

Clinicopathological Characteristics of Breast Carcinoma in Premenopausal Women

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ABSTRACT

Background: Breast cancer is one of the leading causes of mortality world-wide. The objective of this study was to see the pattern and characteristics of carcinoma breast in premenopausal women reporting at a tertiary care hospital.

Material and Methods: This cross-sectional study was conducted at surgical unit of Pakistan Institute of Medical Sciences (PIMS), Islamabad from May 2012 to April 2015. A total of 144 female patients were admitted during this period as diagnosed cases of carcinoma breast. Of these patients, all cases of breast carcinoma diagnosed in premenopausal women were selected and assessed for tumor type, TNM classification and involved breast quadrants.

Results: Out of 144 patients 70 (48.6%) cases of carcinoma breast were reported in premenopausal women. The ages ranged from 14 to 48 years with a mean age of 33 ± 7.95 years. According to TNM classification, 2.9% patients were in T1, 25.7% were in T2, 32.9% were in T3 and 38.6% were in T4. Similarly, 37.1% patients presented with a nodal status of N0, 38.1% with N1, 21.4% with N2 and 2.9% with N3. Out of 70 patients, 11 (15.7%) presented with distant metastasis (M1) at the time of diagnosis. The upper outer quadrant of breast (32.9%) was most commonly involved site, followed by upper inner, lower outer and lower inner quadrants, respectively. Most common tumor type was invasive ductal carcinoma (85.7%), followed by invasive lobular carcinoma (7.1%), papillary carcinoma (4.3%), medullary carcinoma (1.4%) and malignant phylloides (1.4%). Regarding exposure to risk factors of breast cancer in these patients, 35.7% women did not breast feed and 27.1% were nulliparous. There was no history of use of oral contraceptive pills in 82.8% and positive family history was reported in 27.1% patients.

Conclusions: Late presentation with advanced disease in premenopausal women is more common in our part of the world as compared to international literature. More studies on larger sample sizes should be carried out to validate these findings.

Key words: Breast carcinoma, Premenopausal women, Clinicopathological characteristics, Risk factors

Authors' Contribution:

^{1,2} Conception, synthesis, planning of research and manuscript writing Interpretation, discussion, Active participations in data collection Data analysis.

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Introduction

Data from United States has reported breast carcinoma as the second most common tumor diagnosed in women after skin carcinoma. The related mortality and morbidity are also quite high, especially in underdeveloped countries because of poor access to health care and late presentation. As far as cancer related deaths are concerned, it is the second most common cause following lung cancer.¹ Breast carcinoma is also one of the leading causes of death due to malignancies in developing countries like Pakistan.² Mortality related to breast cancer

is decreasing in the west because of public awareness, good screening programs and rapid access to health care system. About 268,600 new invasive breast cancer cases were diagnosed in US in 2019 only with 41,760 deaths.¹ Previously, the incidence and mortality of breast cancer had a lower trend in Asia than in the West, but now it is rapidly increasing.³ Developing countries like Pakistan have only hospital-based data so that country-wide statistics regarding breast cancer is still lacking. The probability of developing breast cancer in Pakistani

women has been reported to be 1 in 9 women⁴, with some studies reporting an incidence rate of 69.1/100,000 population.⁵

Mortality rate varies with different factors including, age, stage, treatment response, tumor type and other co-morbidities.⁶ Response to treatment and outcome varies in different histological subtypes of breast cancer.⁷ Tao et al reports higher mortality rate in African-American women as compared to non-Hispanic white women.⁸ The incidence of breast cancer in Asia differs from the West, however in most Asian countries and African-American women incidence of breast cancer is rising, whereas in western countries and whites the incidence is static.¹

Age is one of the most important factors affecting prognosis in carcinoma breast, as in other malignancies. A study reported the mean age of diagnosis in African patients as 57.6 years with large tumor size, compared to 62.6 years in white patients.⁹ In western countries the incidence of breast carcinoma is higher in postmenopausal group. Screening and post-menopausal hormonal therapy may have contributed towards the increased incidence in this group. In our part of world, increasing incidence of carcinoma breast is noted in premenopausal age group. Environmental factors and genetic variance may be responsible for disease presentation at earlier age in developing countries.¹⁰ It is important to know about the characteristics of disease in both postmenopausal and premenopausal group, because of the difference in behavior and patterns of disease in both age groups. Our study is focused on the premenopausal group. It has been seen that about one third of breast cancer can be prevented by risk factor modifications like healthy life style, reducing weight and avoiding alcohol.¹¹

The objective of the study was to see the clinicopathological characteristics of carcinoma breast in premenopausal women at surgical unit of Pakistan Institute of Medical Sciences (PIMS), Islamabad.

Material and Methods

In this cross-sectional study, record of 144 female patients admitted as diagnosed cases of carcinoma breast at surgical unit PIMS was collected from May 2012

to April 2015. From this retrospective data, all cases of breast carcinoma diagnosed in premenopausal women were selected, while cases of breast carcinoma in postmenopausal age group were excluded from the study. The selected cases were assessed for tumor type, TNM classification, involved breast quadrants and risk factors like history of breast feeding, smoking, use of oral contraceptive pills, previous pregnancies and positive family history. Data was entered in SPSS version 17. Mean and standard deviation were calculated for quantitative variables like age. Frequencies and percentages were calculated for qualitative variables like tumor type, lymph node status, site of involvement and risk factors.

Results

Out of a total of 144 patients, 70 patients of carcinoma breast were present in premenopausal women. The ages ranged from 14 to 48 years with mean age of 33 ± 7.95 years. According to TNM classification, 2 (2.9%) patients were in T1, 18 (25.7%) were in T2, 23 (32.9%) were in T3 and 27 (38.6%) were in T4, respectively. Regarding lymph node status, 26 (37.1%) women presented with N0, 27 (38.1%) with N1, 15 (21.4%) with N2 and 2 (2.9%) with N3 nodal involvement. Out of 70 patients, 11 (15.7%) had distant metastasis (M1). The upper outer (32.9%) was most commonly involved, followed by upper inner, lower outer and lower inner quadrant (Table I).

Table I: Quadrant involvement in premenopausal women with breast cancer (n=70)

Breast Quadrants	Frequency	Percentage
Upper outer quadrant	23	32.9
Lower outer quadrant	7	10.0
Upper inner quadrant	14	20.0
Lower inner quadrant	6	8.6
Centre of breast	13	18.6
whole breast	7	10.0
Total	70	100.0

The most common tumor type was invasive ductal carcinoma (85.7%), followed by invasive lobular carcinoma, papillary carcinoma, medullary carcinoma and malignant phylloides (Table II). Regarding exposure to risk factors, 25 (35.7%) women did not breast feed and 19

(27.1%) were nulliparous. There was no history of use of oral contraceptive pills in 58 (82.8%) women and a positive family history was reported in 19 (27.1%) cases.

Type of tumor	Frequency	Percentage
Invasive ductal carcinoma	60	85.7
Invasive lobular carcinoma	5	7.1
Medullary carcinoma	1	1.4
Papillary carcinoma	3	4.3
Malignant phyllodes	1	1.4
Total	70	

Discussion

The present study reported clinicopathological characteristics of carcinoma breast in premenopausal women presenting at a younger age with advanced disease manifesting as more lymph node involvement and distant metastasis. These patients were also assessed for exposure to risk factors of breast cancer. There are certain factors that increase the risk of breast cancer indirectly by increasing estrogen levels such as obesity, prolonged duration of estrogen exposure, advanced maternal age at first delivery, early menarche and late menopause, nulliparity, use of alcohol and high fat diets.^{12,13} There are certain factors that protect from breast cancer such as reduced exposure to estrogen, long duration of breast feeding, lactation and moderate exercise.¹⁴ Women in the younger age group have been reported to have breast cancer with a larger tumor size, higher expression of HER2/EGFR and worse prognosis.¹⁵

Age is one of the most important prognostic factors in carcinoma breast especially the menopausal age. Endocrine physiology keeps on changing throughout life in females. Use of hormonal therapy after menopause affect the prognosis of disease. Prognosis is better in older age group as compared to younger women.¹⁶ This improvement in prognosis may be attributed to the hormonal changes in female body after menopause. In the current study, mean age was 33 years with 42.9% women below 33 years of age. Majority of the patients in

this study were in 33 to 48 years age group. This is consistent with the data found in local literature. In our part of world, carcinoma breast is more common in premenopausal age group, whereas in western countries, it is more common in postmenopausal women. In countries like Pakistan, women of the middle age group (30–59 years) are at a higher risk of developing breast cancer.⁵ Other local studies have also found this age group to be the commonest.¹⁷

The most common tumor type was found to be infiltrating ductal carcinoma in this study, as also found in national and international literature.¹⁸ In almost all type of carcinomas including breast carcinoma, lymph node status is a very important prognostic indicator. In our study most of the women presented with advanced nodal disease (63.9%). Our findings are comparable to a local study carried out in Karachi reporting 56.9% premenopausal women with advanced breast carcinoma (>3 lymph nodes involved).¹⁹ Another local study reported 40% of patients with metastasis in more than three lymph nodes.⁵ Poor socioeconomic status of patients in under developed countries may be an important factor for the advanced presentation of breast carcinoma with nodal and distant metastasis. This is contradictory to international literature, which show relatively fewer premenopausal women or younger women with advanced nodal disease. Kocaöz et al. reported in a study that in premenopausal females with breast cancer, the tumor size was larger with more lymph node metastasis.²⁰ This difference in national and international literature may be because of the lack of proper screening programs in underdeveloped countries like Pakistan.

Previous studies especially from western countries have shown increased incidence of carcinoma breast among postmenopausal women, mostly because of the screening programs targeted at this age group, and postmenopausal hormonal therapy. Therefore, patterns and characteristics of carcinoma breast have been extensively studied in postmenopausal women, but much less attention had been given to premenopausal women. It is evident from the literature now that it may not be appropriate to use the data from developed countries for under developed countries as patterns and characteristics of breast carcinoma is different for both populations.

Therefore, we have tried to focus on premenopausal women in our current study, with the aim of contributing towards the global literature on this group

Conclusion

Late presentation with advanced disease in premenopausal women is more common in our population as compared to rest of the world. More studies on larger sample sizes should be carried out to validate these findings.

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