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*Research Article*

# RETROSPECTIVE COMPARATIVE ANALYTICAL STUDY OF BIOLOGICAL BEHAVIOR OF BREAST CANCERS BASED ON HORMONAL STATUS IN PREMENOPAUSAL AND POSTMENOPAUSAL WOMEN IN TERTIARY CARE TEACHING HOSPITAL

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**A R T I C L E I N F O**

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Malignancy, hyperestrogenic, carcinogen, anxiety and metastasized.

**A B S T R A C T**

**Background:** Breast tissue is cyclically dependent on hormones. The purpose of this study is to compare the biological behavior of breast cancers based on hormonal receptor status in premenopausal and postmenopausal women and its influence on the quality of life of patients in breast cancer.
**Aim:** A comparative study to compare the biological behaviour of breast cancers based on hormonal status in premenopausal and postmenopausal women.
**Methodology:** After obtaining institutional ethical committee approval and informed consent, A total number of 146 patients were planned a Retrospective cohort study was carried out in Department of Radiotherapy, Government General Hospital, Guntur for a period of 8 months May - 2022 to December - 2022. Initially the hormonal receptor status [ER/PR/HER-2] in breast cancer was assessed based on pathology reports. These are categorized into 5 groups i.e., 1)ER/PR/HER2- positive2)ER/PR/HER2-negative3)ER/PR-positive/HER2-negative4)ER/PR-negative/HER2-positive5)Others.The self-designed and validated questionnaire (EORTC QLQ-BR23, HADS, SF-36)was used to assess the quality of life in breast cancer patients which represents the difference between past and present health status of patient.
**Results:** 146 patients who met the inclusion criteria and were included in the study. The data obtained was tabulated and analyzed. Based on the demographic data obtained it was found that breast cancer was found to be more predominant within the age group 31-40 and 41-50 years. Our study also found that patients were mostly postmenopausal at the time of diagnosis of breast cancer. Among the 146 patients 107 were early stage, 28 metastatic and 11 were diagnosed as recurrence. Of the 28 metastatic patientsb one was found to be the major site of metastas is followed by brain, lung and liver. Among the early and metastatic breast cancer patients postmenopausal women were dominant while in recurrence patients premenopausal were dominant. In premenopausal and postmenopausal women the majority of the receptor status was found to be that of ER/PR-positive /HER2- negative. It was found to be similar in the case of earlier and metastatic breast cancer patients while in the recurrence patients majority of the receptor status was found to be that of ER/PR/HER2-positive.
We analyzed the quality of life of the patient using t-test (P=0.027) and found that there is significant improvement in both functional status and psychosocial status; the difference is found to be statistically significant which indicates that there is improvement in quality of life of the patient before and after providing the therapy.
**Conclusion:** Based on the results obtained our study concludes that most of the patients are postmenopausal (n=88) at the time of diagnosis of with majority having receptor status ER, PR +ve, HER2–ve(n=15,10.3%) followed by premenopausal(n=58) with majority having receptor status ER,PR +VE,HER2 -VE(n=16,10.96%). Evaluating the stage of breast cancer most of the patients are presented as early breast cancer majorly having receptor status ER,PR +ve,HER2–ve(n=19 ,13.01%) followed by metastatic breast cancer patients with most having receptor status ER,PR +ve,HER2 –ve(n=12,8.28%) and recurrence with majority having receptor status ER/PR/HER2+ve(n=3,2.05%).
Hence based on the results obtained in our study we strongly conclude that irrespective of the menopausal state and stage at the time of diagnosis, majority of the patients were diagnosed with receptor status ER,PR +VE,HER2 -VE (n=31, 21.23%) and also found that the patients diagnosed at postmenopausal state were more prone to metastasis and patients diagnosed at premenopausal state were prone to recurrence.
Our study concludes that pharmaceutical care and psychosocial support and the provided patient information leaflet which was mainly focused on healthy diet plays a vital role in improving adherence to the therapy there by enhancing the quality of life of the patients with early, metastatic, recurrence breast cancer being under follow up and/or hormonal therapy after providing with surgery and/or radiation therapy and/or chemotherapy.



## INTRODUCTION

There are various types of breast cancer. Breast cancer can start in a variety of places in the breast. Lobules, ducts, and connective tissue are the three primary components of a breast. Breast cancer usually starts in the ducts or lobules. Breast cancer can spread to other parts of the body via blood and lymph vessels. Breast cancer is said to have metastasized when it spreads to other regions of the body.

### *Epidemiology*

Breast cancer is the most common malignancy among Indian women, with a prevalence of 25.8 per 100,000 women and a fatality rate of 12.7 per 100,000 women. Youthful age has been identified as a significant risk factor for breast cancer in Indian women.

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***Etiology Endocrine Factors***

Nulliparity and a late age at first birth (beyond 30 years) have both been linked to an increased lifetime risk of breast cancer.

***Genetic Factors***

Breast cancer risk is influenced by a woman's personal and family history. Family history accounts for around 10% of all breast cancers. The risks associated with different patterns of breast cancer family history:

1. Having a first-degree relative with breast cancer increases a woman's breast cancer risk by 1.5to 3 times.
2. The risk of breast cancer in any second-degree relative is complicated, and it depends on other family history patterns.

Two tumor suppressor genes, BRCA1 and 2 (for Breast Cancer Early Onset 1 and 2), are found on the longer arms of chromosomes 17 and 13, respectively, and are being researched in hereditary breast cancer.

***Age at First Birth:*** Birth beyond the age of 35 were at higher risk.

***Obesity***

Obese women produce fewer 2-OH estrogen molecules, resulting in hyper-estrogenic state.

***Early Menarche***

***Hormone Replacement Therapy***

The duration of oral contraceptive usage before the age of 25 and the initiation of oral contraceptive use before the age of 25 were both linked to a higher risk.

***Lifestyle Changes***

Smoking, excessive alcohol use, exposure to pollutants and carcinogens, and the use of certain medicines such as di-ethyl-silbesterol (DES, a drug prescribed to prevent miscarriage) all increase the risk of getting breast cancer.

***Low-Dose Irradiation***

low-dose irradiation from excess radiation during fluoroscopic tests or scalp irradiation increases the risk of breast cancer in teenager and younger girls.

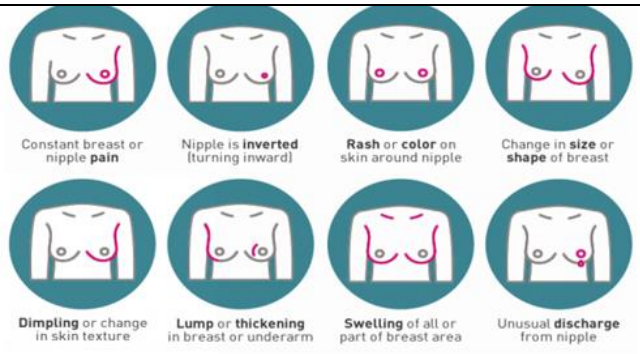
***Hormone receptors***

An estrogen receptor–positive (ER+) tumor is found in about two-thirds of postmenopausal cancer patients. Premenopausal patients have a reduced rate of ER+ malignancies.

Human epidermal growth factor receptor 2 (HER2; also known as HER2/neu or ErbB2) is another cellular receptor whose presence is linked to a worse prognosis at any stage of cancer. HER2 receptors are overexpressed in around 20% of breast cancer patients. Blocking these receptors with drugs is typical treatment for these patients.

***Breast cancer genes***

Breast cancer risk is increased by 70% when the BRCA1 and BRCA2 genes are mutated. Women with a BRCA mutation should be offered prophylactic bilateral mastectomy, which reduces the risk of breast cancer by 90%.
Signs and Symptoms of Breast Cancer




***Diagnosis***

***Physical examination***

- General examination, Investigations, Performance status, Weight, height, and surface area
- Size, position, form, consistency, skin fixation, and multiplicity of breast mass
- Erythema (location and extent), oedema (location and extent), dimpling, infiltration, ulceration, satellite nodules are all skin alterations.
- Changes in the nipple include retraction, erythema, erosion and ulceration, and discharge.
- Nodal status: supra clavicular nodules, axillary nodes on both sides (number, size, position, and fixation to other nodes).
- Examining potential metastatic sites locally.


Traditionally, mammograms were printed on enormous sheets of film. Digital mammograms are significantly more frequent nowadays. A computer records and saves digital images as files.

***3-dimensional (3D) mammograms***

Breast Ultrasound, Breast MRI, Breast cancer screening.
**Newer and Experimental Breast Imaging Tests:**
CT scans, bone scans, and PET scans, Breast tomosynthesis (3D mammography).

***Abbreviated breast MRI (fast breast MRI), Nuclear medicine tests (radionuclide imaging)***

***Types of Breast Cancer***

Breast cancer is divided into two types: invasive and noninvasive.

***Invasive Breast Cancer***

Types of invasive breast cancer:

1. Invasive ductal carcinoma
2. Invasive lobular carcinoma
3. Inflammatory breast cancer
4. Paget's disease of the breast

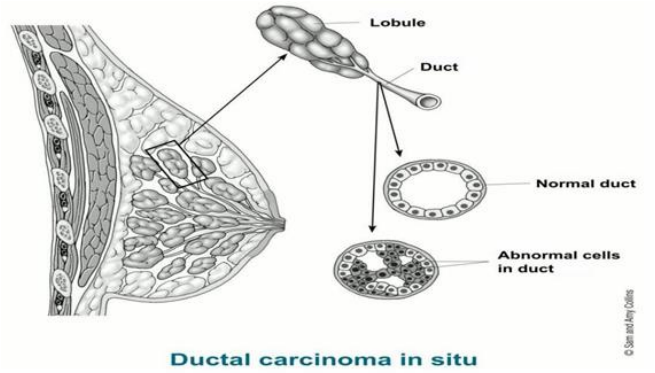
5. Angiosarcoma of the breast
6. Phyllodes tumors

***Non-Invasive (In-Situ) Breast Cancer***

Breast cancer cells that are in situ do not spread to adjacent tissue, lobules, or ducts and remain in a specific region in the breast.

Ductal carcinoma and lobular carcinoma are the two forms of in situ malignancies.

***Types of non-invasive breast cancera. Ductal carcinoma in situ (DCIS)***




***Lobular carcinoma in situ (LCIS)***

***Staging of Breast Cancer***

The staging system most often used for breast cancer is the American Joint Committee onCancer (AJCC) TNM system.

In both staging systems, 7 key pieces of information are used:

The size of the tumor, lymph nodal involvement, metastasis to distant sites, ER, PR, HER2 Status, Grade of the cancer.

***Treatment***

The main treatments for breast cancer include:

- surgery
- chemotherapy
- radiotherapy
- hormonal therapy (also called endocrine therapy)
- targeted cancer drugs
- bone strengthening drugs (bisphosphonates)

***Surgery***

- Lumpectomy, Mastectomy, Sentinel lymph node biopsy**,** Axillary lymph node dissection.
- There was no chemotherapy or cancer in the sentinel lymph nodes prior to surgery.
- There was no chemotherapy before surgery, yet the sentinel lymph nodes had malignancy.
- Prior to surgery, chemotherapy is given, Reconstructive (plastic) surgery

***Implants:*** Tissue flap procedures. Transverse rectus abdominis muscle (TRAM) flap.

***Latissimus dorsi flap****:* Deep inferior epigastric artery perforator (DIEP) flap

***Gluteal free flap:*** External breast forms (prostheses)

***Chemotherapy of breast cancer***

***After surgery (adjuvant chemotherapy) Before surgery (neoadjuvant chemotherapy) Chemotherapy drugs used for breast cancer Adjuvant and neoadjuvant chemo drugs***

- Anthracyclines, such as doxorubicin (Adriamycin) and epirubicin (Ellence)
- Taxanes, such as paclitaxel (Taxol) and docetaxel (Taxotere)
- 5-fluorouracil (5-FU) or capecitabine (Xeloda)
- Cyclophosphamide (Cytoxan)
- Carboplatin (Paraplatin)
- Chemo drugs for breast cancer that has spread (metastatic breast cancer)
- Taxanes: Paclitaxel (Taxol), docetaxel (Taxotere), and albumin-bound paclitaxel(Abraxane)
- Ixabepilone (Ixempra)
- Eribulin (Halaven)
- Anthracyclines: Doxorubicin (Adriamycin), liposomal doxorubicin (Doxil), and epirubicin (Ellence)
- Platinum agents (Cisplatin, carboplatin)
- Vinorelbine (Navelbine)
- Capecitabine (Xeloda)
- Gemcitabine (Gemzar)
- Antibody drug conjugates (Ado-trastuzumab emtansine [Kadcyla], Fam-trastuzumabderuxtecan [Enhertu], Sacituzumab govitecan [Trodelvy].

***Dose-dense chemotherapy***

Dose-dense chemotherapy increases the dose intensity of the regimen by delivering standard-dose chemotherapy with shorter intervals between the treatment cycles.

***Chemotherapy side effects for breast cancer***

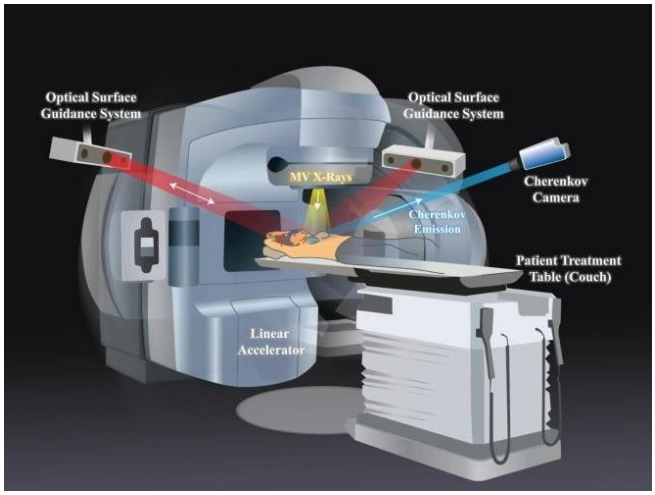
Hair loss, Nail changes, Mouth sores, Loss of appetite or weight changes, Diarrhea, Fatigue (see Menstrual changes and fertility issues below), Nerve damage Nausea and vomiting.

***Radiation therapy:*** To kill cancer cells, radiation therapy uses high-powered beams of energy such as X-rays and protons.

***Types of radiation therapy for breast cancer***

- Brachytherapy
- External beam radiation therapy

***External beam radiation therapy (EBRT)***



***Linear accelerator***

***Types and schedules of external beam radiation for breast cancer***

- Chest wall radiation
- Whole breast radiation
- Accelerated Partial breast irradiation

***Brachytherapy, Hormonal therapy***

Types of hormonal therapyTamoxifen: -

- Aromatase inhibitors (AIs).
- Ovarian suppression or ablation.
- Hormonal therapy for women after menopause
- Hormonal therapy for premenopausal women.
- Targeted drug therapy.

***Targeted therapy for HER2-positive breast cancer***

- **Monoclonal antibodies**
- Pertuzumab (Perjeta), Phesgo (trastuzumab, pertuzumab, and hyaluronidase injection) and Margetuximab (Margenza).
- **Antibody-drug conjugates:**
- Ado-trastuzumab emtansine (Kadcyla), Fam-trastuzumab deruxtecan (Enhertu).
- **Kinase inhibitors:** Lapatinib (Tykerb), Neratinib (Nerlynx), Tucatinib (Tukysa)

***Targeted therapy for hormone receptor-positive breast cancer***

- CDK4/6 inhibitors:
- Palbociclib (Ibrance), ribociclib (Kisqali), and abemaciclib (Verzenio).
- **mTOR inhibitor**: PI3K inhibitor, Alpelisib (Piqray).

***Aim and Objectives***

***Aim:*** To compare the biological behaviour of breast cancers based on hormonal status in premenopausal and postmenopausal women.

***Objectives***

- To assess the hormone receptor status (ER, PR, HER2) in pre and postmenopausal women in breast cancer.
- To compare the psychosocial factors based on behavioral changes in breast cancerpatients.
- To compare the quality of life in pre and post menopausal women inbreast cancer.

To assess the pharmaceutical care in improving quality of life in patients based on chemotherapy, radiotherapy, endocrine therapy.

## MATERIALS AND METHODS

***Methodology***

***Study place:*** Department of Radiotherapy, Government General Hospital, Guntur.

***Study Design:*** Retrospective cohort study.

***Sample Size:*** 221 Patients who are seeking treatment in the department of radiotherapy and are suffering with early, locally advanced, metastatic and recurrent breast cancer.

***Inclusion criteria***

- Patients whose origin of cancer (primary lesion) involved is breast in both premenopausal and postmenopausal women.
- Patients who are diagnosed as primary, metastatic (Breast cancer with Liver, Lung, Bone, Brain metastasis) and recurrent breast cancer.
- Patients who are taking chemotherapy, hormonal therapy and radiation for breast cancer.
- Breast cancer patients with either ER/PR/HER2 positive or negative.

***Exclusion Criteria***

- Patients whose origin is other than breast cancer.
- Male patients who are diagnosed with breast cancer.
- Patients died due to other causes rather than breast cancer.

Patients who have no evidence of histopathological studies**.**

***Study Procedure***

The study will be conducted after obtaining approval from Institutional Ethics Committee and Informed Consent from patients. Then patients will be screened based on inclusion and exclusion criteria. Initially the hormone receptor status (ER/PR/HER2) in primary, metastatic, and recurrent breast cancer will be assessed based on Histopathology reports. The standard questionnaire (European Organization for the Research and Treatment of Cancer Quality of Life Questionnaire EORTC

QLQ BR23; 36 Item Short Form Survey SF-36; Hospital Anxiety and Depression Scale HADS) will be used to assess the quality of life and psychosocial status in breast cancer patients which consists of closed ended questions which represents the difference between the health status of patient before and after providing therapy. Collected data will be tabulated and interpreted using Graph pad Prism 9.3.1.

***Data Tools Used***

Patient consent form, Patient data collection form, Patient QOL assessment questionnaire (EORTC, SF-36) and Psychosocial assessment questionnaire (Hospital Anxiety and Depression Scale).

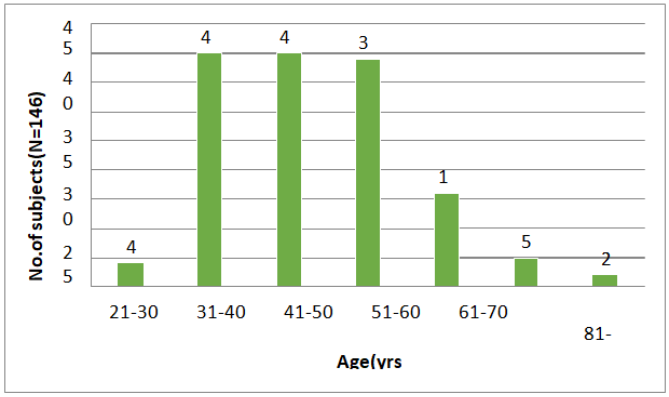
***Statistical Analysis***

The data obtained was entered in an advanced Microsoft excel sheet and evaluated. For statistical analysis, Graph pad Prism 9.3.1 was used and t-test was done with 95% confidence interval at alpha value 0.05 and the p-values $< 0.05$ are considered to be significant.

## RESULTS

***Age Vs No. of Subjects***

The information regarding distribution of patients within age groups of 18 to >80 years. Majority of patients were found within 31-40 years (27.39%), 41-50(27.39%) followed b 51-60 (26.71%), 61-70 (10.95%), 71-80 (3.42%), 21-30 (2.73%), 81-90 (1.36%) which was graphically represented.



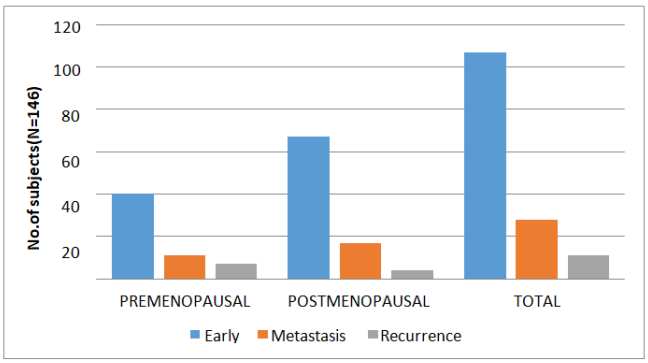

### *Menopausal Status Vs No.of Subjects*

The information regarding distribution of patients within the premenopausal (40%) and postmenopausal group (60%). This was graphically represented.

| Menopausal Status | Number of Subjects | Percentage (%) |
|---|---|---|
| Premenopause | 58 | 40 |
| Postmenopause | 88 | 60 |

### *Age Vs Stage*

The information regarding the staging of breast cancer in different age groups of 21 to 90 years. Majority of patients were found within 31-40 years (E-19.17%, R-3.42%, M-4.79%), 41-50 years (E-20.54%, R-2.05%, M-4.79%) followed by 51-60 years (E-19.86%, R- 0.68%, M-6.16%), 61-70 years (E-8.21%, R-0.68%, M-2.05%), 71-80 years (E-2.73%, R-0%, M- 0.68%), 21-30 years (E-1.36%, R-0.68%, M-0.68%), 81-90 years (E-1.36%, R-0%, M-0%) which was graphically represented.



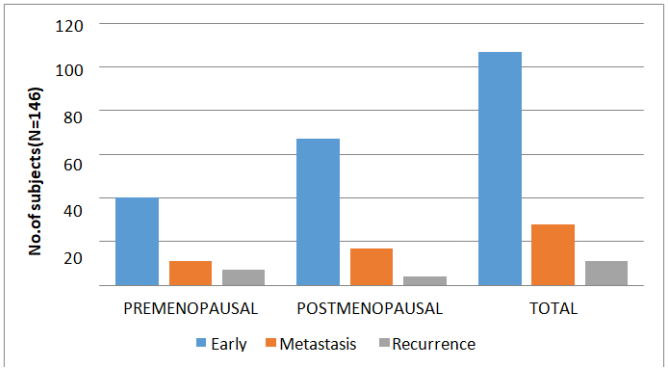

### *Stage Vs No.of Subjects*

The information regarding the staging of breast cancer and total number ofsubjects. Majority of the patients were found to be Early (n=107; 73%), followed by Metastasis (n=28; 19%) and Recurrence (n=11; 8%). This was graphically represented.

| Breast CancerStage | No. of Subjects(N=146) | Percentage (%) |
|---|---|---|
| Early | 107 | 73 |
| Recurrence | 11 | 8 |
| Metastasis | 28 | 19 |
| Total | 146 | 100 |

### *Stage Vs Menopausal Status*

The information regarding the categorising of subjects into stages in premenopusal and postmenopausal women. In premenopause Early (40), Metastasis (11), Recurrence (7) and in postmenopause Early (67), Metastasis (17), Recurrence (4) which was graphically represented.



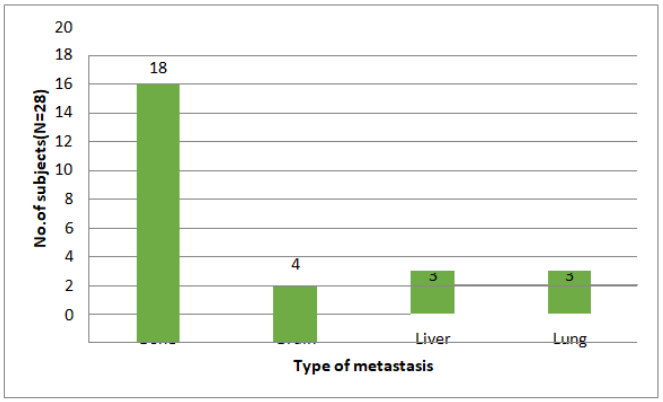

### *Stage Vs Menopausal Status*

The information regarding the categorising of subjects into stages in premenopusal and postmenopausal women. In premenopause Early (40), Metastasis (11), Recurrence (7) and in postmenopause Early (67), Metastasis (17), Recurrence (4) which was graphically represented.

### *Metastatic Site Vs No.of Subjects*

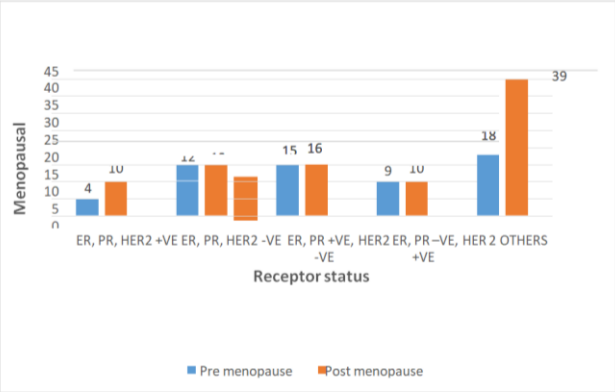
The information regarding the metastatic site which indicates that the most effected sites are bone(n=18;64.28%), followed by brain (n=4;14.28%), liver(n=3;10.71%) and lung (n=3;10.71%) which was graphically represented.

| Type of Metastasis | No. of subjects | Percentage (%) |
|---|---|---|
| Bone | 18 | 64.28 |
| Brain | 4 | 14.28 |
| Liver | 3 | 10.71 |
| Lung | 3 | 10.71 |




### *Menopause Vs Receptor Status*

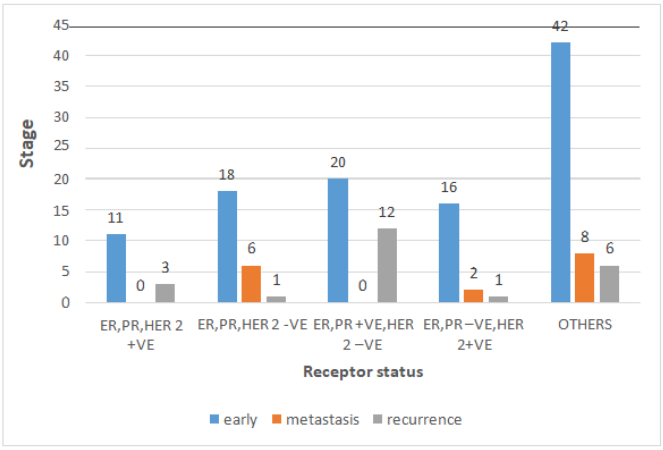
The information regarding hormonal receptor status i.e., in premenopausalER, PR, HER2 +VE (2.73%), ER, PR, HER2 –VE (8.21%), ER, PR+VE, HER2 –VE (10.3%) and ER, PR-VE, HER2 +VE (6.2%) and others (12.32%). In postmenopausal; ER, PR, HER2 +VE (6.84%), ER, PR, HER2 –VE (8.90%), ER, PR+VE, HER2 –VE (10.96%), ER, PR-VE, HER2 +VE (6.84%) and others (26.71%). This was graphically represented.




A p value (0.0087*) was considered to highly significant

***Stage Vs Receptor***

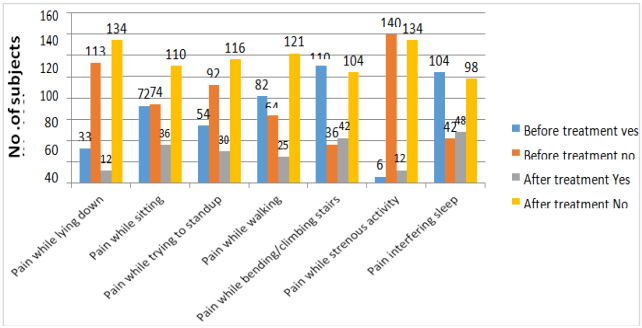
The information regarding hormonal receptor status in different stages of breastcancer.ER, PR, HER2 +VE (E-7.53%, M-0, R-2.05%), ER, PR, HER2 –VE (E-12.32%, M- 4.10%, R-0.68%), ER, PR+VE, HER2 –VE (E-13.7%, M-0, R-8.21%) and ER, PR-VE, HER2 +VE (E-10.95%, M-1.4%, R-0.68%) and others (E-28.76%, M-5.5%, R-4.10%). This was graphically represented.




A p value (0.0039*) was considered to highly significant

***Functional Interference Vs Number of Subjects***

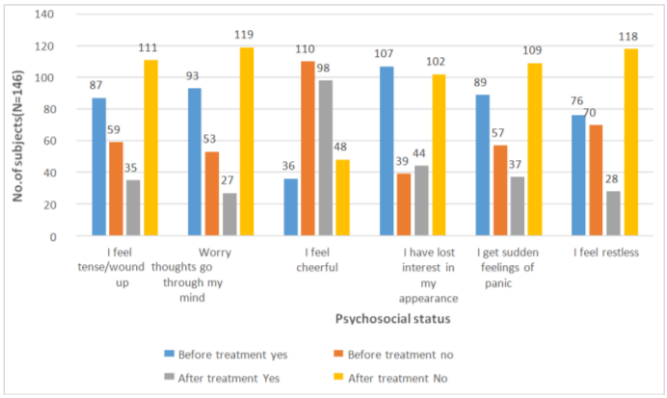
Most of the patients experiencing pain during bending/climbing (110) followed by pain interfering sleep (104), pain while walking (82), pain while sitting (72), pain with strenuous activity (06), pain when trying to stand up (18), pain while lying down (11) before the treatment. After the treatment by pain interfering sleep (48), pain while walking (25), pain while sitting (36), pain with strenuous activity (12), pain when trying to stand up (30), pain while lying down (12).




A p value (0.0027*) was considered to highly significant

***Psychosocial Status Vs Number of Subjects***

The most of the subjects have lost interest in my appearance (107), followed by Worry thoughts go through my mind (93), get sudden feelings of panic (89), feel tense/wound up (87), feel restless (76), feel cheerful (36) before the treatment. After the treatment subjects have lost interest in my appearance (44), followed by Worry thoughts go through my mind (27), get sudden feelings of panic (37), feel tense/wound up (35), feel restless (28), feel cheerful (98).




A p value (0.0267*) was consider0065d to highly significant

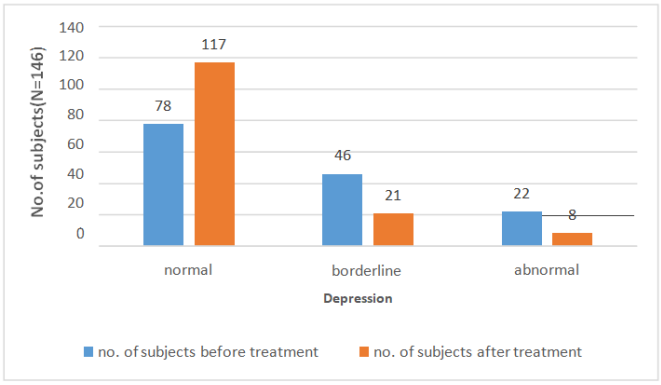
***Anxiety Vs no. of Subjects***

The information regarding distribution of patients with anxiety into different categories. Before the treatment Normal (58.9%), Borderline (30.83%), Abnormal (10.27%). After the treatment Normal (88.34%), Borderline (4.1%), Abnormal (6.7%). This was graphically represented.

| Anxiety | Normal | Borderline | Abnormal |
|---|---|---|---|
| No. of subjects before treatment | 86 (58.90%) | 45 (30.83%) | 15 (10.27%) |
| No. of subjects after treatment | 129 (88.34%) | 6 (4.1%) | 11 (6.7%) |

***Depression Vs no. of Subjects***

The information regarding distribution of patients with anxiety into different categories. Before the treatment Normal (53.42%), Borderline(31.51%), Abnormal (15.07%). After the treatment Normal (80.14%), Borderline (14.4%), Abnormal (5.48%).




## DISCUSSION

A Retrospective comparitive analytical study was conducted on "**Biological Behaviour of Breast Cancers Based on Hormonal Status In Premenopausal and Post Menopausal Women**." 146 patients met the

inclusion criteria and were included in the study. The data obtained was tabulated and analyzed.

The information regarding distribution of patients within the age group of 18 to 80 years. Majority of the patients were found within 31-40 years (27.39%) and 41-50 years (27.39%) followed by 51-60 years (26.71%), 61-70 years (10.95%) ,71-80 years (3.42%), 18-30 years (2.73%), >80 years (1.36%). The menopausal status of the patients at the time of the diagnosis included 58 premenopausal women (40%) and 88 postmenopausal women (60%). Based on the diagnosis obtained in our study early stage included 107 patients (73%), recurrence included 11 patients (11%) and metastatic breast cancer included 28 patients (19%). Of the 11 metastatic breast cancer patients the organ most involved was bone (n=18, 64.28%) followed by brain (n=4, 14.28%), lung (n=3, 10.71%) and liver (n=3, 10.71%). These results were in concordance with the study done by E.-F. Solomayer *et al*., (2000) on "Metastatic breast cancer: clinical course, prognosis and therapy relatedto the first site of metastasis."

The main objective of our study was to assess the hormone receptor status (ER, PR, HER2) in premenopausal and postmenopausal women in breast cancer. The hormonal receptor status [ER/PR/HER-2] in breast cancer was assessed based on pathology reports and the tumors are categorized into 5 groups i.e., 1) ER/PR/HER2- positive 2) ER/PR/HER2-negative 3) ER/PR- positive /HER2- negative 4) ER/PR-negative/HER2-positive 5) Others .Out of the 58 premenopausal women the majority of the receptor status was found to be that of others (n=18, 12.32%) followed by ER/PR-positive /HER2- negative (n=15, 10.3%), ER/PR/HER2-negative (n=12, 8.21%), ER/PR-negative/HER2-positive(n=9 ,6.2%) and ER/PR/HER2- positive (n=4, 2.73%) . Out of the 88 postmenopausal women the majority of the receptor status was found to be that of others (n=39, 26.71%) followed by ER/PR- positive /HER2- negative (n=16 ,10.96%), ER/PR/HER2-negative (n=13, 8.90%), ER/PR-negative/HER2-positive (n=10 ,6.84%) and ER/PR/HER2-positive (n=10, 6.84%). Out of the 107 early breast cancer patients the majority of the receptor status was found to bethat of others (n=42, 28.76%), followed by ER/PR-positive /HER2- negative (n=20, 13.7%), ER/PR/HER2-negative (n=18, 12.32%), ER/PR-negative/HER2-positive (n=16,10.95%) and ER/PR/HER2- positive (n=11, 7.53%). Out of the 28 metastatic breast cancer patients the majority was found to be that of ER/PR-positive /HER2- negative (n=12 ,8.21%), followed by others (n=8, 5.50%), ER/PR/HER2-negative (n=6,4.10%), ER/PR-negative / HER2- positive(n=2,1.40%) and ER/PR/HER2- positive (n=0,0%). Out of the 11 recurrence patients the majority of receptor status was found to be that of others (n=6,4.10%) followed by ER/PR/HER2-positive (n=3, 2.05%), ER/PR/HER2-negative (n=1 ,0.68%), ER/PR-negative/HER2-positive (n=1,0.68%) and ER/PR-positive /HER2-negative (n=0, 0%). Based on the results obtained among all the 146 patients the majority of the receptor status was found to be that of others (n=56, 38.35%), followed by ER/PR-positive /HER2- negative (n=32, 21.91%), ER/PR/HER2-negative (n=25,17.12%), ER/PR-negative/HER2-positive (n=19,13.01%) and ER/PR/HER2- positive (n=14,9.58%).

We used standard questionnaire (European Organization for the Research and Treatment of Cancer Quality of Life Questionnaire EORTC QLQ BR23; 36 Item Short Form Survey SF-36; Hospital Anxietyand Depression Scale HADS) to assess the quality of life and psychosocial status in breast cancer patients which consists of closed ended questions that represents the difference between the health status of patient before and after providing therapy. We categorized the questions from the questionnaires into functional status and psycho social status. We analyzed the quality of life of the patient using t-test and found that there is significant improvement in both functional status and psychosocial status; the difference is found to be statistically significant which indicates that there is improvement in quality of life of the patient before and after providing the therapy.

## CONCLUSION

Based on the results obtained our study concludes that most of the patients are postmenopausal(n=88) at the time of diagnosis of with majority having receptor status ER, PR +ve, HER2 –ve (n=15, 10.3%) followed by premenopausal(n=58) with majority having receptor status ER, PR +VE, HER2 -VE (n=16,10.96%). Evaluating the stage of breast cancer most of the patients are presented as early breast cancer majorly having receptor status ER, PR +ve, HER2 – ve (n=19 ,13.01%) followed by metastatic breast cancer patients with most having receptor status ER, PR +ve, HER2–ve (n=12,8.28%) and recurrence with majority having receptor status ER/PR/HER2 +ve (n=3 ,2.05%).

Hence based on the results obtained in our study we strongly conclude that irrespective of the menopausal state and stage at the time of diagnosis, majority of the patients were diagnosed with receptor status ER, PR +VE, HER2 -VE (n=31, 21.23%) and also found that the patients diagnosed at postmenopausal state were more prone to metastasis and patients diagnosed at premenopausal state were prone to recurrence.

Our study concludes that pharmaceutical care and psychosocial support and the provided patient information leaflet which was mainly focused on healthy diet plays a vital role in improving adherence to the therapy there by enhancing the quality of life of the patients with early, metastatic, recurrence breast cancer being under follow up and/or hormonal therapy after providing with surgery and/or radiation therapy and/or chemotherapy.

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