



## Profile of Carcinoma Breast Patients

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DOI: 10.31080/ASCB.2024.08.0480

Received: March 04, 2024

Published: March 14, 2024

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### Abstract

**Introduction:** Breast cancer is the commonest cancer and second cause of cancer related death in United States. As reported by various studies worldwide and India, there is significant increase in incidence and cancer related mortality reported in India. In India Breast cancer ranked one with age adjusted rate as high as 25.8 per lakh woman.

**Material and Methods:** This was retrospective study data archives from Department of Pathology and Department of Radiation Oncology, State Cancer Institute, Indira Gandhi Institute, Patna, Bihar. Patients diagnosed with breast carcinoma and available reports of serum hormonal status and HER2 + Ki 67 status by immunohistochemistry were analyzed.

**Results:** Total 210 cases were analyzed who attend our department for treatment in 6 months period. Commonest age group we found in our study was 41 to 50 years, 51 to 60 years cases of 22.6%, 12.3% cases 61 to 70 years. 27.5% cases were above 55 year and 72.5% were <55 years of age.

**Conclusion:** Breast cancer is more common in younger age group as compared to older age group. Advanced stage patient was highest in our study.

Ki-67 range was 30-40%, commonest in our study. Breast cancer cells.

**Keywords:** Breast Carcinoma; Breast Cancer

### Abbreviations

Breast cancer is the commonest cancer and second cause of cancer related death in United States [1]. As reported by various studies worldwide and India, there is significant increase in incidence and cancer related mortality reported in India. [2] Ferlay [3] Malviya. In India Breast cancer ranked one with age adjusted rate as high as 25.8 per lakh woman [4] Gupta. According to many studies on breast cancer shown more advanced and aggressive in young age group [5-10]. The college of American pathologist cap and American Society of Clinical Oncology. Recommended evaluation of hormonal receptor, estrogen, progesterone and human epidermal growth factors Type 2 for all newly diagnosed and recurrent breast carcinoma [11]. Immunohistochemical examination provides therapeutic and prognostic inflammation about disease.

In comparison to western world, Indian females reported more hormone negative patients [12]. Hormone Positively increases as age increase and hormone negative and HER positive cases decreases with age increases. Hence young women Shown relatively more aggressive and advanced stage of cancer with poor prognosis as compare to older women.

### Material and Methods

This was retrospective study data archives from Department of Pathology and Department of Radiation Oncology, State Cancer Institute, Indira Gandhi Institute, Patna, Bihar from January 2023 to May 2023. Patients diagnosed with breast carcinoma and available reports of serum hormonal status and HER2 + Ki 67 status by

immunohistochemistry were analyzed. Other demographic data in the form of age, sex, laterally staging was analyzed. Hormonal status was considered negative when concentration was below 10%. It has been considered Posture. When nuclear staining was posture in more than 10% of tumor cells. HER expression was considered posture. When more 10% tumor cells shown complete and intense membrane staining.

**Results**

Total 210 cases were analyzed who attend our department for treatment in 6 months period. Commonest age group we found in our study was 41 to 50 years (39.52%), 51 to 60 years cases of 22.6%, 12.3% cases 61 to 70 years. 27.5% cases were above 55 year and 72.5% were <55 years of age. Left Sided breast carcinoma were more common above 55.2%, 42.8% cases more on Right sided breast cancer. 4 cases presented with bilateral breast carcinoma.

ER, PR Positive and HER negative reported in 31% cases. ER, PR negative HER Positive reported in 31.9%, ER, PR, HER negative shown in 31.4% cases and ER, PR, HER positive shown in 15.7% cases ER Positive, PR negative. HER positive shown in 3% cases. ER Positive PR and HER negative shown in 68% cases, ER positive PR negative, HER positive shown in 31.9% cases.

More triple negative cases reported in older patients more than 55 years. In younger age group more ER, PR negative and HER positive patients reported.

- Luminal A - If ER PR Positive, HER Negative
- Luminal B - If HER Positive, ER PR Positive ER or PR Negative, HER Negative
- HER2 Enriched - In only HER 2 Positive, ER PR Negative
- TNB - ER, PR, HER are Negative (Basal like)
- Unclassified - ER + PR+ HER 2 + equivocal
- 55 Years Old

Common staging reported in our study was stage III. In our study commonest tumor stage was reported T3 (54.28%), T2 68 (46.3%), (46.67%) followed by T1(8%) stage IV-5.3% and T4 and T1 was reported in 22.85% and 8.05%. With n Stage commonest nodal status found was N1 in 46.6% followed by N0 32.3% cases. In respect of treatment 114 (54.66% cases) reported surgery followed by adjutant treatment while in 96 (42.33%) cases received

neoadjuvant chemotherapy followed by surgery 3.3% cases received palliative treatment. Adjuvant treatment received by patients with Adriamycin cyclophosphamide followed by Taxane and cyclophosphamide in 89% cases few patients received 4 cycles of cyclophosphamide and Adriamycin followed by paclitaxel weekly 12 cycles followed by Radiotherapy.

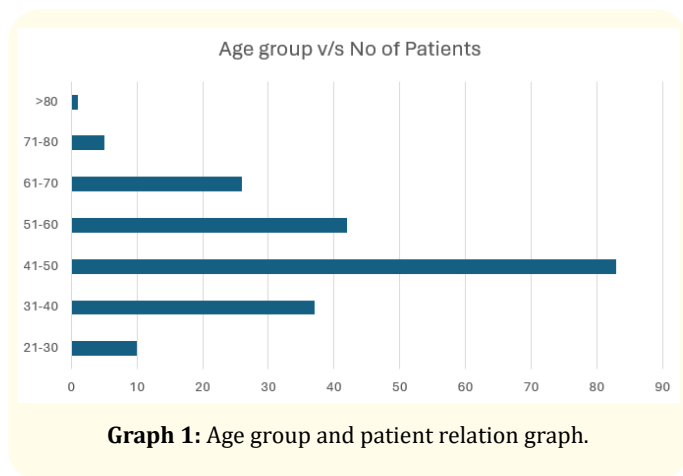
- Invasive Breast Ca 97%
- Infiltrating ductal Ca 2%
- Papillary endocrine 1%

**Table 1**

| Luminal A      | Luminal B | HER Enriched | Bosal Like (TNBC) | Unclassified |          |
|----------------|-----------|--------------|-------------------|--------------|----------|
| 10             | 12        | 3            | 24                | 0            |          |
| < 55 Years Old |           |              |                   |              |          |
| 53             | 55        | 7            | 43                | 4            |          |
| Total          | 63 (30%)  | 67(31.9%)    | 10 (4.7%)         | 67 (31.4%)   | 4 (1.9%) |

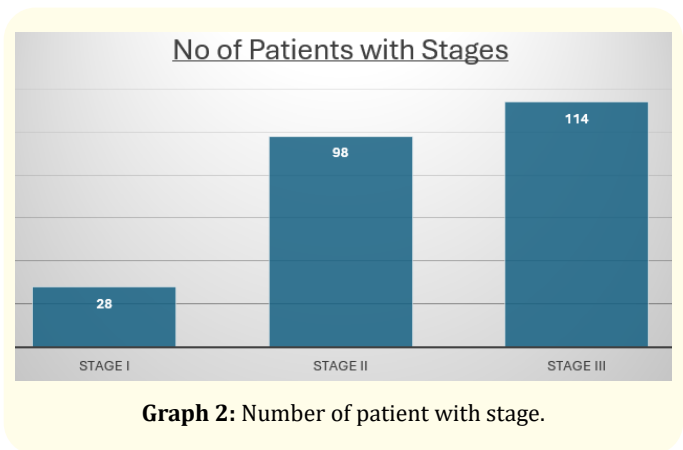
**Table 2: Age Group of patients and their percentage.**

| Sl. No | Age Group | No of Patients | Percentage |
|--------|-----------|----------------|------------|
| 1      | 21-30     | 10             | 4.7%       |
| 2      | 31-40     | 37             | 17.6%      |
| 3      | 41-50     | 83             | 39.52%     |
| 4      | 51-60     | 42             | 22.8%      |
| 5      | 61-70     | 26             | 12.3%      |
| 6      | 71-80     | 5              | 2.3%       |
| 7      | >80       | 1              | 0.04%      |
| Total  |           | 210            |            |



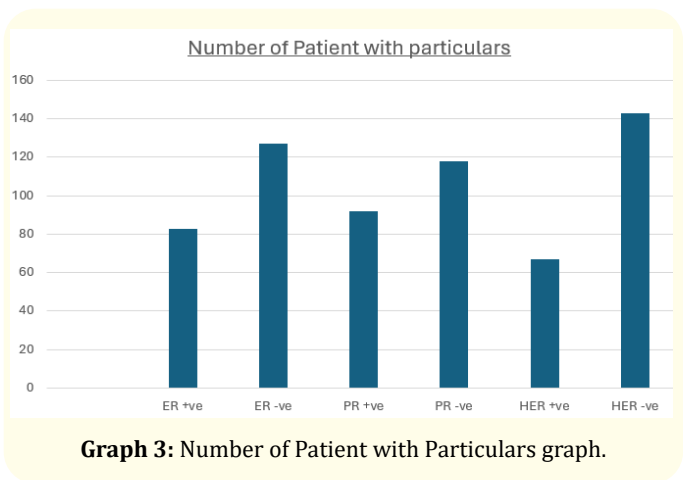
**Table 3:** Stages with number of patients.

| Stage | No of Patients | Percentage |
|-------|----------------|------------|
| I     | 28             | 8.0%       |
| II    | 98             | 30.4%      |
| III   | 114            | 54.28%     |
| Total | 210            | 7.3%       |



**Table 4:** Particulars with number of patients.

| Particular | No of Patients | Percentage |
|------------|----------------|------------|
| ER +ve     | 83             | 39.52      |
| ER -ve     | 127            | 60.47      |
| PR +ve     | 92             | 43.80      |
| PR -ve     | 118            | 56.19      |
| HER +ve    | 67             | 31.90      |
| HER -ve    | 143            | 68.00      |

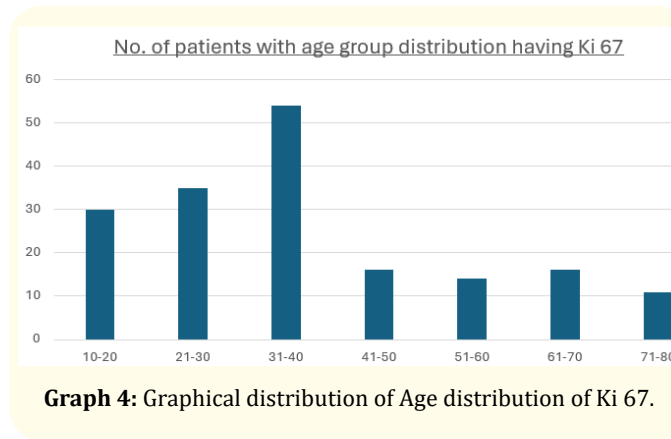


**Table 5:** Stages.

| Stage    | < 55 years | > 55 years  |
|----------|------------|---|
| I        |            | Found in 56.19% cases HER Positivity seen in 31.90%. More cases reported HER negative which was 68% |
| II       |            |   |
| III      |            |   |
| IV       |            |   |
| Unstaged |            |   |

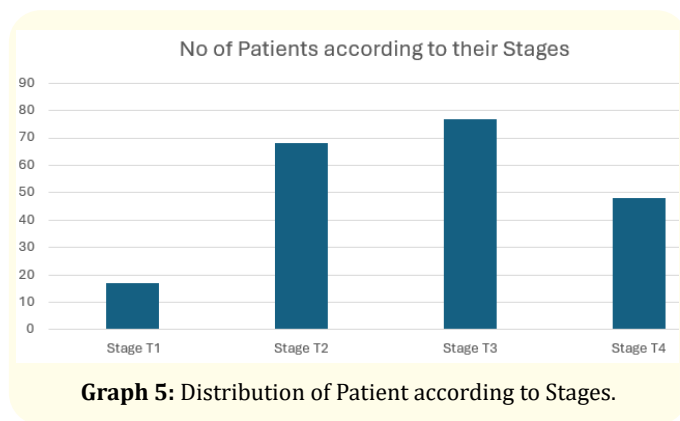
**Table 6:** Age distribution of Ki 67.

| Ki 67 | No. of patients % |
|-------|-------------------|
| 10-20 | 30 (64%)          |
| 21-30 | 35 (16.6%)        |
| 31-40 | 54 (25.71%)       |
| 41-50 | 16 (6.6%)         |
| 51-60 | 14 (6.6%)         |
| 61-70 | 16 (7.6%)         |
| 71-80 | 11 (5.2%)         |



**Table 7:** Stage with number of patients.

| Stage | No of Patients | Percentage |
|-------|----------------|------------|
| T1    | 17             | 8.05%      |
| T2    | 68             | 32.3%      |
| T3    | 77             | 36.6%      |
| T4    | 48             | 22.85%     |



### Discussion

In united states 5% to 7% of breast carcinoma are presented in females older than 40 years [13]. There is an annual rise of 0.5% to 2 % incidence in India. This increase reported in younger females less than 45 years of age [14]. In India most of the studies reported median age 48-53 years [15-19]. In our study commonest age group reported 41 to 51 years of age. In Indian females' breast cancer is more common in younger women which in western world. It occurs in older age group with median age of 60 years [12,20-22]. Breast cancer has been divided in six molecular sub types by use of complementary DNA amino array profiling [23]. Hormonal therapy can be considered for patients shown HR positive [24].

**Table 8:** Comparison of studies.

| Study                    | Luminal A | Luminal B | HER enriched | Basal-like | Unspecified |
|--------------------------|-----------|-----------|--------------|------------|-------------|
| Fenandes., <i>et al.</i> | 35.0%     | 19.4%     | 16.4%        | 29.1%      | 0           |
| Kumar., <i>et al.</i>    | 34%       | 17.8%     | 17.8%        | 25%        | 5.4%        |
| Present study            | 33.3%     | 8.8%      | 26.6%        | 15.5%      | 15.5%       |
| Our Study                | 63%       | 67%       | 10           | 66%        | 4%          |

**Table 9:** Comparison of molecular subtypes with other studies.

| Study                               | Luminal A | Luminal B | HER2 enriched | Basal-like | Unspecified |
|-------------------------------------|-----------|-----------|---------------|------------|-------------|
| Fernandes., <i>et al.</i> (n = 134) | 35.0%     | 19.4%     | 16.4%         | 29.1%      | 0%          |
| Kumar., <i>et al.</i> (n = 56)      | 34%       | 17.8%     | 17.8%         | 25%        | 5.4%        |
| Present Study (n = 45)              | 33.3%     | 8.8%      | 26.6%         | 15.5%      | 15.5%       |
| Our Study                           | 63%       | 67%       | 10%           | 66%        | 0.4%        |

The Breast cancer in younger females have different biological parameters than older women. The majority of younger patients have reported positive hormonal status and advanced stage. There is association proved between aggressive tumor and poorer prognosis. Other study shown low ER. Positively and high HER. Expression shown decreased disease from survival [5]. Studies from western world shown breast cancer at younger age is independent predictor for poor survival [25-29]. In our study majority of patients which are younger than 55 years shown hormonal positivity while patients with more than 55 years.

Breast cancer incidence are increasing globally for last several decades. Agarwal., *et al.* shown the results of retrospective study estimated over 1,00,000 new cases diagnosed annually in India during year 2007 [30] and expected to rise 26% by the year

2020 [31]. The study done by Daniel., *et al.* shown ER positivity in 55.5% cases and PR positivity in 44.4%. Study done by Desai., *et al.* shown ER positivity in 16%. Patients only and PR positivity in 46.19% [32]. Similar study Radhkan., *et al.* shown higher incidence of hormone receptor non reactivity in breast cancer patients [33]. Reason for hormonal positivity partially explained by younger premenopausal women have high level of circulating Estrogen and corresponding can expression at hormone receptor in the humans. A study from Sri Lanka done by Mudduwa in 151 cases 15.7% ER positivity and 48.3% PR Positivity [34]. Study done by Chariyalertsak S., *et al.* shown 36.1%, ER positivity and 45.8% PR positivity [35].

In Asian countries prevalence of hormone receptor positive breast cancer has been found higher than western world Chris-

topher, *et al.* shown 76-78% cases reported hormonal positivity from 1992 to 1998 [36]. Barner, *et al.* shown 65% hormonal positivity in early 1990 in population of 170 breast cancer patients. Biology of western world can patients may be different with Asian Breast Cancer patients. Diet, lifestyle, genetic factors over partially responsible for different biology between two ethnic groups [32]. In our study ER positive seen in 39.52%, ER negative reported 60.47% cases while PR positivity seen in 43.8% cases PR negative.

TNBC comprises about 10-20% of all breast cancers in literature Available from western from western world and shown aggressive disease and poor prognosis [38]. Indian data showed higher incidence rate of TNBC as compared to western world lemon, *et al.* shown about 39% cases of TNBC. TNBC shown more in younger age group 68% of patients in < 55 years of age. Which 22% in > 55 years of age, value was statically significant. Our study shown more TNBC cases after 55 years of age group [39].

HER positively shown in our study was 31.9% study done by Dawood, *et al.* [40] shown HER positively in 15% cases in their study shown by Rekha [41], *et al.* shown higher HER positively in 62% breast cancer cases. Study done by Daniel, *et al.* shown luminal A subtype 33.3% [42], luminal B type 8.8%, Basal type 15.5%, HER positively in 26.6%. Results are comparable with our study in which Luminal A, Luminal B, Basal type shown almost in equal cases 30%, 31.9% and 31.4% cases and HER/new in 31.90% cases. Study done by Fernandes in his study Luminal A 35% Luminal B 19.4%, Basal 29.1% and HER positive 16.4% [43].

Study done by Daniel, *et al.* shown Ki-67 index associated with high proliferation rate associated with HER enriched type. In our study commonest Ki 67 index shown 10-20% (64%) and 30-40% (25.71%). It was not shown association with HER/new type. In our study, ER positivity and PR positivity seen in 39.5% and 43.8% respectively which study done by Kaul, *et al.* shown ER and PR positivity as 34.5% and 36.4% in 55 cases study [44]. Daniel, *et al.* reported in his study PR positivity without ER positivity was zero. Study done by Daniel, *et al.* shown molecular sub-groups luminal A subtype in 33.3%, Luminal B in 8.8%, HER new 26.6%, basal 15.5% and unspecified 15.5% [42]. Fernandes, *et al.* shown Luminal A 35%, Luminal B 19.4%, Basal 29.1% and HER new in 16.4% cases [43]. Study done by Kumar, *et al.* also shown some results. In our study Luminal A was 30%, Luminal B 31%, Basal 31.4%, HER new 4.7% and unspecified 1.9% [45].

## Conclusion

Breast cancer is more common in younger age group as compared to older age group. Advanced stage patient was highest in our study.

Ki-67 range was 30-40%, commonest in our study. Luminal A, and Basal type Ca breast were found equally in our study. Screening and awareness will be helpful for early diagnosis and treatment.

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