahriari- Ahmadi et al, Poorolajal J et al, Shuning Ding et al , Isabelle soerjomataram et al, and carol A. Parise et al.**

Association of status of Ki-67 with DFS and OS

In the present study pattern of disease free survival and overall survival of the patients with Ki-67< 20% was better than that of patients with Ki-67>20% (100%).the result was in concordance with the findings of **E .C. Inwald et al ,Sara Bustreo et al and Abir A. Muftah et al (2017) Kilickap et al** showed in their study that Ki-67 cut off of < 20 % was significantly associated with longer median relapse free and overall survival compared to higher ki-67.

In another study conducted by **Nahed A. soliman et al** they found similar results ,patients with Ki-67 less than 15% displayed better OS than those with Ki-67 higher than 15%.also patients with higher Ki-67 (>15%) exhibited higher incidence of metastasis and recurrence than those with Ki-67 less than 15%.

Seyed Hamid Madani et al also showed the positive association of Ki-67 with higher tumour grade and triple negative breast cancer,which indirectly shows poor DFS and OS.

Conclusion

1. On immunohistochemical categorisation maximum (31.1%) cases were ER +, PR+ and HER-2 – followed by triple negative tumour (28.4%).
2. Maximum (66.7%) of patients with recurrence and maximum (53.8%) patients who died in study period had

In 58.1% (43 cases) ER status was positive. In 54.1 % (40 cases) were PR status positive. in 37.8 % (28 cases) HER-2/Neu status was positive and in 89.2%(66 cases) of patients had ki-67 level index >20%.

triple negative breast cancer. Triple negative tumours have poor survival as compared to ER +, PR + and HER-2/Neu +ve tumours.

3. Disease free survival and overall survival of the patients with Ki-67< 20% was better than that of patients with Ki-67>20% (100%).

RESULTS

There is significant difference in disease free survival and overall survival pattern of the patients for different states of ER, PR and HER-2/Neu.

Pattern of disease free survival and overall survival of the patients with ki-67<20% was better than that of patients with ki-67>20%. No significant difference in disease free survival and overall survival of patients of two groups were found.

It is only the hormone dependent breast cancer who showed better survival but those which are not hormone dependent like triple negative showed poor survival.

In worldwide study it has been observed that the aggressive tumour in young age group with triple negative have shortened survival.

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