A CLINICAL STUDY ON CARCINOMA BREAST IN RELATION TO ER AND PR STATUS
N. V. Ramanaiah1, P. Theja2

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ABSTRACT: INTRODUCTION: Breast carcinoma is the most common malignant tumor and the leading cause of death in women worldwide. It accounts for 15% of all cancer deaths. According to the World Health Organisation (WHO), approximately 70% of breast cancers occur in women with none of the known risk factors. Only about 5% of breast cancers are inherited. Various protocols are in use for the assessment of prognosis, and also to assist further management of these cases. Of various parameters, expression of hormonereceptors Estrogen receptor (ER) and Progesterone receptor (PR) are significant.

AIMS AND OBJECTIVES: To study the occurrence of ER and PR status in breast cancer patients attending S.V.R.R.G.G. Hospital. To correlate the expression of prognostic factors like age at presentation menarche, menopause, parity, tumor size, number of lymph nodes, metastasis histology, grading with ER and PR status.

MATERIALS AND METHODS: This clinicopathological study of carcinoma breast was carried out in patients admitted to SVRRGG Hospital, Tirupati during the period from September 2011 to August 2013 after obtaining approval from scientific committee and ethical committee. Forty cases of breast carcinoma were taken into study. The clinical study done by interviewing, detailed examination and subjecting to relevant investigations and surgeries depending upon the stage of the disease. Excised specimen is sent for Histopathological examination in 10% formaline Reports of light microscopy (Hematoxilin and Eosin) and immunohistochemistry on tumor histology including MBR (Modified Bloom Richardson) grading and Estrogen and Progesterone status is analysed.

CONCLUSION: In conclusion, ER and PR status correlates well with histopathological grading and other clinico-pathological parameters. Higher grade is associated with ER PR negativity. Hence. Immunohistochemical assessment of ER and PR status should be incorporated as a routine investigation. This along with histopathological grading will guide the clinicians to make correct choice of treatment protocols and helps in providing improved quality of life.

KEYWORDS: Breast carcinoma, Estrogen receptor (ER), Progesterone receptor (PR).

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**RESULTS:** Clinicopathological data of the case were analysed using epi info software and SPSS software. Data, graphs and tables were generated from Microsoft word and Microsoft excel.

**Immunohistochemistry Markers:**

| ER STATUS | FREQUENCY | PERCENT |
|-----------|-----------|---------|
| NEGATIVE  | 26        | 65      |
| POSITIVE  | 14        | 35      |
| TOTAL     | 40        | 100     |

**TABLE 1: DISTRIBUTION OF ER STATUS**

Estrogen receptor positivity seen in 35% of cases where as receptor negativity seen in 65% of cases.

| PR STATUS | FREQUENCY | PERCENT |
|-----------|-----------|---------|
| NEGATIVE  | 26        | 65      |
| POSITIVE  | 14        | 35      |
| TOTAL     | 40        | 100     |

**TABLE 2: DISTRIBUTION OF PR STATUS**

Progesterone receptor positivity seen in 35% of cases whereas 65% of cases show progesterone receptor negativity.

| HER2/NEU STATUS | FREQUENCY | PERCENT |
|-----------------|-----------|---------|
| NEGATIVE        | 19        | 47.5    |
| POSITIVE        | 21        | 52.5    |
| TOTAL           | 40        | 100     |

**TABLE 3: DISTRIBUTION OF HER2/NEU STATUS**

Her2/neu receptor positivity seen in 52.5% cases receptor negativity seen in remaining 47.5% cases.

**DISTRIBUTION OF ESTROGEN AND PROGESTERONE RECEPTOR STATUS:**

| (+, +) | (+, -) | (-, +) | (-, -) |
|--------|--------|--------|--------|
| 13     | 1      | 1      | 25     |

ER Status & PR Status
25 out of 40 patients were both ER and PR negative constituting 62.5% cases, 13 patients were both positive constituting 32.5% cases, 1 patient positive for ER receptor alone and remainder 1 patient positive for PR receptor alone constituting 2.5% each.

**TABLE 4: DISTRIBUTION OF HORMONE RECEPTOR AND HER2/NEU**

| (+, +) | (+, -) | (-, +) | (-, -) |
|--------|--------|--------|--------|
| 2      | 12     | 19     | 7      |

ER Status & Her2 neu Status

| (+, +) | (+, -) | (-, +) | (-, -) |
|--------|--------|--------|--------|
| 1      | 13     | 20     | 16     |

PR Status & Her2 neu Status

| MARKERS          | FREQUENCY | PERCENT |
|------------------|-----------|---------|
| ER-/PR-/Her2neu- | 6         | 15      |
| ER+/PR+/Her2neu- | 12        | 30      |
| ER-/PR-/Her2neu+ | 19        | 47.5    |
| ER+/PR+/Her2neu+ | 1         | 2.5     |
| ER-/PR+/Her2neu- | 1         | 2.5     |
| ER+/PR-/Her2neu+ | 1         | 2.5     |
| **TOTAL**        | 40        | 100     |

**TABLE 5: DISTRIBUTION OF COMBINED HORMONE RECEPTOR AND HER2/NEU RECEPTOR STATUS**

Majority of patients have ER and PR negativity and Her2neu positivity constituting 47.5% of the cases. Triple negative tumors constitute 15% of cases. There is only one Triple positive tumor, constituting 2.5% of cases. HER2/neu receptor status is inversely related to hormone receptor status.

| AGE    | FREQUENCY |
|--------|-----------|
| 21-30  | 1         |
| 31-40  | 19        |
| 41-50  | 13        |
| 51-60  | 7         |
| 61-70  | 9         |
| 71+    | 1         |
| **TOTAL** | 40     |

**TABLE 6: AGE DISTRIBUTION**

Patients who took part in the study were from 30 to 72 yrs of age. Majority of people were in the age group of 41-50 yrs (31.25%). Followed by 31-40 yrs and 61-70 yrs. The mean age of the patients in the study is 50.9 yrs.
Majority of ER positivity seen in elderly age group i.e., between 61 – 70 yrs. Patients between 31-40 and 41-50 form second most common ER positive age groups. Majority of ER negativity seen between 41-50 yrs. Second most common ER negative age group is between 31 and 40yrs. The statistical analysis is done using fischer exact test according to which the p value is 0.3068 which is not significant.

Majority of PR positivity seen in elderly age group i.e., between 61 – 70yrs. Second most common PR positive age group is 31-40yrs. Majority of PR negativity seen between 41-50 yrs. Patients between 31-40yrs and 51-60 yrs form second most common PR negative age group. The statistical analysis is done using fischer exact test according to which the p value is 0.1722 which is not significant.
HER 2 positivity is most common in patient’s between 41-50. HER2 negativity is most common in 61-70yrs age group.

| AGE AT MENARCHE | ER ST (-) | ATUS (+) | TOTAL |
|-----------------|-----------|----------|-------|
| 12              | 4         | 0        | 4     |
| Percentage      | 100       | 0        | 100   |
| 13              | 14        | 7        | 21    |
| Percentage      | 66.67     | 33.33    | 100   |
| 14              | 5         | 6        | 11    |
| Percentage      | 45.45     | 54.55    | 100   |
| 15              | 3         | 0        | 3     |
| Percentage      | 100       | 0        | 100   |
| 16              | 0         | 1        | 1     |
| Percentage      | 0         | 100      | 100   |
| Total           | 26        | 14       | 40    |
| Percentage      | 65.00     | 35.00    | 100   |

**TABLE 10: AGE AT MENARCHE**

There is no significant correlation of age at menarche to that of receptor status since the p value is 0.117.

| PARITY | FREQUENCY | PERCENT |
|--------|-----------|---------|
| <=0    | 2         | 5       |
| 1-3    | 30        | 75      |
| 4+     | 8         | 20      |
| Total  | 40        | 100     |

**TABLE 11: PARITY STATUS**

5% patients are nulliparous. 20% has more than 4 children. 75% has less than 4 children.

| BREAST FEEDING | FREQUENCY | PERCENT |
|----------------|-----------|---------|
| Non pregnant   | 2         | 5       |
| Yes            | 33        | 82.5    |
| No             | 5         | 12.5    |
| Total          | 40        | 100     |

**TABLE 12: BREAST FEEDING STATUS**

Majority of patients (82.5%) breast fed their children. 12.5% did not breast feed.

| BREAST FEEDING | ER (-) | STATUS (+) | TOTAL |
|----------------|--------|------------|-------|
| N              | 6      | 1          | 7     |
| Percentage     | 85.71  | 14.29      | 100.00|
| Y              | 20     | 13         | 33    |
| Percentage     | 60.61  | 39.39      | 100.00|
92.86% of ER positive cases had breast feeding history. 76.9% of ER negative cases had breast feeding history. P value is 0.208 hence not significant. Compared to non-breast feeding status, breast feeding status has more PR positivity. But in both groups ER negative tumors predominate. p value is 0.208 hence not significant.

| MENOP | AUSE | TOTAL |
|-------|------|-------|
| ER status | A | NA | 27 |
| (-) | 16 | 10 | 26 |
| (+) | 11 | 3 | 14 |
| TOTAL | 27 | 13 | 40 |

TABLE 14: DISTRIBUTION ER STATUS ACCORDING TO MENOPAUSE

76% of patients who didn’t attained menopause showed ER negativity. 60% of postmenopausal women had ER negative tumors. 40% of postmenopausal patients showed ER positivity. Only 23% of premenopausal patients showed ER positivity showed ER positivity. Only 23% of premenopausal patients showed ER positivity Statistical test applied is Fisher exact test. p value is 0.23 hence insignificant.

| MENOP | AUSE | TOTAL |
|-------|------|-------|
| PR status | A | NA | 27 |
| (-) | 17 | 9 | 26 |
| (+) | 10 | 4 | 14 |
| TOTAL | 27 | 13 | 40 |

TABLE 15: DISTRIBUTION PR STATUS ACCORDING TO MENOPAUSE

70% of premenopausal showed PR negativity. 62.9% of postmenopausal women had PR negative tumors. 37% of postmenopausal patients showed ER positivity. Only 30% of premenopausal patients showed ER positivity. Statistical test applied is Fisher exact test. p value is 0.49 hence insignificant.

| TUMOR SIZE | ER (-) | STATUS (+) | TOTAL |
|------------|--------|------------|-------|
| T1         | 0      | 1          | 1     |
| T2         | 7      | 6          | 13    |
| T3         | 8      | 5          | 13    |
| T4         | 9      | 2          | 11    |
| Tis        | 1      | 0          | 1     |
| TX         | 1      | 0          | 1     |
| TOTAL      | 26     | 14         | 40    |

TABLE 16: DISTRIBUTION OF ER STATUS ACCORDING TO TUMOR SIZE
32.5% patients presented with T2 and T3 tumors each. 27.5% presented with T4. 2.5% cases presented with T1, Tis, Tx each. 81% of T4 tumors are ER negative 61% of T3 tumors are ER negative. 53% of T2 tumors are ER negative. chi square is 3.65. p value =0.17 hence not significant

| TUMOR SIZE | PR (-) | STATUS (+) | TOTAL |
|------------|--------|------------|-------|
| T1         | 0      | 1          | 1     |
| T2         | 6      | 7          | 13    |
| T3         | 8      | 5          | 13    |
| T4         | 10     | 1          | 11    |
| Tis        | 1      | 0          | 1     |
| TX         | 1      | 0          | 1     |
| **TOTAL**  | **26** | **14**     | **40**|

TABLE 17: DISTRIBUTION OF PR STATUS ACCORDING TO TUMOR SIZE

90% of T4 tumors are PR negative. 61% T3 tumors are PR negative. 46% of T2 tumors are PR negative. One patient had T1 tumor it is PR positive. p value is0.13 hence not significant

| NODAL STATUS | ER (-) | STATUS (+) | TOTAL |
|--------------|--------|------------|-------|
| N0           | 12     | 9          | 21    |
| N1           | 13     | 3          | 16    |
| N2           | 1      | 1          | 2     |
| N3           | 0      | 1          | 1     |
| **TOTAL**    | **26** | **14**     | **40**|

TABLE 18: ER NODAL STATUS

Among node negative patients 57% had ER negative tumors. Among N1 patients 81% had ER negative tumors. 50% of N2 cases had ER-ve tumors. Single patient who had N3 was ER positive. p value is 0.2 hence insignificant.

| METASTASIS | ER | STATUS | TOTAL |
|------------|----|--------|-------|
| M0         | 25 | 14     | 39    |
| M1         | 1  | 1      | 1     |
| **TOTAL**  | **26** | **14** | **40**|

TABLE 19: DISTRIBUTION OF ER STATUS ACCORDING TO METASTASIS

64%of patients without metastasis had ER-ve status. 36% patients without metastasis had ER positive status.ER –ve status is seen in patient having metastasis. p value is 0.56 hence insignificant. Similar results are seen with distribution of PR status.
Predominant stage group is III B followed by IIA and IIIA
In stage 1A ER positive status is seen. In 2A, 3A, 3B ER-ve status predominates. In 2B distribution of receptor status is similar. In 3c ER+ve status is seen. In stage 4 receptor negativity is seen.

**TABLE 20: DISTRIBUTION STATUS OF ACCORDING TO HISTOLOGY**

| Histological type          | Frequency | % occurrence |
|----------------------------|-----------|--------------|
| IDC + ILC                  | 1         | 2.50%        |
| IDC comedone               | 1         | 2.50%        |
| IDC NOS                    | 32        | 80%          |
| Lobular                    | 1         | 2.50%        |
| medullary                  | 2         | 5%           |
| Mucinous                   | 1         | 2.50%        |
| NEC                        | 1         | 2.50%        |
| NHL, NEC, Undifferentiated | 1         | 2.50%        |

In stage IA PR positive status is seen. Distribution of receptor status is similar. In negativity is seen. This is similar to that of ER. In IIa, IIIa, IIIa PR -ve status predominates. In IIb In IIIc PR +ve status is seen. In stage IV receptor status.
The most common histologic type of breast carcinoma was Invasive Ductal carcinoma (NOS) type. 32 patients out of total 40 (80%) had IDC (NOS) type. Next in frequency is Medullary carcinoma constituting 5% of total cases. This is followed by IDC with ILC (Invasive Lobular carcinoma) component, IDC with comedone necrosis, Lobular carcinoma, Mucinous, Neuroendocrine/undifferentiated carcinoma Neuroendocrine carcinoma -2.5% each.

| HISTOLOGICAL TYPE         | ER STATUS – Ve | ER STATUS +ve | Total |
|--------------------------|----------------|---------------|-------|
| IDC                      | 20(62.5%)      | 12(37.5%)     | 32    |
| IDC+ILC                  | 1(100%)        | 0(100%)       | 1     |
| IDC COMEDONE             | 1(100%)        | 0(100%)       | 1     |
| LOBULAR                  | 1(100%)        | 0(100%)       | 1     |
| MEDULLARY                | 2(100%)        | 0(100%)       | 2     |
| MUCINOUS                 | 0(100%)        | 1(100%)       | 1     |
| NEC                      | 0(100%)        | 1(100%)       | 1     |
| NHL/UNDIFFERENTIATED     | 1(100%)        | 0(100%)       | 1     |

**TABLE 21: DISTRIBUTION OF ER STATUS ACCORDING TO HISTOLOGY**

62.5% of IDC are ER -ve. 37.5% of IDC are ER+ve. IDC with lobular component, IDC comedone, lobular, medullary, undifferentiated carcinomas are ER-ve. Mucinous, neuroendocrine carcinomas are ER +ve.

| HISTOLOGICAL TYPE         | PR STATUS – Ve | PR STATUS +ve | Total |
|--------------------------|----------------|---------------|-------|
| IDC                      | 20(62.5%)      | 12(37.5%)     | 32    |
| IDC+ILC                  | 1(100%)        | 0(100%)       | 1     |
| IDC COMEDONE             | 1(100%)        | 0(100%)       | 1     |
| LOBULAR                  | 1(100%)        | 0(100%)       | 1     |
| MEDULLARY                | 2(100%)        | 0(100%)       | 2     |
| MUCINOUS                 | 0(100%)        | 1(100%)       | 1     |
| NEC                      | 0(100%)        | 1(100%)       | 1     |
| NHL/UNDIFFERENTIATED     | 1(100%)        | 0(100%)       | 1     |

**TABLE 22: DISTRIBUTION OF PR STATUS ACCORDING TO HISTOLOGY**

62.5% of IDC are PR -ve. 37.5% of IDC are PR+ ve. IDC with lobular component, IDC comedone, lobular, medullary, undifferentiated carcinomas are PR- ve. Mucinous, neuroendocrine carcinomas are PR +ve.

| LYMPHATIC INVASION | FREQUENCY | PERCENT |
|--------------------|-----------|---------|
| Yes                | 16        | 40      |
| No                 | 24        | 60      |
| Total              | 40        | 100     |

**TABLE 23: LYMPHATIC INVASION STATUS**

Lymphatic invasion is seen in 60% of cases.
TABLE 24: DISTRIBUTION OF ER STATUS ACCORDING TO LYMPHATIC INVASION

| LYMPHATIC INVASION | ER STATUS | TOTAL |
|--------------------|-----------|-------|
| (-)                | 7         | 16    |
| (+)                | 19        | 24    |
| **TOTAL**          | **26**    | **40**|

79% patients with lymphatic invasion has ER negative status. 56% of patients without lymphatic invasion has ER positive status. p value is 0.02 hence significant.

TABLE 25: DISTRIBUTION OF PR STATUS ACCORDING TO LYMPHATIC INVASION

| LYMPHATIC INVASION | PR STATUS | TOTAL |
|--------------------|-----------|-------|
| (-)                | 6         | 16    |
| (+)                | 20        | 24    |
| **TOTAL**          | **26**    | **40**|

83% patients with lymphatic invasion has PR negative status. 62% of patients without lymphatic invasion has PR positive status. p value is 0.004 hence significant.

DISCUSSION: The present study consisted of analysis of 40 patients of breast cancer attending S.V.R.R.G.G. Hospital, Tirupati. The clinical characteristics along with histologic typing, grading and immunohistochemical staining for estrogen and progesterone receptors were studied. The objectives of this study were to document the oestrogen and progesterone receptor (ER & PR) status of breast cancer in the present study population and correlate the steroid receptor status of breast cancer with all relevant patient and tumour characteristics.

Patients who took part in the study were from 30 to 72yrs of age. Majority of people were in the age group of 41-50yrs (31.25%). The mean age of the patients in the study is 50.9yrs which is much lower than the mean age of 62 year reported in study by Adedayo A et al, in Wisconsin. The incidence rates in India begin to rise in the early thirties and peak at ages 50–64 years. The reasons are not entirely clear but a major factor could be under-diagnosis and under-reporting amongst the elderly population in India. (Raina et al.)
Receptor positivity is seen in only 35% cases much lower than that of reported in western literature.

| Study                  | Year | Receptor Positive (%) |
|------------------------|------|-----------------------|
| Lakmini K.B Mudduwa,4  | 2009 | 45.7%                 |
| Raina V et al,1        | 2005 | 53.7%                 |
| Redkar AA et al,5      | 1992 | 43.9%                 |
| Adedayo A. Otitilo,2   | 2009 | 77.9%                 |
| Gulam Nabi Sofi,3      | 2012 | 66.3%                 |
| Present study          | 2013 | 35%                   |

**TABLE 27: COMPARISON OF ESTROGEN RECEPTOR POSITIVE STATUS**

Progesterone Receptor positivity is seen in only 35% cases much lower than that of reported in western literature.

| Study                  | Year | Receptor Positive (%) |
|------------------------|------|-----------------------|
| Rusiecki JA,6          | 2005 | 33%                   |
| Redkar AA,5            | 1992 | 26.2%                 |
| Gulam Nabi Sofi,3      | 2012 | 60.4%                 |
| Present study          | 2013 | 32.5%                 |

**TABLE 28: COMPARISON OF PROGESTERONE RECEPTOR POSITIVE STATUS**

Combined receptor positivity is seen in 32.5% which is similar to that of Rusiecki JA et al.6

| Study                  | Year | Receptor Positive (%) |
|------------------------|------|-----------------------|
| Rusiecki JA,6          | 2005 | 34%                   |
| Redkar AA,5            | 1992 | 53.3%                 |
| Gulam Nabi Sofi,3      | 2012 | 30.7%                 |
| Present study          | 2013 | 62.5%                 |

**TABLE 29: COMPARISON OF COMBINED RECEPTOR STATUS: (ER +VE, PR +VE)**

The high proportion of receptor negative cases can be partially explained by the younger age of our patients or due to real racial differences. Majority of ER and PR positivity seen in elderly age group between 61 – 70 yrs. ER and PR immunoreactivity increased with advancing age in a study by Desai et al.7

| Study                  | Year | Receptor Positive (%) |
|------------------------|------|-----------------------|
| Raina V et al,1        | 2005 | 49.7% premenopausal   |
| Gulam Nabi Sofi,3      | 2012 | 59.1% premenopausal   |
| Present study          | 2013 | 22.5% premenopausal   |

**TABLE 31: COMPARISON OF MENOPAUSAL STATUS**
Majority of the females in the present study were postmenopausal (67.5%). F. De Waard et al, 103 from their study have concluded that after 60 years of age, the age specific breast cancer risk is on the increase due to postmenopausal hormonal stimulus. While studying the relationship of menstrual status with hormone receptor status in our patients, we observed higher positivity of ER and PR in postmenopausal patients, though the difference is not statistically significant. Our results show that the proportion of both ER and PR positive tumors increase with age and in postmenopausal women and the same observations are very well reported in literature.9

| Raina V et al,1 | 2005 | Lump 96% |
|----------------|------|----------|
| Gulam Nabi Sofi,3 | 2012 | Lump 85.3% |
| Present study | 2013 | Lump 72.5% |

**TABLE 32: COMPARISON OF MOST COMMON FORM OF PRESENTATION**

| Lakmini K.B Mudduwa,4 | 2009 | 2-5cm (74%) |
|------------------------|------|-------------|
| Raina V et al,1 | 2005 | 2-5cm (86.4%) |
| Adedayo A. Onitilo,2 | 2009 | <2cm (71.4%) |
| Gulam Nabi Sofi,3 | 2012 | 2-5 (65.1%) |
| Present study | 2013 | >5cm (65%) |

**TABLE 33: COMPARISON OF TUMOUR SIZE**

| Lakmini K.B Mudduwa,4 | 2009 | 57.7% positive |
|------------------------|------|----------------|
| Adedayo A. Onitilo,2 | 2009 | 31% positive |
| Gulam Nabi Sofi,3 | 2012 | 65.2% positive |
| Present study | 2013 | 47.5% positive |

**TABLE 34: COMPARISON OF AXILLARY NODE STATUS**

| Adedayo A. Onitilo | 2009 | IDC NOS 72.7% |
|---------------------|------|---------------|
| Gulam Nabi Sofi | 2012 | IDC NOS-80.3% |
| Present study | 2013 | IDC NOS -80% |

62.5% of IDC are ER -ve.37.5% of IDC are ER+ ve. IDC with lobular component, IDC comedone, lobular, medullary, undifferentiated carcinomas are ER –ve. Mucinous, neuroendocrine carcinomas are ER +ve. In a study by Desai et al,7 Infiltrating lobular carcinoma, mucinous carcinoma, and mixed tumours were more frequently ER & PR positive. High-grade infiltrating duct carcinomas, pure comedo ductal carcinoma, and medullary carcinoma were predominantly ER & PR negative.
In our study Grade II tumors were more common followed by grade I. This is in contrast to the reported observations in studies from developed countries where well differentiated breast cancers are more common than poorly differentiated because of the use of routine screening mammography which has led to the detection of very early lesions.

In the present study as the grade increased, the rate of ER and PR positivity decreased.

| Grade | ER positivity | PR expression |
|-------|---------------|---------------|
| 1     | 60%           | 66%           |
| 2     | 20%           | 20%           |
| 3     | 20%           | 0%            |

Statistically significant correlation present between grade and hormone receptor status in the present study Lakmini KB et al., Desai SB et al. and Pathak TB et al., all had similar findings when ER was compared with histologic grade of the tumour.

**Comparison of Lymphatic Invasion:** 79% patients with lymphatic invasion has ER negative status. 56% of patients without lymphatic invasion has ER positive status. P value is 0.02 hence significant. Similar results were observed in a study by Desai et al., they conclude that the presence of lymphovascular invasion showed an inverse relationship with ER and PR reactivity.

**CONCLUSION:** In the recent years there has been outstanding advances in breast cancer diagnosis and management leading to earlier detection of disease and the development of more effective treatment. This has resulted in improved quality of life with significant decline in breast cancer deaths for those women living with the disease.

Prognosis and management of breast cancer are influenced by classic variables such as histologic type and grade, tumor size, lymph node status, status of hormone receptors - ER and PR.

In this study an attempt was made to understand the correlation of ER and PR status with histopathological grading and clinicopathological parameters. In conclusion, ER and PR status correlates well with histopathological grading and other clinicopathological parameters. Higher grade is associated with ER PR negativity. Hence, immunohistochemical assessment of ER and PR status should be incorporated as a routine investigation. This along with histopathological grading will guide the clinicians to make correct choice of treatment protocols and helps in providing improved quality of life.
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AUTHORS:
1. N. V. Ramanaiah
2. P. Theja

PARTICULARS OF CONTRIBUTORS:
1. Professor & HOD, Department of
   General Surgery, S. V. Medical College
   and SVRRGGH, Tirupati.
2. Senior Resident, Department of General
   Surgery, S. V. Medical College and
   SVRRGGH, Tirupati.

NAME ADDRESS EMAIL ID OF THE
CORRESPONDING AUTHOR:
Dr. N. V. Ramanaiah,
18-2-73F, Korlagunta Main Road,
Near new municipal office
Tirupati, Andhra Pradesh.
E-mail: dr.nannam.vp@gmail.com

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