International Surgery Journal
Thilagam RN et al. Int Surg J. 2018 Oct;5(10):3316-3320
http://www.ijsurgery.com
pISSN 2349-3305 | eISSN 2349-2902

DOI: http://dx.doi.org/10.18203/2349-2902.isj20184081

Original Research Article

Breast carcinoma and its relation to risk factor: an institutional study at Government Vellore Medical College, Vellore, India

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Received: 20 July 2018
Accepted: 28 August 2018

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ABSTRACT

Background: Breast is the second commonest site involved by cancer in Indian women after cervix. Breast cancer is easily detectable as it is an external organ, but many women fail to present at an early stage and they present in an advanced stage. The present study is a study to assess the risk factors for carcinoma breast patients presenting to government Vellore Medical college.
Methods: The present study is a Retrospective study and the study period was between January 2017 to January 2018. The inclusion Criteria were all female patients above 30 years of age reporting with histopathological diagnosis of carcinoma breast. All the risk factors were assessed.
Results: The present study focused on age group of 46-50 years who showed increased risk for development of carcinoma breast. The risk factors that were evident from the present study were staging of the disease, early menarche, delayed menopause, first pregnancy at later age. Apart from the above-mentioned risk factors, Nulliparity and non-breast feeding was also evident in the study. In addition, obesity also showed positive results as a risk factor.
Conclusions: The high-risk factors for carcinoma breast from present study are early menarche, Late Menopause, Nulliparity, Non-breast feeding, and obesity. Obesity was one of risk factors which should be given importance in rural society too.

Keywords: Carcinoma breast, Risk factors

INTRODUCTION

Breast is the second commonest site involved by cancer in Indian women after carcinoma cervix. It is the commonest cause of death in many developed countries and is becoming frequent in developing countries. Being a female, is itself a risk factor for carcinoma breast as the female to male ratio is 100:1.

The most important risk factor for breast cancer development is age. As age increases, the risk for breast cancer increases. Genetic mutation's account for 10% of breast cancers such as BRCA 1 and BRCA 2, P53, PTEN. BRCA1 carriers have 40 to 85%risk of breast cancer and 25 to 65% lifetime risk of ovarian cancer. BRCA2 mutation also has 60 to 80% risk for breast cancer and 40% risk for breast cancer.[1,2]

The present study focuses on the risk factors of carcinoma breast in females aged above 30 years.

Advancing age, delayed first child birth, nulliparity, history of previous breast biopsies and family history of breast cancer among first degree relatives were found to be associated with increased risk of breast cancer.[3,4] History of breast feeding was found to reduce the risk.

This study concludes that age, parity, obesity play a major role in the occurrence of breast cancer.

The objectives of this study is to identify the commonest risk factors for carcinoma breast in females aged above 30 years with histopathological proven diagnosis of carcinoma breast.

METHODS

The present retrospective study was conducted at Government Vellore Medical College and Hospital.

Inclusion criteria

All female patients above 30 years of age reporting with histopathological diagnosis of carcinoma breast. Patients having Histopathological diagnosis of both ductal and lobular carcinoma.

Exclusion criteria

Females aged below 30 years with diagnosis of carcinoma breast male patients with carcinoma breast.

Methods

The study was conducted between January 2017 to January 2018. The study comprised 100 female patients proven diagnosis of carcinoma breast. A detailed history, physical, general and local examination, routine hematological and histopathological examination and Metastatic work up was done to all 100 patients with a diagnosis of carcinoma of breast. arable Risk factors analysed in terms of association with Breast carcinoma.

RESULTS

Following are the results that are observed under the following heading.

- Age distribution
- Age at menarche
- Age at menopause
- Parity
- Breast feeding
- Obesity
- Staging
- Pathology
- Treatment

Age Distribution

The age wise distribution of carcinoma breast as shown in Table 1 shows highest incidence of 69 % between the age group of 46-60 years, this followed by age group of less than 45years showing 22 %, the age group of > 60 years were 9 % of cases were observed. Beyond 60 years the percentage has decreased.

Table 1: Age wise distribution of carcinoma breast.

Age group	Number of patient n (%)
30-45	22 (22)
46-50	34 (34)
51-55	17 (17)
56-60	18 (18)
>60	9 (9)

Age at menarche

As shown in Table 2, early menarche at less than or equal to 11 years was observed in 52% of patient age between 12-14 years was seen in 44 % of patients. Late menarche was seen in 4 % of patients.

Table 2: Age at menarche.

Age group	Number of patient n (%)
<11	52 (52)
12-14	44 (44)
>15	4 (4)

Age at menopause

Age at menopause as shown in Table 3 showed menopause beyond 55years in 28% of patients, followed by 25% in age group between 45-50 years.

Women attaining menopause between 50-54 years were 27%. Women between 40-44 years were 18% Women less than 40 years were only 2 (2%).

Table 3: Age at menopause.

Age group	Number of patient n (%)
<40	2 (2)
40-44	18 (18)
45-50	25 (25)
50-54	27 (27)
>55	28 (28)

Parity status

As shown in Table 4 and Figure 1 of the 100 patients, 18 patients were nulliparous and 82 were multiparous.

Table 4: Parity status.

Parity status	Number of patient n (%)
Nulliparous	18 (18%)
Multiparous	82 (82%)

Breast feeding

As shown in Table 5 and Figure 1 in the present study of 82 cases (82%) of women had breast fed their children for a duration of one and half to two years for each child.

Table 5: Pattern of breast feeding.

Feeding pattern	Number of patient n (%)
Not fed	18 (18)
Breast feeding	82 (82)

18 women (18%) had not breast fed, all these 18 women were nulliparous females in this study group.

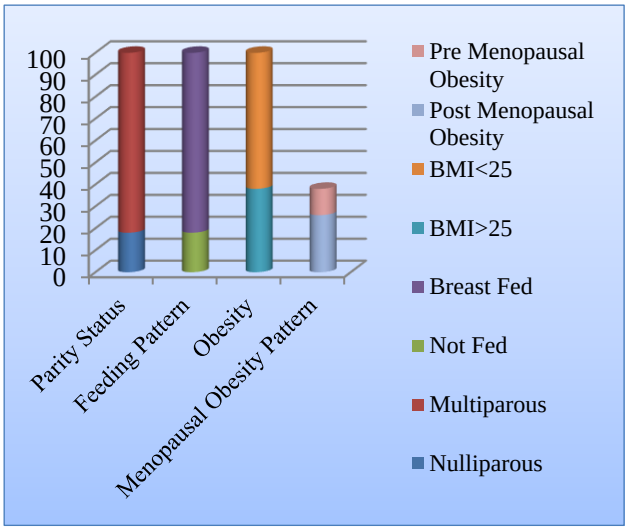

Figure 1: Shows parity status, Breast feeding pattern, Obesity pattern (BMI), Post-menopausal obesity pattern among cancer patients.

Obesity

In the present study as shown in Table 6 and Figure 1 Body mass index (BMI) greater than 25 Kg/cm2 was seen in 38% of women, BMI less than or equal to 25 kg/cm2 was seen in 62% of women.

Table: 6 Obesity

BMI of patient	Number of patient n (%)
BMI ≥25 Kg/cm2	38 (38)
BMI <25 Kg/cm2	62 (62)

The obesity pattern was observed in relation to menopausal status as shown in Table 7, 26% women with BMI greater than 25 Kg/cm2 were postmenopausal and 12% of women were pre-menopausal.

Table 7: Obesity pattern & menopausal status.

Status of patient	Number of patient n (%)
Post-menopausal obesity	26 (26)
Pre-menopausal obesity	12 (12)

Staging

The clinical stage of presentation as per TNM stage grouping of AJCC is shown in Table 8.[5] 5% of patients are in stage IIA of TNM staging at diagnosis, 9% were in IIB stage, stage IIIA were 37% and 47% are in stage IIIB. No cases were recorded with stage IIIC, but 2 patients presented with lung metastasis and bone metastasis stage IV of TNM staging.

Table 8: Stage of the disease as per AJCC staging.

Stage of the disease	Number of patients
Carcinoma in situ	0
Stage I	0
Stage II A	5 (5%)
Stage II B	9 (9%)
Stage III A	37 (37%)
Stage III B	47 (47%)
Stage III C	0
Stage IV	2

Treatment

As shown in Table 9 all the patients with breast cancer underwent Modified radical mastectomy except for 2 patients who had metastatic breast carcinoma.

All the 98 patients received tamoxifen post operatively irrespective of ER/PR status.

Table 9: Treatment given.

Mode of treatment	Number of patients
Neo adjuvant chemotherapy	44(44%)
Surgery+ hormone therapy	98(98%)
Surgery + radiotherapy	96()96%
Surgery+ chemotherapy+ radiotherapy+ hormone	96)(96%
Palliative chemotherapy	2(2%)

Two patients with stage IIA disease did not receive radiation therapy. The remaining 96 patients received radiation therapy post operatively.

44 patients of the stage III group received neo adjuvant chemotherapy. Drugs used in neo adjuvant chemotherapy TAC regimen. A. driamycin, cyclophosphamide, taxanes.

Histopathology

In the present study the histopathological examination of all breast carcinoma showed pathologically the tumour to be of Ductal cell type as shown in Table 10.

Table 10: Pathological type of breast cancer.

Histopathological type	Number of patients
Ductal carcinoma	100 (100%)
Lobular carcinoma	0

The other subtypes are loular, secretory medullary cribriform mucinous, inflammatory and pagets.[6,7]

DISCUSSION

Age group

In the present study as shown in Table 1 maximum (34%) numbers of patients were in age group of 46-50 years, 22% of patients were in the age group less than 40 years, followed by 18% in age group of 56-60 years. In a Study by A. Goel and North American Association by American cancer society showed similar age group with maximum number of cases. U.K breast cancer statistics showed 51-55 years as the age group with maximum percentage of cases.[8-10]

Age at menarche

The age at menarche was compared Table 2. The present study showed five times the increased risk with early age at menarche. A Study by Mandana E and Chi –Ling Chen also showed similar results. However, in comparison with other studies the risk is higher in the present group probably because of other associated risk factors.[11,12]

Age at menopause

Increased age at menopause showed 2 times the increased risk. A study by Linda Titus also showed similar results.[13]

Parity

Nulliparous women showed four times the increased risk in comparison with parous women. In comparison to studies by Chi –Ling Chen and Mandana E, the risk is comparatively greater, as these women have other associated risk factors.[11,12]

Breast feeding

As shown in TABLE 5 women who did not breast fed were at four times the increased risk in comparison to women who breast fed. This is in accordance with the study done by Linda Titus Ernst off, however in this study the calculated risk is significantly higher as 18 cases were nulliparous females who did not breast fed.[13]

Obesity

The above results show women with BMI greater than 29.25 have 1.4 times the risk to that women with BMI 21.5 Kg/cm2. The study by Linda Titus Ernst off, Chi-Ling Chen showed similar result.[13]

Staging and treatment

In the present study group, patients at the time of diagnosis showed II B (9%) of TNM and 47% of patients showed stage III B whereas II A and IIIA showed 5% and 37% respectively. All the patients were subjected to Modified Radical Mastectomy (MRM) with adjuvant chemotherapy radiotherapy and hormonal therapy.

CONCLUSION

In the present study of 100 cases of breast lump, proven to be malignancy. 34 % of women were in the age group of 46-50 years. 52 % of cases showed early age at menarche as risk factor, whereas 28’% of cases showed late age at menopause as a risk factor.18% of cases showed Nulliparity as risk factor whereas 18 % of cases showed absent breast feeding as risk factor. 38% of cases showed obesity increasing risk of carcinoma breast and a maximum of 47%cases presented in stage IIIB of TNM staging. All cases were treated with a combination of both surgical and Chemotherapy, hormonal therapy. All the patients received radiotherapy except for 2 patients in the stage IIA.

To conclude, the results of the present study focused on age group of 46- 50 years who showed increased risk for development of carcinoma breast. The risk factors that were evident from the present study were early menarche, delayed menopause, first pregnancy at later age. Apart from the above-mentioned risk factors, Nulliparity and non-breast our feeding was also evident in the study. In addition, obesity also showed positive results as a risk factor.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Thilagam RN, Anbalagan P. Breast carcinoma and its relation to risk factor: an institutional study at Government Vellore Medical College, Vellore, India. Int Surg J 2018;5:3316-20.