

**Study of Malignant Breast Tumours in Women of Telangana****S. Rama Devi<sup>1</sup>, R. Ranjana<sup>2</sup>**<sup>1</sup>Professor, Department of Pathology, Mahavir Institute of Medical Sciences &Hospital; Vikarabad – Telangana-501101<sup>2</sup>Associate Professor, Department of Pathology, Mahavir institute Medical sciences &Hospital; Vikarabad – Telangana-501101

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Conflict of interest: Nil

**Abstract:****Background:** Breast tumours create panic in patients and whole family members because the majority of breast tumours are diagnosed as malignant; hence, early and proper diagnosis can prevent morbidity and mortality; hence, an ideal diagnosis is mandatory in females of every age group.**Method:** 430 women aged between 20 and 60 years who were histo-pathologically diagnosed were studied immune histologically. ER, PR, and HER parameters were analysed to evaluate the grades of malignant tumours.**Results:** Out of 430 malignant breast tumours, 310 (72.09%) were IDC, followed by 24 (5.58%) mucinous CA, 16 (3.72%) papillary CA, and 16 (3.72%) malignant stromal tumours, which were signature findings. 166 (38.6%) were grade-I IDC, 154 (35.8%) grade-II, 77 (17.9%) grade-III, and 33 (7.67%) were un-graded tumour grading v/s ER and PR had a significant p value (p<0.001).**Conclusion:** The present pragmatic studies show a significant correlation between tumours and ER, and PR positive status is a valuable biomarker as it indicates prognostic information for an ideal therapeutic decision.**Keywords:** Invasive Ductal carcinoma (IDC), progesterone receptor (PE), oestrogen receptor (CER), Human Epidermal growth Factor receptor (HER-2).This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.**Introduction**

The aetiology of breast tumours is yet to be known. It is presumed that age, genetic (hereditary) diet, hormonal contraceptive pills, and hormonal replacement therapy might play a role in or aggravate the proliferation of malignant cells [1]. Hence, histopathological, radiological, and clinical manifestation features will help to diagnose the malignancy.

A crucial development in the evaluation of breast carcinoma has been the realisation that the presence of hormone, oestrogen, and progesterone receptors (ER/PR) in the tumour tissue correlates well with response to hormone therapy and chemotherapy. These hormone receptors play a role in the development and progression of breast cancer and identify patients with a lower risk of relapse and better survival [2].

Hormone receptor positive (hormone-positive) breast cancer cells have either oestrogen (ER) or progesterone (PR) receptors [3]. This includes cancer that is ER-negative but PR-positive. Hormone receptor positive cancers tend to grow more slowly than those that are hormone receptor-negative. Women with hormone receptor positive cancers tend to have a better outlook in the short term, but these

cancers sometimes come back (re-occur) many years after the treatment [4].

Hence attempt is made to evaluate the hormone receptor positive breast cancer and correlate them with some prognostic parameters.

**Material and Method**

A study of 430 cases of malignant breast tumours aged between 20 to 60 years was carried out in the pathology department of Mahavir Medical College and Hospital, Vikarabad, Telangana 501101.

**Inclusive Criteria**

All histopathologically diagnosed patients who gave written consent for surgery for malignant breast tumours, which were selected for study.

**Exclusion Criteria**

Operable advanced breast malignancies that were histopathologically diagnosed as Benign breast growth were excluded from the study.

**Method**

The present study was to study the distribution of different histological types of malignant breast

tumours and evaluate them immunohistologically for oestrogen receptor (ER), progesterone receptor (PR), and HER2/neu positivity in breast carcinoma (IDC). The correlation between tumour grade, age, and ER/PR/HER2 expression was analysed. The excision of biopsy specimens and lumpectomy specimens was examined grossly for their size, shape, colour, and consistency. Cut surfaces were noted for colour and size and secondary changes such as necrosis, cystic degeneration, haemorrhage, and fibrosis. Sections were taken processed and stained with routine hematoxylin and Eosin stain. A detailed microscopic examination was done for histopathological diagnosis, and different types of malignancies were classified. A FNAC/surgical biopsy is made to study the PR, ER, and HER2 analyses. The duration of study was June 2020 to June 2022

**Statistical analysis**

Histo pathological analyses grading of malignant tumours were classified with percentage correlative coefficient between tumour grade with ER, PR and HER2 were studied. The statistical analysis was carried in SPSS software.

**Observation and Results**

Table-1: Histological classification of malignancy of breast tumours: 310 (72.09%) IDC (NOS), 8 (1.86%) Ductal carcinoma, 8 (1.86%) IDC with Paget's disease, 8 (1.86%) lobular CA, 8 (1.86%) mixed (ductal and lobular), 16 (3.72%) papillary CA, 24 (5.58%) mucinous CA, 8 (1.86%) metaplastic CA, 16 (3.72%) papillary CA, 8 (1.86%) medullary CA, 8 (1.86%) tubular CA, and 8 (1.86%) malignant phylloids.

Table-2: Grading of IDC (Invasive ductal carcinoma), 166 (38.6%) grade-I, 154 (35.8%) grade-II, 77 (17.9%) grade III, and 33 (7.67%) ungraded cases (because the histological findings were not sufficient for grading).

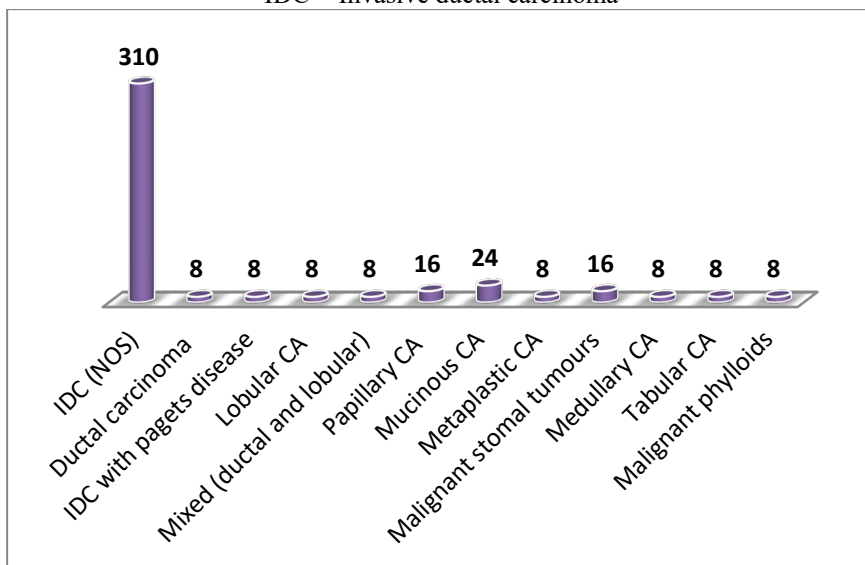
Table-3: The rank correlation between tumour grade and ER, PR, and HER-2

- Tumour grade v/s had -0.479 and a significant p<0.01 (p value).
- Tumour grade v/s PR was 0.315, and the p value was highly significant, but HER was insignificant.

**Table 1: Histological types of malignant breast tumours**

Histological Type	No. of patients 430	Percentage %
IDC (NOS)	310	72.09
Ductal carcinoma	8	1.86
IDC with pagets disease	8	1.86
Lobular CA	8	1.86
Mixed (ductal and lobular)	8	1.86
Papillary CA	16	3.72
Mucinous CA	24	5.58
Metaplastic CA	8	1.86
Malignant stomal tumours	16	3.72
Medullary CA	8	1.86
Tabular CA	8	1.86
Malignant phylloids	8	1.86

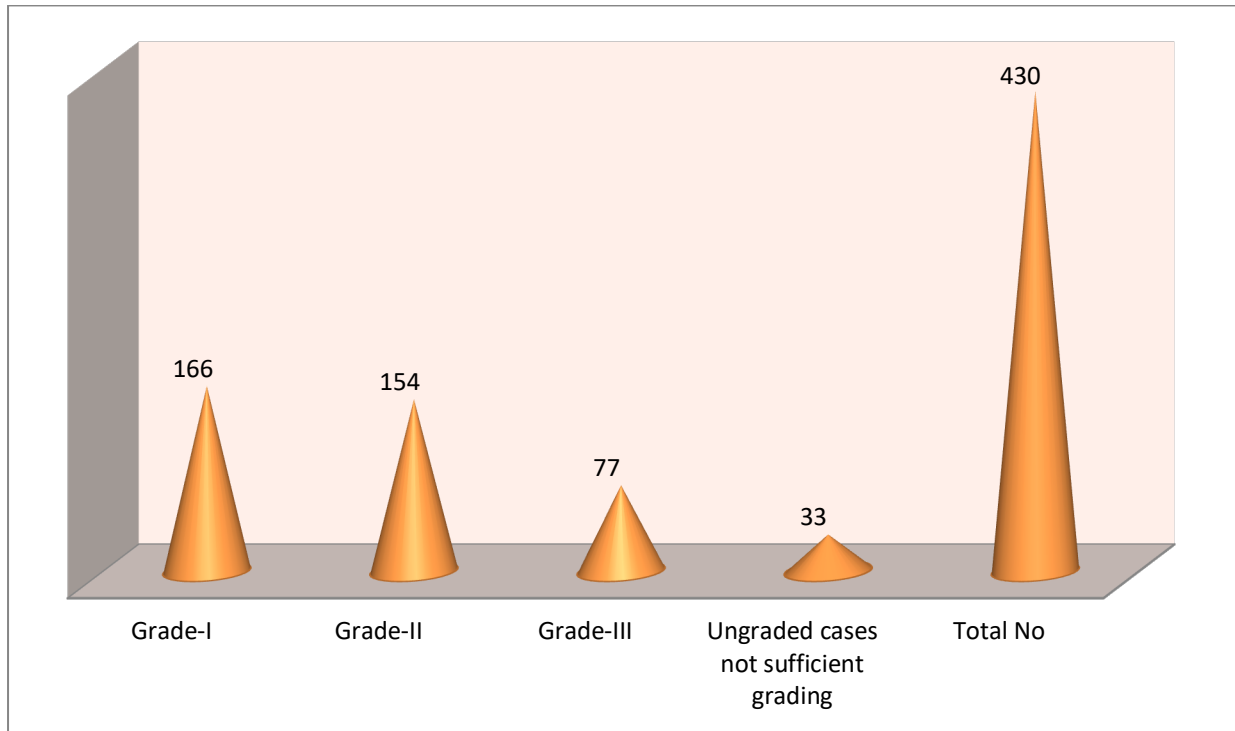
IDC = Invasive ductal carcinoma



**Figure 1: Histological types of malignant breast tumours**

**Table 2: Grading of Invasive ductal carcinoma (IDC)**

Grades	Cases	Percentage %
Grade-I	166	38.6
Grade-II	154	35.8
Grade-III	77	17.9
Ungraded cases not sufficient grading	33	7.67
Total No	430	99.97



**Figure 2: Grading of Invasive ductal carcinoma (IDC)**

**Table 3: Rank correlation between Tumour grade with ER, PR and HER2**

	Rank coefficient correlation	Significance
Tumour grade vs ER	-0.479	P<0.01
Tumour grade vs PR	-0.315	P<0.01
Tumour grade vs HER2	-0.043	P<0.05

Statistically significant negative correlation observed between tumour grade v/s ER and tumour grade v/s PR but no significant negative correlation observed between tumour grade v/s HER-2

ER = Oestrogen Receptor

PR = Progesterone Receptor

HER2 = Human epidermal growth factor receptor-2

**Discussion**

Present study of malignancy in breast tumours in the Telangana female population. The histopathological study of malignant breast tumours: 310 (72.09%) IDC, 24 (5.58%) mucinous CA, 16 (3.72%) papillary CA, 16 (3.72%) malignant stromal tumours, 8 (1.86%) ductal carcinoma, IDC with Pagets disease, lobular CD mixed (ductal and lobular), metaplastic CA, medullary CA, Tabular CA, malignant, phylloids (Table-1). The grading profile had 116 (38.6%) grades I, 154 (35.8%) grades II, 77 (17.9%) grades III, and 33 (7.67%) grades ungraded due to inconspicuous tumours of malignancy (Table 2). In a correlative study, grading v/s ER and PR had a significant p value

(p<0.001) (Table-3) These findings were more or less in agreement with previous studies <sup>(5)(6)(7)</sup>.

In the present study, HER-2 findings were insignificant (p>0.005) p value. The probable reason could be that HER-2 is a gene that makes a protein found on the surface of all breast cells involved in normal growth. The HER-2 gene mutates (changes) and makes extra copies of genes during malignancy. Due to the rapid division of HER-2 in breast cancer, there will be significant proliferation of HER-2 genes in the present study. Due to the different grades of tumours, HER-2 has an insignificant p value (p>0.005) (Table-3). Hormone receptor determination is a vital predictive factor in the present study <sup>(8)</sup>. The hormonal correlation with tumour has a

significant predictor that varies with age because the release of ER and PR hormones is age-dependent<sup>(9)</sup> and it requires hormones, chemotherapy, or radical mastectomy because the hormones stimulate cancer cells to grow and progesterone. Estrogens and progesterone hormones act as catalysts for cancer growth because they stimulate the division and proliferation of breast tissue, the Process that carries with the risk of cancer causing mutations while progesterone action may decrease cancer risk, malignant cells have a tendency to multiply in short durations, enhanced by HER-2 genes.

### Summary and Conclusion

Present study of malignant breast tumours in the women of Telangana. The positive correlation of ER and PR are segment biomarkers because they provide valuable prognostic information for best therapeutic decision. Such clinical trials must be carried out on a large number of patients in hi-tech hospitals where the latest technologies are present to confirm these significant findings because the exact pathogenesis or aetiology of malignancies is still unclear.

### Limitation of Study

Owing to the remote location of the research centre, the small number of patients, and the lack of the latest techniques, we have limited findings and results.

- This research study was approved by Mahavir Medical College and Hospital, Vikarabad, Telangana, 501101.
- There is no conflict of interest.
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