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Research Article

**A TRANSVERSE RESEARCH ON THE HER-2/NEU RECEPTOR  
STATUS ASSESSMENT IN THE PATIENTS OF BREAST  
CANCER IN CASES OF BREAST CANCER**<sup>1</sup>Dr. M Usman, <sup>2</sup>Dr. Asma Shahid, <sup>3</sup>Dr. Ammara Liaquat<sup>1</sup>BHU 560, The National Hospital Faisalabad<sup>2</sup>National Hospital<sup>3</sup>Khawaja Muhammad Safdar Medical College Sialkot**Abstract:**

**Objective:** The main purpose of this study was to evaluate the condition of the HER-2/Neu receptor in the sufferers of breast cancer.

**Material and methods:** The method of this study was transverse. This study was carried out at Services Hospital, Lahore (November 2016 to October 2017). One hundred patients of blood cancer were included in this research work.

**Results:** The average age of the patients was (44 ± 12.5) years. Receptor tyrosine-protein kinase erb-2 was found positive in forty percent of patients and it was found negative in sixty percent of patients. Grade – I a tumour was found in twenty-one percent patients, Grade – II tumours were found in thirty-five percent patients and Grade – III a tumour was found in forty-four percent of patients. Thirteen percent of patients were found with LCIS (lobular carcinoma in situ) and eighty-seven percent of patients were found with DCIS (ductal carcinoma in situ). Seventy-five percent of patients were found with ER-positive hormone and ER was found negative in twenty-five percent participants. Sixty-five percent of patients were found with PR positive and thirty-five percent remaining were negative in PR hormone.

**Conclusion:** The outcomes of this research work show the high values of the effect of the Receptor tyrosine-protein kinase erb-2. Grade – III a tumour was found in most of the sufferers. There was not any link between this hormone HER-2/Neu receptor and the fatness and the age of the patients. ER & PR was found in a large number of sufferers.

**Keywords:** HER-2/neu, ER, PR, LCIS, DCIS, Receptor Tyrosine-Protein Kinase erb-2, Hormone and Tumour.

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**INTRODUCTION:**

The most common cancer among the females is the cancer of the breast. IBC (Invasive breast cancer) is mostly found with serious nature in females in the whole world. In the whole world, about ten lakh women each year are identified with this terrible disease. A large number of average age women have to face death in the world due to this serious disease [1]. There is a large difference in the rate of this disease in different countries. The biological environment and the living habits in the communities play a vital in creating the difference in the rate of this breast cancer among the women of different countries of the world. The rapid increase in this disease required to make some urgent methods to tackle this problem to save the lives of women and to minimize their suffering.

There are very complicated causes of the Breast cancer usually many aspects can be the factors like genes, hormones and the environment and these factors can take a long time [2]. Estrogen hormone augmented contact is linked with the high amount of the breast cancer patients and by shortening this hormone exposure can prevent this disease [2]. The factors which increase the menses duration can also the cause of the increase in this disease. Normal exercise and a large milk secretion period are the aspects which decrease the menses duration and protect against this disease. About one woman out of nine women is suffering from this terrible disease in our country Pakistan. This is a large amount of the rate of this disease in Asia. The difference in the race, food and the genes aspects are the cause of this problem in our country but it needed to be solved to save the women [3].

The condition of the hormone receptor plays a vital role in the formation of cancer of breast which contributes as an identifier of the growth [4, 5]. HER 2/neu receptor should be checked in the patients of breast cancer in Pakistan due to its increasing rate so the anti-receptor therapy could start to tackle this problem. The current research work will provide the strength of this receptor in the female patients of breast cancer. The disparity in the rate of this disease in the different area of the world describes that the cause of this disease depends upon the biological atmosphere of the sufferers in which they are living. A very small study work is available on the same topic and no study is still available in our community. The outcomes of this research work show a high rate of occurrence of HER 2/neu Receptor in the patients of breast cancer. This study will help in the further treatments and modifications in this field. Breast Cancer: The sufferers were detected with the lump in

the breast as cancer on the microscopic study of tissues histopathology after taking samples of tissues for the detection of the pathogen. HER 2/neu Receptors positive: The patients with the positive receptor were those who were detected by the IHC (immunohistochemical) after taking the samples of the tissue for cancer area. More than three scores in the Hercep test was thought to be positive and the score which was less than three was thought to be negative for the receptor HER 2/neu.

**METHODOLOGY:**

This transverse study was carried out at Services Hospital, Lahore (November 2016 to October 2017). A hundred patients of breast cancer were included in the in this research work for examination.

Women sufferers of having age from twenty to sixty years and detected of the suffering of this disease, lobular carcinoma / ductal carcinoma infection were included in this research. The sufferers who have a repetition of this disease and not accepting the IHC were removed from the research. Written willing was taken from every patient who was included in the study. A review committee of the same institution gave the approval for this research work. Body mass index was calculated after taking the height and weight of all the participants. Age at the time of first live baby birth was also documented. Estrogen hormone check was carried out by taking the sample of tissue for laboratory check. All the information of the participants was recorded in the separate case files.

SPSS software was used for the analysis of the information. Age of the sufferer, age at the time of first live childbirth and body mass index were used for the proper investigation of the patients.

**RESULTS:**

The average age of the patients was (44 ± 12.5) years. Positive Receptor HER 2/Neu was found in forty patients and negative receptor was found in sixty patients. There were a hundred patients were the part of this study. Grade – I a tumour was found in twenty-one patients, Grade – II a tumour was found in thirty-five patients and Grade – III a tumour was found in forty-four patients. LCIS was found in thirteen patients and DCIS was found in eighty-seven patients. Seventy-five patients were found with positive ER and twenty-five patients were found negative ER. Sixty-five patients were found with positive PR and thirty-five sufferers were found with negative PR.

All the participants were separated into two age

groups as a group from twenty to forty year of age and group from forty-one to sixty year of age. Thirty-eight patients belong to the first age group and sixty-two sufferers belong to the second age group. Receptor HER 2/neu condition with the group was documented with p amount 0.6772 as described in

tabular data. Thirty-four sufferers were fat and the receptor was found in fourteen patients. Sixty-six patients were not fat but the receptor was found in twenty-six patients. Tabular data shows the link between the fatness and the receptor with p amount 1.000.

**Table – I:** Number Distribution

Details		Number
HER-2/Neu receptor	Positive	40
	Negative	60
Tumour Grade	Grade - I	21
	Grade - II	35
	Grade - III	44
Histopathological type	Lobular Carcinoma	13
	Ductal Carcinoma	87
ER	Positive	75
	Negative	25
PR	Positive	65
	Negative	35

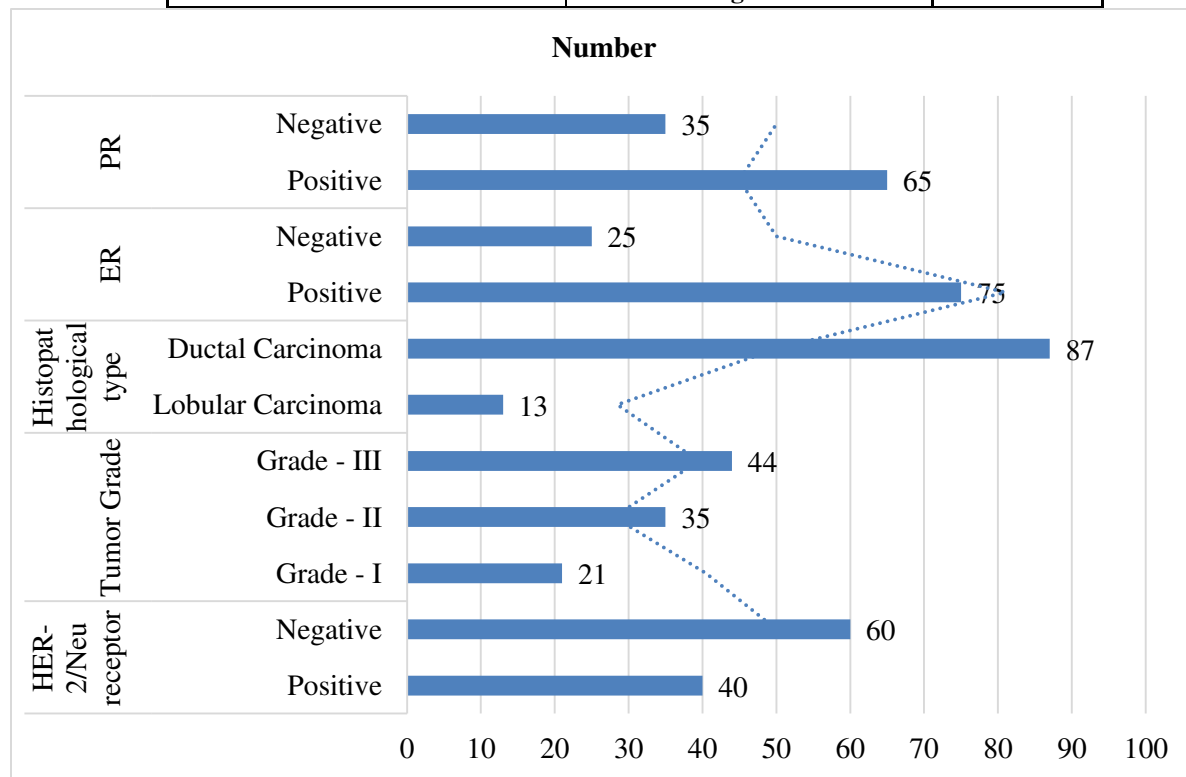
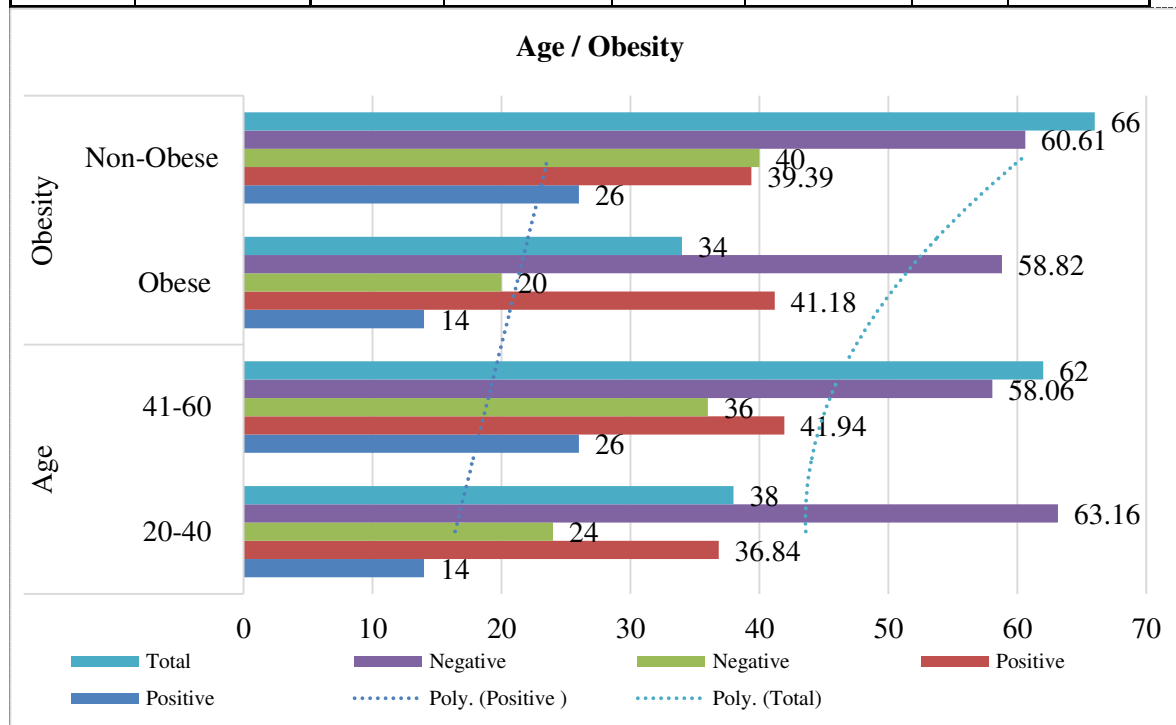


Table – II: Age and Obesity positive and negative trend

Age / Obesity		Positive		Negative		Total	P-Value
		Number	Percentage	Number	Percentage		
Age	20 – 40	14	36.84	24	63.16	38	0.6772
	41 – 60	26	41.94	36	58.06		
Obesity	Obese	14	41.18	20	58.82	34	1.0000
	Non-Obese	26	39.39	40	60.61		



### DISCUSSION:

Receptor HER 2/Neu is a growth receptor in the membrane which a member of a protein family. It sends signals for different cellular processes and works as an activator [10]. This growth effect is increased in the cancer areas by this particular receptor which causes the increase in the cell production and decreases the cell death [11]. In this current work, the average age of the sufferers was about (43 ± 13.25) years.

The same average age was also documented by the Favret, Naeem and Sandhu [12 – 14]. Forty patients were found with the positive receptor and sixty patients were found negative. About the same positive rate was also concluded by Naeem [13]. In some other research work, the positive receptor was described in thirty-one percent of patients which are not much similar to the outcomes of this research. Alahwal MS concluded the positive receptor in twenty-eight percent patients [15]. Fifteen percent patients were found with the positive receptor in the

study of Ariga [16]. Maximum studies are found with the different outcomes which are totally different from the results of this work.

Invasive ductal carcinoma was found in the majority of the patients of blood cancer. This outcome is very same as the results of other studies in which 90% of the blood cancers were invasive ductal carcinoma [1]. The percentage of patients the three types of tumours was very different to the research work carried out in Yemen in the whole year of 2011 where a large number of patients were found with grade two tumours [19]. This outcome is close to the study carried out in India in 2011 [20]. These differences in the outcomes of the studies are due to the different causes of the disease in different geographical areas of the world.

### CONCLUSION:

The outcomes of this research work show a very high value of the effect of HER 2/Neu receptor. Grade three tumour was found in a large number of patients.

There was no connection between this receptor and the fatness and age of the sufferers. ER and PR were found positive in most of the 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 HER-2/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 HER-2/neu Oncoprotein Overexpression on node positive invasive breast cancer. *J Coll Phys Surg Pak* 2002; 12:534–7.
4. Mostafa M, larsen M, and love R. Estrogen Receptor, Progesterone Receptor, and Her-2/neu Oncogene Expression in Breast Cancers Among Bangladeshi Women. *J Bangladesh Coll Phys Surg.* 2010; 28(3):157–162.
5. 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.
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. Eliassen AH, Colditz GA, Rosner B, Willett WC, Hankinson SE. Adult weight change and risk of postmenopausal breast cancer. *JAMA* 2006; 296:193–201.
8. 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 centre in India. *Indian J Med Res.* 2010 Sep; 132:287–94.
9. Payne SJ, Bowen RL, Jones JL, Wells CA. Predictive markers in breast cancer – the present. *Histopathology* 2008; 52:82-90.
10. Walker RA. Use and assessment of diagnostic and predictive markers in breast pathology. *Current Diagnostic Pathology.* 2007 Apr;13(2):126–34.
11. Nida Iqbal and Naveed Iqbal, “Human Epidermal Growth Factor Receptor 2 (HER2) in Cancers: Overexpression and Therapeutic Implications,” *Molecular Biology International*, vol. 2014, Article ID 852748, 9pages, 2014. doi:10.1155/2014/852748
12. Freudenberg JA, Wang Q, Katsumata M, Drebin J, Nagatomo I, Greene MI. The role of HER2 in early breast cancer metastasis and the origins of resistance to HER2-targeted therapies. *Exp Mol Pathol.* 2009Aug;87(1):1–11.
13. Favret AM, et al: Locally advanced breast cancer: Is surgery necessary? *Breast J* 7:131,2001. [PMID: 11328324]
14. 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.
15. 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.
16. 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.
17. Dutta V, Chopra G, Sahai K, Nema S. Hormone receptors, Her-2/neu and chromosomal aberrations in breast cancer. *Med J Armed Forces India.* 2008Jan;64(1):11–5.
18. Brunnicardi FC. *Schwartz's principles of surgery.* 9th ed. USA. Mcgraw Hill; 2010
19. Naqvi SQH, Naqvi A, Anwar M, Khan MS, Akhund AA. Significance of HER-2/neu Oncoprotein overexpression in invasive ductal breast cancer. *Ann Abbasi Shaheed Hosp Karachi Med Dent Coll* 2007; 12:79–83.
20. Sherman ME, Rimm DL, Yang XR, Chatterjee N, Brinton LA, Lissowska J, et al. Variation in breast cancer hormone receptor and HER2 levels by etiologic factors: a population-based analysis. *Int J Cancer.* 2007Sep 1;121(5):1079–85.