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Research Article

**A CROSS-SECTIONAL RESEARCH TO ASSESS & DIAGNOSE
THE POSITIVE TREND OF HER – 2 RECEPTORS IN DUCTAL
& LOBULAR CARCINOMA PATIENTS****Dr. Muhammad Babar Mushtaq, Dr. Muhammad Umair Javed, Dr. Laeeq Ahmad**
Services Hospital Lahore**Abstract:**

Objective: This research is designed to diagnose HER – 2 positivity among the cases of breast cancers.

Methods: A Cross-sectional study suited to problem statement and nature of predicament and the entire process of study held at Services Hospital Lahore (February – December 2017) in the Surgical Department. The population of the research encapsulated a total number of one hundred and twenty successive females suffering from breast cancer. Furthermore, surgeons sent a tissue operation for the dire purpose of immune-histochemical (IHC) inquiry HER – 2/neu receptors and ER/PR receptors. Additionally, a thorough histopathological analysis plus subtype of tumour, histological status.

Results: All the one hundred and twenty female patients under research having breast cancer detected on histopathology with the help of their tissue sample suited themselves for this research. The age of research participants ranged from (31 – 55) years. Therefore, the total fifty female patients reported their Her-2/neu receptor positive of the total percentage of (42%). Whereas, ninety-four female came up with positive ER, 81 with positive PR receptor consequently. On histopathology, the greater part of the research patients was suffering from a tumor that was invasive ductal carcinoma type. The numbers were one hundred and eight (90%) of the total. Moreover, obesity and HER – 2 Receptor have had no prominent association and the range of P was greater than (0.05) but the age of the patient drew a clear and significant association that range of P was less than (0.05).

Conclusion: This study lucidly portrayed a high degree of positive manifestation of Her – 2 receptors among the patients of breast cancer and have had a prominent association between Her – 2 receptors and their age. Therefore, research advises to check the status of Her – 2/neu receptor among all hospitalized breast cancer patients in consort with progesterone receptor and estrogen exclusively in young female patients.

Keywords: HER – 2/neu, Breast Carcinoma, ER/PR and Cancer.

Corresponding author:**Dr. Muhammad Babar Mushtaq,**
Services Hospital,
Lahore

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INTRODUCTION:

Among the other type of cancers breast cancer is commonly reported cancer among women and according to the modern research-based statistics from all over the world around one million women registered the cases of breast cancer every year. This is a lethal disease that mainly attacked the middle age women around the world. Therefore, variation in the reported breast cancer cases is significant up to tenfold with respect to the variation their belongingness to the different regions. Somehow, among the multi-cultural communities, the aspects of aetiology fluctuate in biological results as well as their effect on the upshot of the disease. Consequently, Pakistani women also suffering from breast cancer ordinarily [1]. In terms of sudden and acute increase in the cases of breast cancer, the need required to design some plans and strategies to halt the invasion. This illness has complex morphology and aetiology.

The probable factors like, genetic, environmental, and hormonal may also enhance the severity of the case. According to the clinical statistics in Pakistan, every ninth woman have reported with breast cancer that is the highest and alarming ration among the Asian countries [2]. For more elaboration, the number of incidences in Pakistan are fifty out of hundred thousand whereas, in our neighbour country, India has only nineteen among hundred thousand even if we consider a similar sociological environment. A hormone receptor is the crucial reason that acts as an indicator of hormone-dependent growth and it also anticipates responsiveness to hormonal treatment, if we consider the molecular classification in breast cancer [3].

HER – 2/Neu receptor have its place in the family of tyrosine kinase (a proteins family) is a transmembrane growth key receptor [4, 5]. It functions as an activator of signalling pathways, and owing to that act, HER – 2 have a vital role in the function of the cellular procedure. This process contains, propagation, motility and hindrances to apoptosis. It may become a leading factor in the propagation of abundance of this affect HER – 2/neu in diseased cells, directing to enhance the explosion and reduced the death of the cell. Moreover, modification in the motility of cells is also probable. Ten to thirty-four percent of breast carcinomas has also made such illustrations.

Greater demonstrations of HER – 2/Neu receptor coupled with deprived reaction to the modulators of hormone receptor. Such patients never show a willingness to the conventional treatment. They do

not prefer Herceptin treatment that is highly recommendable for such patients. This research set the goal to examine the intrusion of HER – 2/ neu receptor among the Breast cancer patients especially in Southern Punjab which is the most neglected region in terms of research, significantly on this topic because no literature is evident to deny the said statement [1]. Therefore, this study is designed to explore the dominance of HER – 2/neu Receptor prestige in women having breast cancer. This will also help the masses in devising adopting some useful strategies regarding inhibition and treatment changes.

MATERIAL AND METHODS:

A Cross-sectional study suited to problem statement and nature of predicament and the entire process of study held at Services Hospital Lahore (February – December 2017) in the Surgical Department. The researcher selected the sample of one hundred and twenty female patients with breast bulge regarded as cancer on histopathology through tissue surgery that has only lobular carcinoma / ductal carcinoma. The age of patients ranged from twenty to sixty-five years. The study did not include patients appeared with frequent breast cancer, additionally not willing for immune histopathology. Research required complete ethical consideration during the entire process, therefore, researchers took the approval from the institutional review committee. They also seek informed consents in the written from each patient who became the part of the study. The patients included in the study were those who were diagnosed with HER – 2/neu Receptors Positive through immune histochemical (IHC) discolouration of tissue biopsy.

For more explanation, researchers took the Hercep test and who scored (3+) were recommended as positive and the patients who reported with the score of less than this like, (0+, 1+, 2+) were considered as negative in terms of HER – 2/neu receptor. To determine the BMI of all patients their weight and height were measured. They also recorded the ages of patients when they gave the first live birth. Moreover, they sent the tissues of a tumour to the laboratory to check the status of estrogen, HER – 2/neu Receptors and progesterone, type of histology, grade of a tumour, and grade of histopathology.

To record all the clinical and laboratory results, researchers used pre-designed proforma. Additionally, the demographic profile of the patients was also recorded on these proformas. Researchers calculated the SD and Mean for numerical variables. In addition to it, for a categorical variable, they also

recorded all the percentages frequencies. To examine the correlation between indifferent variables, researchers used the Chi-square test. The value of P was less than an equal than (0.05) which was deemed as numerically important.

RESULTS:

One hundred and twenty persevering patients of breast cancer registered themselves in our cross-sectional research. Researchers diagnosed the illness by considering histopathology of a sample of tissues. Breast cancer is associated with the female gender who ranged from twenty to seventy years old. Total fifty patients diagnosed with the positive status of HER – 2/neu receptor that was the total of (42%) and seventy patients (58%) came up with a negative status. Nineteen percent of total (29) patients reported with Grade – I tumour whereas thirty-six (30%) had Grade – II that followed sixty-one (51%) patients suffered from Grade – III tumour.

Among these one hundred and twenty patients who were bearing the lethal disease of breast cancer, one

hundred and eight patients (90%) had ductal carcinoma and only twelve (10%) had lobular carcinoma. According to the age of the patients, researchers made two groups of the patients according to the possible and suitable strata. One group covered the age group from twenty to forty-five and the other had forty-six to seventy. In the first group (20 – 45), eleven patients (25%) diagnosed with HER – 2/neu receptors. On the other hand, in second age group (46 – 70) years, 39 (51.32%) patients HER – 2/neu receptor was initiated affirmative. In this regard, HER – 2/neu receptor prominence substantially ($P = 0.006$) correlated with age of the patients. Out of 43 (35.83%) obese patients, twenty (46.51%) patients discovered positive HER – 2/neu receptor. On the other hand, among seventy-seven (64.17%) non-obese patients, thirty patients (38.96%) came across positive HER – 2/neu receptor. Researchers observed a trivial ($P = 0.446$) correlation of HER – 2/neu receptor with obesity.

Table – I: Positive and Negative Percentage (ER Versus PR)

| Details | | Number | Percentage |
|---------------------------|-------------------|--------|------------|
| Her-2/neu Receptor Status | Positive | 50 | 42 |
| | Negative | 70 | 58 |
| Tumour Grade | Grade - I | 23 | 19 |
| | Grade - II | 36 | 30 |
| | Grade - III | 61 | 51 |
| Breast Cancer | Ductal Carcinoma | 108 | 90 |
| | Lobular Carcinoma | 12 | 10 |

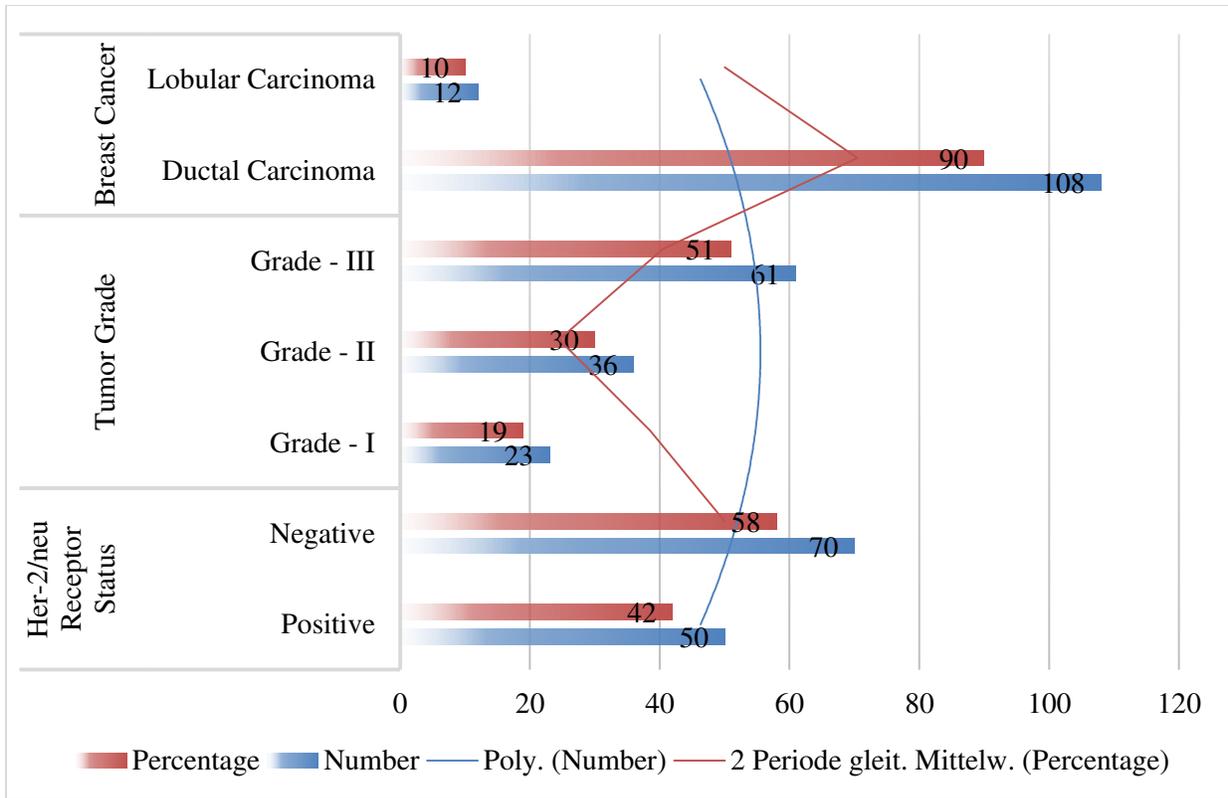


Table – II: ER and PR: Positive and Negative Percentage

| ER / PR Percentage | Positive | Negative |
|--------------------|----------|----------|
| ER | 78.33 | 21.67 |
| PR | 67.5 | 32.5 |

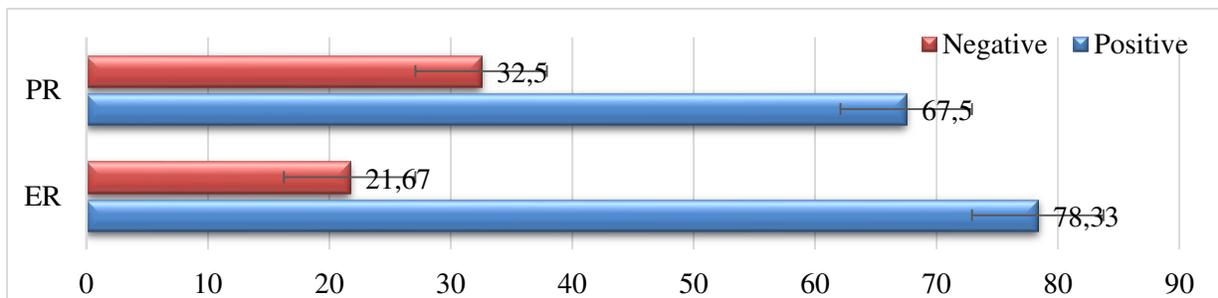
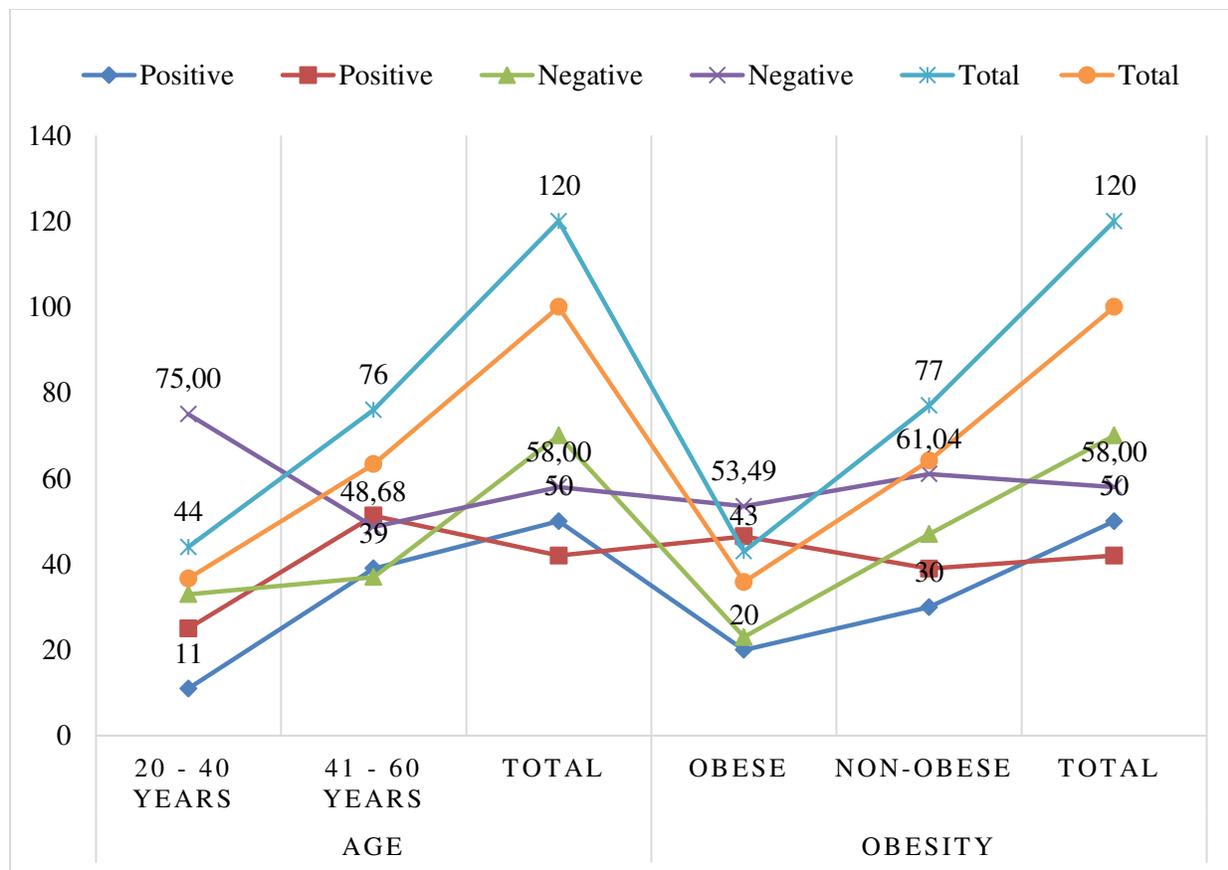


Table – III: Age and Obesity Positive and Negative Trend

| Age | | Positive | | Negative | | Total | | P-Value |
|---------|---------------|----------|------------|----------|------------|--------|------------|---------|
| | | Number | Percentage | Number | Percentage | Number | Percentage | |
| Age | 20 - 40 Years | 11 | 25.00 | 33 | 75.00 | 44 | 36.67 | 0.006 |
| | 41 - 60 Years | 39 | 51.32 | 37 | 48.68 | 76 | 63.33 | |
| | Total | 50 | 42.00 | 70 | 58.00 | 120 | 100.00 | |
| Obesity | Obese | 20 | 46.51 | 23 | 53.49 | 43 | 35.83 | 0.446 |
| | Non-obese | 30 | 38.96 | 47 | 61.04 | 77 | 64.17 | |
| | Total | 50 | 42.00 | 70 | 58.00 | 120 | 100.00 | |

**DISCUSSION:**

HER – 2/Neu receptor belongs tyrosine kinase family of proteins, that is Type – I, which is a transmembrane growth factor receptor. These patients are not willing to orthodox treatment. Excessive representation of HER – 2 receptors is assorted with meagre prognosis among the reported cases with breast cancer, moreover, the growth of the tumor is also accelerated along with metastases [10].

This research includes one hundred and twenty cases of intrusive cases of breast cancer alongside mean age of (43.3 ± 12.5) years. Some other investigators also coded an analogous mean age of patients of breast cancer.

This study showed the numeric of affirmative HER – 2/neu in (42%) patients and negative in (58%). On the other hand, Naem reported with positive HER –

2/neu receptor in (45.8%) patients that make a harmony with our study [12]. Naqvi reported positive HER – 2/neu receptor in thirty-one percent patients [14]. Alahwal coded divergent result as he found (28.3%) patients with positive HER – 2/neu receptor [15]. In agreement to Agarwal's findings, Arigaet reported (15%) patients positive HER – 2/neu receptor [16]. Above mentioned findings do make an agreement with the findings of our research for HER – 2/neu receptor status. This investigation illustrated that (78.33%) of cases had affirmative estrogen receptor results while (67.5%) expressed Progesterone. This research encompasses forty-three overweight patients and forty-six percent displayed positive HER – 2/neu receptor out of them. Whereas, thirty-eight percent non-obese patients reported positive in remaining seventy-seven. Therefore, the overall analysis of the results of the study did not make any significant correlation with obesity.

CONCLUSION:

To conclude, this study of HER – 2/neu receptor among breast cancer patients specifies that positive receptors have high ratio among the patients that have a distinctly significant agreement between the patients belonging to young age group and HER – 2 receptors. Therefore, it is worthwhile to check the status of HER – 2/neu receptor among all breast cancer patients including estrogen and progesterone receptor, particularly among the young patients. The study also recommends discovering HER – 2 receptor association with other etiological elements expressively in young patients.

REFERENCES:

1. Alahwal MS. HER-2 positivity and correlations with other histopathologic features in Breast Cancer patients – hospital-based study. *J Pak Med Assoc* 2006;56: 65–8.
2. Ariga R, Zarif A, Korasick J, Reddy V, Siziopikou K, Gattuso P. correlation of HER2/neu gene amplification with other prognostic and predictive factors in female breast carcinoma. *Breast J* 2005; 11:278–80.
3. Naqvi SQH, Jamal Q, Mahmood RK, Zaidi SMH, Abbass F. Significance of HER2/neu Onco protein Overexpression on node positive invasive breast cancer. *J Coll Phys Surg Pak* 2002; 12:534–7.
4. Favret AM, Carlson RW, Goffinet DR, Jeffrey SS, Dirbas FM, Stockdale FE. Locally advanced breast cancer: is surgery necessary? *Breast J*. 2001 Apr;7(2):131–7.
5. Mostafa M, larsen M, and loveR. Estrogen Receptor, Progesterone Receptor, and Her2/neu Oncogene Expression in Breast Cancers Among

Bangladeshi Women. *J Bangladesh Coll Phys Surg*. 2010; 28(3): 157–162.

6. Shet T, Agrawal A, Nadkarni M, et al (2009). Hormone receptors over the last 8 years in a cancer referral center in India: what was and what is? *Indian J Pathol Microbiol*,52,171-4.
7. Li J, Huang Y, Zhang B-N, Fan J-H, Huang R, Zhang P, et al. Body mass index and breast cancer defined by biological receptor status in pre-menopausal and postmenopausal women: a multicenter study in China. *PLoS ONE*. 2014;9(1): e87224.
8. Eliassen AH, Colditz GA, Rosner B, Willett WC, Hankinson SE. Adult weight change and risk of postmenopausal breast cancer. *JAMA* 2006; 296:193–201.
9. Panjwani P, Epari S, Karpate A, Shirsat H, Rajsekharan P, Basak R, et al. Assessment of HER-2/neu status in breast cancer using fluorescence in situ hybridization & immunohistochemistry: experience of a tertiary cancer referral center in India. *Indian J Med Res*. 2010 Sep; 132:287–94.
10. Payne SJ, Bowen RL, Jones JL, Wells CA. Predictive markers in breast cancer - the present. *Histopathology* 2008; 52:82-90.
11. Walker RA. Use and assessment of diagnostic and predictive markers in breast pathology. *Current Diagnostic Pathology*. 2007 Apr;13(2):126–34.
12. Vaidyanathan K, Kumar P, Reddy CO, Deshmane V, Somasundaram K, Mukherjee G. ErbB-2 expression and its association with other biological parameters of breast cancer among Indian women. *Indian J Cancer*. 2010 Mar;47(1):8–15.
13. Arafah M: Hormone Receptors and Her 2/neu in Breast Cancer *Cilt/Vol. 26, No. 3, 2010; Sayfa/Page 209-215.*
14. Favret AM, et al: Locally advanced breast cancer: Is surgery necessary? *Breast J* 7:131, 2001. [PMID: 11328324]
15. Naeem M, Nasir A, Aman Z, Ahmad T, Samad A. Frequency of HER-2/neu receptor positivity and its association with other features of breast cancer. *J Ayyub Med Coll Abbottabad*. 2008 Sep;20(3):23–6.
16. Sandhu DS, Sandhu S, Karwasra RK, Marwah S. Profile of breast cancer patients at a tertiary care hospital in north India. *Indian J Cancer*. 2010 Mar;47(1):16–22.