

Pattern of Hormone Receptor Status in Breast Cancer Patients in the Rural Population Tamilnadu - A Descriptive Study

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Abstract: Breast cancer is most frequently diagnosed cancer and most frequent cause for cancer-related deaths in women worldwide. Globally, breast cancer accounted 2.08 million out of 18.08 million new cancer cases (incidence rate of 11.6%) and 626,679 out of 9.55 million cancer-related deaths (6.6% of all cancer related deaths). In India, breast cancer has surpassed cancers of cervix and oral cavity to be most common cancer and leading cause of cancer deaths. Modern classification of breast cancer is based on immunohistochemistry, histopathologic features, and molecular characterisation. Two most frequent histologic subtypes of invasive breast cancer are invasive ductal carcinoma and invasive lobular carcinoma (80% to 85% and 10% to 15% of all cases, respectively). Other subtypes compose remaining, 1% of invasive breast cancers. IHC characterisation of breast cancer is important for deciding treatment of breast cancer and for predicting prognosis. IHC characterisation depends on expression of biomarkers such as oestrogen receptor (ER), progesterone receptor (PR), and human epidermal growth factor receptor 2 (HER2). **Aims and Objectives:** To analyse the Pattern of Hormonal Receptors status (ER, PR, Her2Neu, Ki67) and its correlation with age and with pathological prognostic factors in carcinoma breast. **Material and Methods:** This is a Descriptive study with a proper diagnostic accuracy done among 105 cancer breast patients presented to Government Villupuram Medical College and Hospital, Villupuram, Tamilnadu. **Results:** In the present study, 38% were in the age group of 41 to 50. Mean age is 48.76 and standard deviation is 4.56. 82% were Invasive Ductal Carcinoma, 52% were stage 1 cancer, 41% were ER-/PR- 71% were her2neu negative, 62% were right side breast cancer, 43% were 4 nodes positive, 46% were ki67 20%, 52% were given chemotherapy before surgery, 57% were not given chemotherapy after surgery.

Keywords: carcinoma breast, immunohistochemistry, ER, PR & HER2neu

1. Introduction

Breast carcinoma is the most common malignant tumor and the leading cause of carcinoma death in women. In our country, though the incidence of breast carcinomas is lower than the west yet it is the second most common malignant tumor in females comprising 16 to 21%. The first being carcinoma cervix. Breast cancers are diagnosed at a relatively advanced stage. Breast carcinoma is a disease with a tremendous heterogeneity in its clinical behavior.

It is the most common female cancer in the world with an estimated 1.67 million new cancer cases diagnosed in 2012. This represents about 12% of all new cancer cases and 25% of all cancers in women.²

Annual incidence of approximately 1, 44,000 new cases of breast cancers in India, it has now become the most common female cancer in urban India and the second commonest in the rural Indian women.²

Currently, routine clinical management of breast cancer incorporates specific molecular markers; namely Estrogen Receptor (ER), Progesterone Receptor (PR), Human Epidermal Growth Factor Receptor 2 (HER2) gene that have been proven to provide therapeutic, predictive and prognostic value. The triple negative breast cancer (ER/PR/HER-2/neu) has the worst overall survival.

Aims and Objectives

To analyse the Pattern of Hormonal Receptors status (ER, PR, Her2Neu, Ki67) and its correlation with age and with pathological prognostic factors in carcinoma breast

2. Material and Methods

- **Study Design:** Descriptive study
- **Study Center:** Government Villupuram Medical College and Hospital, Villupuram, Tamilnadu
- **Study Period:** 12 Months

Inclusion Criteria:

- All biopsy proven adult female breast cancer patients taking treatment and or on follow up in Government Villupuram Medical College and Hospital

Exclusion Criteria:

- Psychiatric illness
- Malignancy during or following pregnancy
- Not willing for study
- Inadequate data

2.1 Methodology

All biopsy proven adult female breast cancer patients on treatment in Government Villupuram Medical College were enrolled in this study and their hormone receptor status of the malignancy was analysed

3. Results

a) Age Wise Distribution of Study Participants

Age	Frequency	Percentage
31-40 years	13	12
41-50 years	40	38
51-60 years	38	36
61 and above	14	14
Total	105	100

b) Oestrogen and Progesterone Receptor Status among Study Participants

S. No	Age	No. of Cases	Percentage
1	ER+/ PR+	35	33.33
2	ER-/ PR+	2	4
3	ER+/ PR-	25	24
4	ER-/ PR-	43	41.67
5	Total No. of Cases	105	100

c) Expression of HER-2/neu in Breast Carcinoma

S. No.	HER-2/neu Expression	Percentage
1	Positive	34
2	Negative	71

Table 9: Distribution of Histological Variants in Breast Carcinoma

S. No	Age	No. of Cases	Percentage
1	Invasive Ductal Carcinoma	86	82
2	Mucinous Carcinoma	18	17
3	Metaplastic Carcinoma	1	1
5	Total	105	100

Table 10: Laterality of Breast Cancer among Study Participants

Side	Frequency	Percentage
Right	65	62
Left	40	38
Total	105	100

Table 11: Nodal Status of Breast Cancer among Study Participants

Nodes	Frequency	Percentage
2 Nodes	25	24
3 Nodes	35	33
4 Nodes	45	43
Total	105	100

Table 12: Stage of Tumor of Breast Cancer among Study Participants

Stage	Frequency	Percentage
I	55	52
II	30	28.5
III	20	19.5
Total	105	100

Table 13: Expression of Ki67 in Breast Cancer

S. No.	Ki67 Expression	Frequency	Percentage
1	0- 20%	43	46
2	21- 40%	32	34
3	41- 60%	14	16
4	> 61%	5	4

Table 14: Status of Chemotherapy before Surgery among Study Participants

Chemotherapy	Frequency	Percentage
Given	55	52
Not Given	50	48
Total	105	100

Table 15: Status of Chemotherapy after Surgery among Study Participants

Chemotherapy	Frequency	Percentage
Given	45	43
Not Given	60	57
Total	105	100

Results in a Nutshell

- In the present study, 38% were in the age group of 41 to 50. Mean age is 48.76 and standard deviation is 4.56, 82% were Invasive Ductal Carcinoma, 52% were stage 1 cancer, 41% were ER-/PR-, 71% were her2neu negative, 62% were right side breast cancer, 43% were 4 nodes positives, 46% were ki67 20%, 52% were given chemotherapy before surgery, 57% were not given chemotherapy after surgery

4. Conclusion

This study analysed the pattern of Hormone Receptor status in breast cancer patients in rural population of Tamilnadu and its correlation with Age and pathological prognostic factors in Carcinoma Breast. The data arrived in this study give some understanding on the molecular pattern of breast cancer in this part of the state which help in designing treatment protocol.

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