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DETERMINATION OF INCIDENCE RATE OF VARIOUS TYPES OF BREAST CANCER SPECIFIC TO AGE

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Abstract:

Objective: *The purpose of this study is to find out the rate of occurrence of various histopathologic sub-types of breast cancer specific to age in our country and its association with the incidences in other countries and discussion about its different important factors.*

Material and Methods: *In this research work, we studied the data of 6265 women suffering from breast cancer in 10 histopathologic age groups.*

Results: *Ductal carcinoma was the most common type of tumor (89%). The rate of incidence specific to age of breast cancer in types as ductal, epithelial and non-epithelial carcinomas were all in 50 to 59 years and it reduced in older ages. These findings are in opposition to the US report which states that the rate of prevalence increases with the increase in age.*

Conclusion: *Main three features as younger age of the patients, possible high amount of Negative Estrogen Receptor tumors and various histopathological parameters of breast cancer in our country must be considered to elaborate various breast cancer slope after menopause in comparison with the other countries of the world.*

KEY WORDS: *Breast Cancer, Menopause, Tumors, Parameters, Menopause, Incidence, Carcinoma.*

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INTRODUCTION:

Breast cancer is one of the common cancer in women around the world [1]. The prevalence of the breast cancer specific to age is not same in various regions of the world. In continent of Asia, the highest prevalence is in the age groups of 40-50 years of age. Contrary to it, in the countries of the west, there is increase in the rate of prevalence with the increase of the age [2]. The rate of occurrence of much frequent breast cancer histopathology, ductal carcinoma is reported to be approximately 70.0% in US- SEER (2000-2003), 81.8% in Jordan, 84.7% in Egypt and 80.7% in Cyprus [3]. The rate of prevalence of breast cancer specific to age displays 3 patterns. The 1st pattern is fast rise up to menopause, followed by very slow intensification. The 2nd pattern is fast intensification up to menopause followed by the platue and last pattern is steady rise with independence of age of menopause [4].

Some breast cancer sub-types like medullary and inflammatory, are not fully differentiated with low content of the estrogen receptor [4]. Many research works have stated the breast cancer in very younger age as highly aggressive and more likely to be ERN (Estrogen Receptor Negative) [5-8]. The purpose of this study is to find out the rate of occurrence and prevalence rate specific to age of various sub-types of breast cancer in our country Pakistan from 2016 to 2019 and to compare this rate with the other countries of the Asia as well as countries of west.

MATERIAL AND METHODS:

In this study we reviewed the data of 6674 patients of breast cancer from Surgery Ward of Baqai Medical University, Karachi from 2010 to 2019. Among these patients, 196 patients were pre-invasive and patients were males. We excluded all these patients and there were 6265 remaining patients. In accordance with the histopathologic classification of breast cancer by WHO, we studied the tumors in six different groups consisting epithelial, metastatic, mesenchymal, nipple, malignant lymphoma and fibro-epithelial. Pathological cases report which were not possible to have classification in this system were grouped on the basis of report number 42 of IARC [9] in 4 other classes. So, there were reports about total 10 groups. Further, we reported the rate of incidence of breast cancer specific to the age and various histopathologic sub-types in total nine age groups. Ethical committee of the institute gave the permission to conduct this research work. We used the SPSS V.20 for the statistical analysis of the collected information.

RESULTS:

Among 6265 patients of breast cancer, epithelial tumors were the most common type present in 90.5% (n: 5671) patients. Table-1 is providing the rate of occurrence of various histopathology.

Table-I: The Frequency Of Different Histopathology's Of Breast Cancer

Histopathology	No	Percent
Epithelial	5671	90.52
Mesenchymal	3	0.05
Fibro epithelial	19	0.3
Malignant lymphoma	16	0.26
Malignant Paget's	49	0.78
Metastatic	12	0.19
Other cancers	234	3.74
Not site - specific carcinoma	220	3.51
Not site - specific sarcoma	6	0.1
Any site	35	0.56
Total	6265	100

Ductal carcinoma was the very common epithelial histopathology, consisting of 89% (n: 5037) patients as shown in Table-2.

Table-II: Frequency Of Different Epithelial Breast Cancer Histopathology

Type of histopathology	No	Percent
Ductal carcinoma	5037	89
Lobular carcinoma	340	6
Medullary carcinoma	170	3
Mucinous carcinoma	56	1
Others	56	1
Total	5671	100

The median age of all the patients of breast cancer and epithelial patients was forty-nine years and for the patients present with non-epithelial tumors, the median age was forty-two years. Maximum rate of incidence of breast cancer specific to age was 75.92/100 in the age group of 50 to 59 years and there was a decrease thereafter. Maximum rate of incidence of epithelial tumors specific to age was very common sub-type of ductal carcinoma and other non-epithelial tumors, all were present in the similar age group of 50 to 59 years and there was a decrease in all in older ages as presented in Table-3. For the patients of malignant Paget's, there was a continuous increase in the rate of incidence specific to age with the rise of the age.

Table-III: Age - Specific Incidence Of Breast Cancer And Some Common Histopathologic Subtypes

Age Group	All Breast Cancer	All Epithelial Tumors	Invasive Ductal Carcinoma	Malignant Paget	Not Site-Specific Carcinoma	Other Breast Carcinoma
20-29	2.66	2.24	1.9	0.02	0.06	0.13
30-39	24.97	22.77	20.93	0.07	0.94	0.85
40-49	62.23	56.98	50.24	0.37	1.87	2.43
50-59	75.92	68.6	60.14	0.59	3.26	2.92
60-69	66.07	59.9	52.84	0.89	2.27	2.11
70-79	48.17	43.47	38.89	1.11	0.99	2.11
>80	48.45	41.67	36.34	0	3.88	2.91

DISCUSSION:

This current research work discovered the epithelial tumors (90%) as very frequent histopathology in total patients of breast cancer in the duration of this research work. IDC (Invasive Ductal Carcinoma) as 80% and lobular carcinoma as 5.5% were frequent occurring sub-groups. In one of the survey conducted in USA, the very common histopathology was the ductal carcinoma present in 73.7% patients [4]. Histopathologic structures of fifty patients of breast cancer in Rawalpindi a famous city of Pakistan in year of 2008 displayed 84% ductal carcinoma and 12% lobular carcinomas consisting ninety-six percent of the total [13]. IDC is the very frequent present histopathology of this complication of breast cancer followed by lobular carcinoma. This very pattern is similar in our country as well as in USA. Breast cancer specific to age is rising up to 50 to 54 years of age in our country Pakistan and in the age group of 55 to 59 years, there is reduction in Iraq and there is an increase in the rate of prevalence of breast cancer with the increase of age in accordance with various findings [14,15].

In this research work, studied almost all the histopathologic subtypes regarding their prevalence rate with the change of the age groups. Most common occurring histopathological subtypes were ductal and lobular carcinoma, discovered with the same pattern with total amount of patients, there was increase in its occurrence after age of menopause [16]. Subtypes of medullary and inflammatory were not able to increase after age of 52 years. Subtypes of papillary and mucinous continued to rise in their prevalence with the rise in the age of the patients. In this current research work, histopathologic sub-types might have impact on overall pattern of this complication.

In one research work, status of estrogen receptor had a clear impact in the pattern of prevalence specific to the age. Patients of ERN (Negative Estrogen Receptor) patients suffering from breast cancer did not show the age-specific rise after age of 52 years [17]. But in total patients, ductal carcinoma in addition with the Negative Estrogen Receptor platue, we observed a rise after age of 52 years. In lobular sub-type, there was an increase in the

prevalence rate after 52 years of age. Among other sub-types as medullary and inflammatory with Negative Estrogen Receptor, there was an important decrease in the rate of incidence [18]. There was a continuous increase in the incidence of sub-types of papillary and mucinous with the increase of the age regardless of the status of estrogen receptor. One other research work proved the impact of ER, showing if positive, there is continuous risk after age of menopause and if positive, there is end of the risk [19].

In this current research work, the status of the ER is not known. Most of the young patients suffering from breast cancer are more likely Negative Estrogen Receptor [5-8] and present with the high chance of entertaining aggressive type histopathology [20]. The median age of the patients of breast cancer in this current research work was 49 years showing a population of mature age. Peak age of the patients of breast cancer was between 40 and 50 years in various counties of Asia while the peak age was between 60 to 70 years in various countries of West.

CONCLUSION:

The rate of prevalence of breast cancer specific to age decreases in our country after menopause which is in opposition to USA, where it continues to increase after menopause. Most important 3 factors which are responsible for these differences are the younger age, various sub-types of cancer and possible Negative Estrogen Receptor tumors in our country Pakistan and other same neighboring countries in comparison with other developed countries of Europe and USA. There is need of other research works in future to show the definite reasons of difference to support in the improvement of diagnosis, prevention and decisions about treatment.

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