

## A Clinical Study of Hormone Receptor Status in Carcinoma Breast

Dr B Kanchana<sup>1</sup>, Dr Pratheep karthick<sup>2</sup>

<sup>1</sup>Professor and Head, Department of general surgery, Aarupadai veedu medical college, Pudcherry, Tamilnadu, India

<sup>2</sup>Postgraduate, Department of general surgery, Aarupadai Veedu Medical College, Pudcherry, Tamilnadu, India

Corresponding Author: Dr B Kanchana

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**Abstract:** Breast cancer is the most common cancer among women. Worldwide the incidence is still on the increasing trend. Although many treatment modalities have become available which helps in early detection of cancer still hormone receptor status of the tumor plays an important role in treatment. It is essential to find the markers that have predictive and prognostic values. It predicts the chances of recurrence of cancer and also identifies which patients do and which do not benefit from adjuvant treatment. In this study we found out the expression of estrogen receptor (ER), progesterone receptor (PR), and human epidermal growth factor receptor-2 (HER2), by IHC and analyzed the associations between these indicators and the clinic pathological characteristics

**Key words:** hormone receptor status, er, pr, her2.

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### I. Introduction:

Breast cancer is the most common cancer among women. Worldwide over 1.1 million women are diagnosed with this disease each year and incidence rates are still on the increase in several countries. Breast cancer is more common in elderly women. According to literature breast cancer occurring in younger women are of more aggressive type. Recurrence of the tumor is more common in younger women compared to elderly women. Clinically, in young age, breast tumors are of large size, with greater lymphatic spread. The most important prognostic factor is lymph node status (N) and next to it is the tumor size (T). The final outcome in breast cancer management depends upon the initial stage of the tumor at diagnosis and associated prognostic factors such as status of the lymph nodes, size of the tumor and grading of the tumor. Therefore it is essential to find the markers that have predictive and prognostic values. It predicts the chances of recurrence of cancer and also identifies which patients do and which do not benefit from adjuvant treatment. So, patients with low-risk are avoided of unnecessary adjuvant treatment. And also the patients with high risk could be identified and given appropriate, early and aggressive treatment. Estrogen and progesterone receptors (ER, PR) and more recently, HER-2/neu have with increasing importance influenced the management of the malignancy. Immunohistochemical (IHC) detection has become essential to many malignancies and plays a key role in tumor diagnosis, treatment and prognostic assessment.

In this study, we studied 75 cases of breast cancer patients, to detect the expression of estrogen receptor (ER), progesterone receptor (PR), and human epidermal growth factor receptor-2 (HER2), by IHC and analyzed the associations between these indicators and the clinico- pathological characteristics

### Aims and Objectives

#### Aim Of Study:

To assess the incidence of hormone receptor positivity in females with carcinoma breast.

#### Objectives of the study:

1. To identify hormonal receptor status in female patients with breast malignancies
2. To predict the tumor response to endocrine therapy
3. To compare hormonal receptor status with clinicopathological grading of the tumor
4. To formulate the adjuvant treatment modality

## II. Methodology

### Materials And Methods

A study of cases of carcinoma breast in females were done. Sample included 75 patients. Patients for clinical study were selected from the general surgical wards of our medical college hospital for a period of 18 months. The study subjects were selected when they presented with the following inclusion and exclusion criteria.

#### Inclusion criteria:

1. Clinically diagnosed breast malignancy in females of all age groups
2. Age of patient, tumor size, histological subtype and grading of the tumor
3. Trucut biopsy and mastectomy specimens

#### Exclusion criteria:

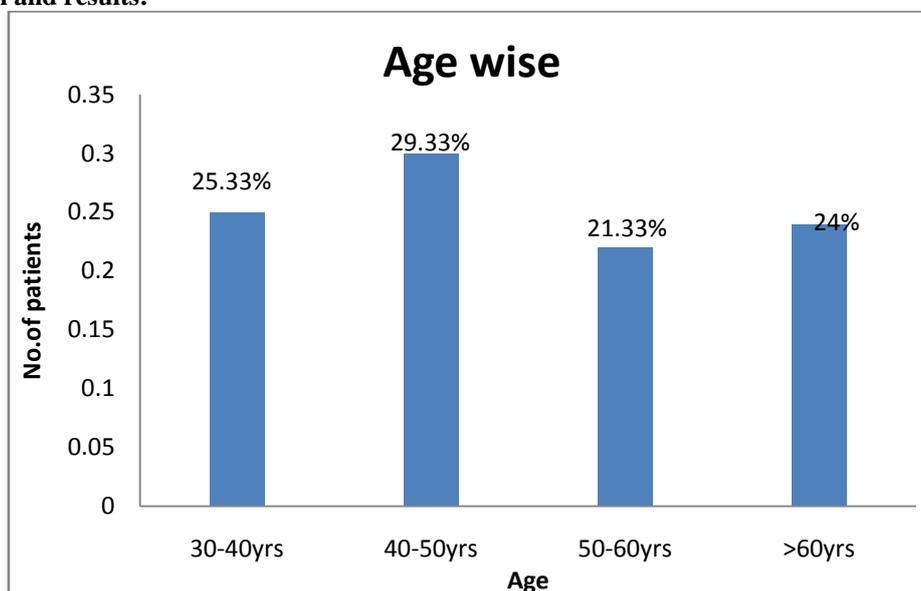
1. Patients already treated for contralateral breast carcinoma
2. Male breast carcinoma

#### Method used:

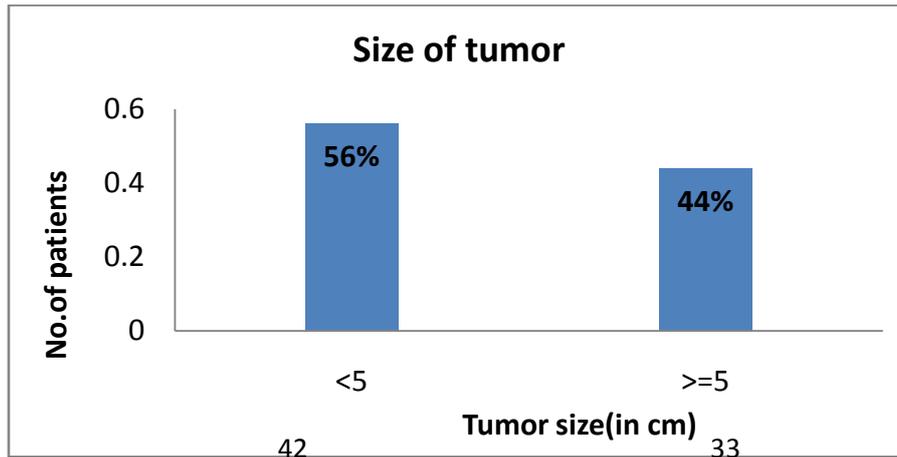
Biopsy samples (either Trucut biopsy or post-op mastectomy specimens) were sent to pathology lab where they were processed and analysed for the histological subtype of the tumor, its pathological grading and the clearance of resected margins of the tumor.

Hormonal receptor assay was done using Immunohistochemistry technique in our college pathology department and results were interpreted.

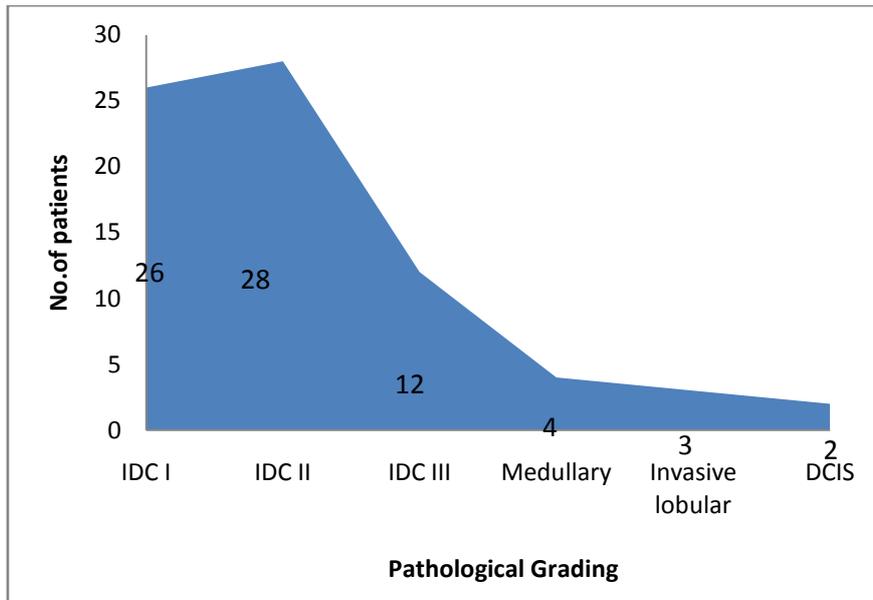
#### Observation and results:



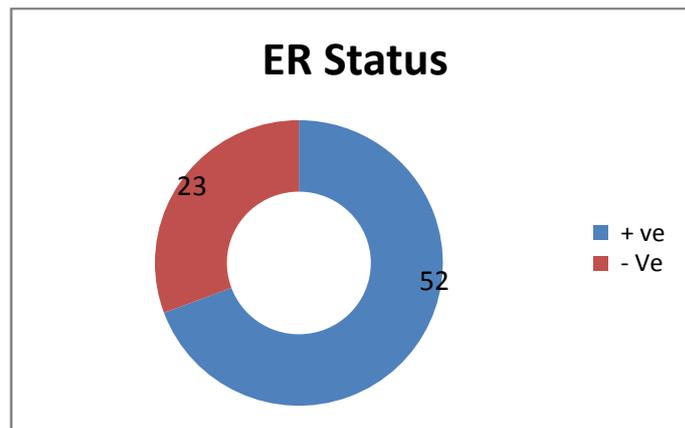
In this study, a total of 75 patients were studied starting from the age groups above 30. Most of them were between 40 and 50 years. Second most common was in younger age less than 40 years. Most of the patients came under the age group 40- 50 years about 29.33%. The least was in the 50- 60 years age of about 21.33%.



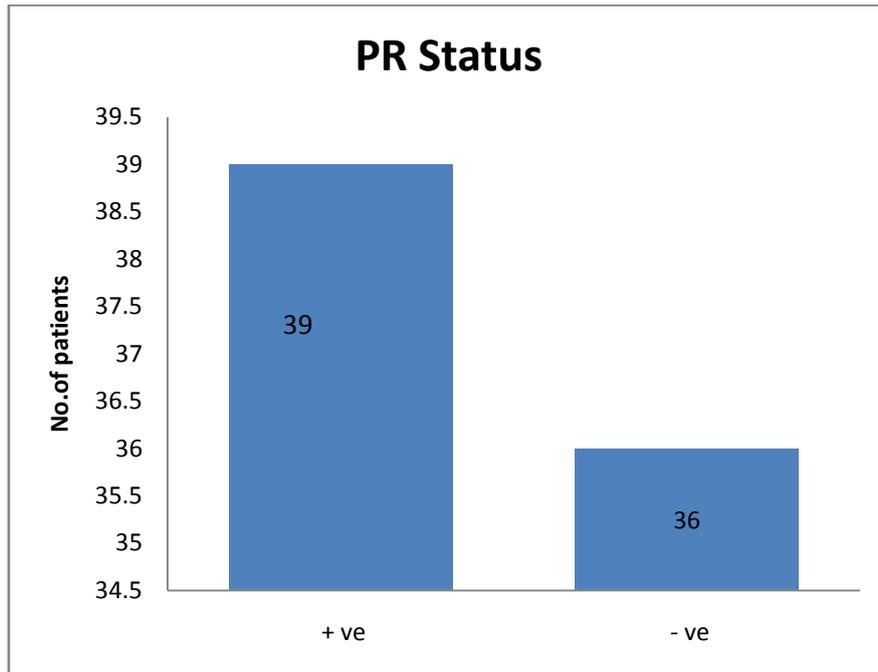
In our study group, 42 patients had a tumor of size less than 5 cm which is about 56% of the whole group. 33 patients had a tumor greater than or equal to 5cm in size which constitutes 44% of the study sample.



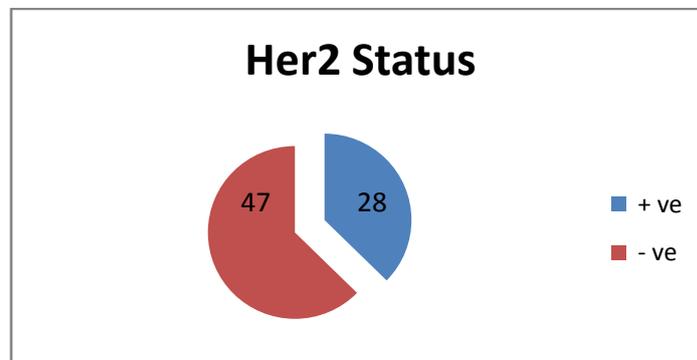
In this study which included breast cancers of different histological types and grade, IDC I- 26 patients, IDC II- 28 patients, IDC III- 12 patients, Medullary carcinoma- 4, Invasive lobular carcinoma- 3, Ductal carcinoma insitu- 2



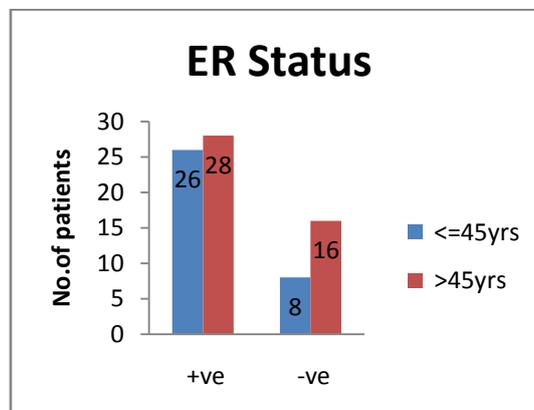
Out of 75 patients, 52 patients (69.33%) were positive for estrogen receptor and 23 (30.66%) were negative



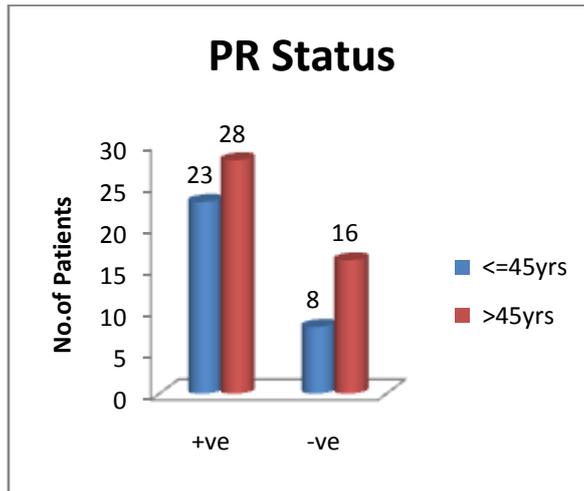
39 patients (52%) were progesterone receptor positive and 36 (48%) were progesterone receptor negative



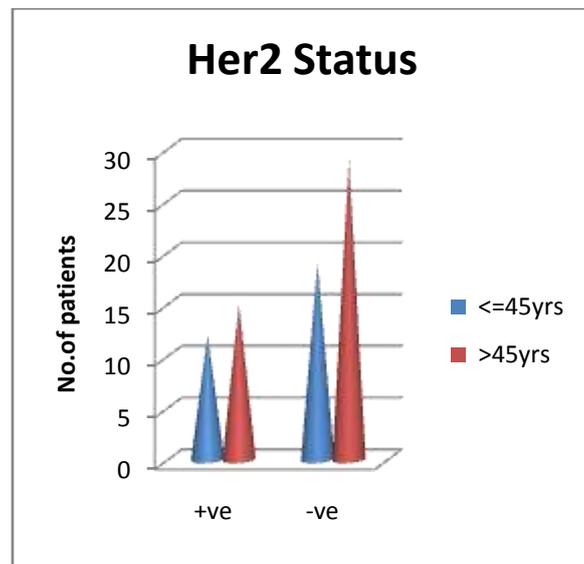
Here 28 (37.33%) patients had Her2 receptor positive and 47 (62.66%) were negative



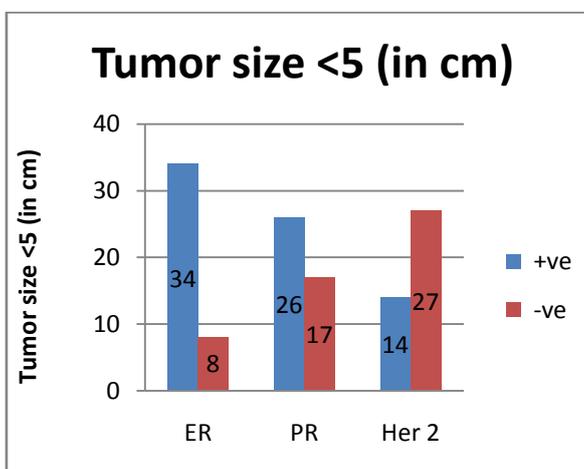
In patients under 45 years of age (total 31), 23 patients (74.19%) were ER positive and 8 (25.81%) were negative. Above 45 years of age (total 44), 28 patients (63.63%) were ER positive and 16 (36.36%) were negative



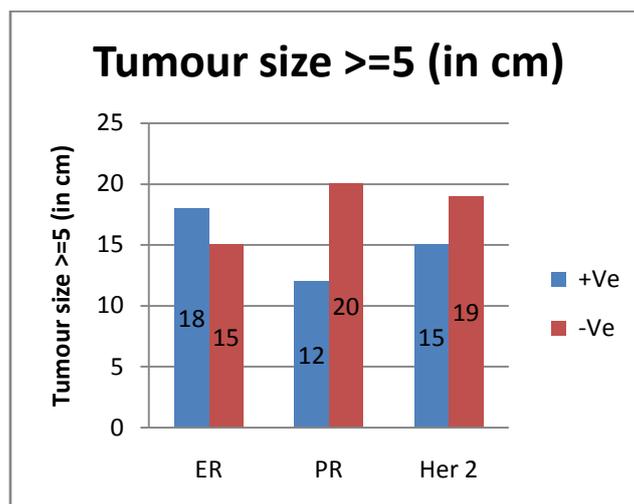
In estimation of PR receptors, under 45 years 23 patients (74.19%) were PR positive and 8 (25.81%) were negative. Above 45 years of age 28 (63.63%) patients were PR positive and 16 (36.36%) were negative



<45 years- 12 patients (39%) positive ; 19 (61%) negative  
>45 years- 15 patients (34%) positive ; 29 (66%) negative



In tumors less than 5 cm in size ER positive- 34 patients, ER negative- 8 patients  
PR positive- 26 patients, PR negative- 17 patients, Her2 positive- 14 patients, Her2 negative- 27 patients



In tumors more than or equal to 5 cm in size, ER positive- 18 patients, ER negative- 15 patients, PR positive- 12 patients, PR negative- 20 patients, Her2 positive- 15 patients, Her2 negative- 19 patients

### III. Discussion

Breast cancer is one of the most common cancers among women of all age groups. In recent years the there is an increase in the incidence of breast cancer due to the lifestyle modifications, and increase in screening programs which help to detect them at an early stage. Breast cancer treatment involves a multidisciplinary approach. Hormone therapy is one among the treatment modality. Estrogen, progesterone and Her2 neu receptor status estimation is very crucial at present in order to predict the tumor response to the hormonal therapy and also to assess the prognosis of the cancer.

In my study a total of 75 female patients with breast cancer in my institute were studied. The incidence of ER, PR, Her2 neu receptors among them correlating with age, tumor size, histological type and the pathological grading was evaluated. 52 patients (69.33%) were positive for estrogen receptor and 23 (30.66%) were negative. 39 patients (52%) were progesterone receptor positive and 36 (48%) were progesterone receptor negative. 28 (37.33%) patients had Her2 receptor positive and 47 (62.66%) were negative. Most of the tumors in women above 45 years of age were hormone receptor positive. In women younger than 45 years both positive and negative were nearly equal. Similar results were observed in tumors less than 5cm where positivity predominated and more than 5 cm where both positive and negative were utmost equal. Her 2 was more negative in most of the patients of our study irrespective of age and tumor size. These results were comparable with the previous studies and thus reinforce the usefulness of estimation of the receptor status for treatment purpose in breast carcinoma. All patients with hormone receptor positivity were started with tamoxifen 10 mg bd for a total duration of 5 years and their compliance is good till date with minimal side effects.

### IV. Conclusion

From this study it is evident that hormone receptor status in breast cancer plays an important role in the treatment. Estrogen, progesterone and Her2 neu receptor status estimation is very crucial at present in order to predict the tumor response to the hormonal therapy and also to assess the prognosis of the cancer.

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