

# Profile of Breast Cancer Patients Presenting At a Tertiary Care Centre in an Indian Himalayan State

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## ABSTRACT

**Background:** Breast cancer is the commonest cancer in urban Indian women and second commonest in rural Indian women. Indian women present with breast cancer at a relatively younger age. Present study describes profile of female breast cancer patients in Indian Himalayan state.

**Methods:** This record based descriptive study was conducted in the Department of Radiotherapy and Oncology, Indira Gandhi Medical College, Shimla, Himachal Pradesh, India. It included 137 females with histologically confirmed breast cancer. The details like age, residence, histology and TNM stage at presentation were recorded and evaluated.

**Results:** Mean age of patients was  $55.14 \pm 11.32$  years. Maximum patients belonged to 41 to 50 years age group. Invasive ductal carcinoma; not otherwise specified (NOS) was most common histology. Majority of patients belong to rural background. Stage II was the most common stage at presentation followed by stage III. This study shows that 49.64% presented with advanced stage (Stages III and IV) of breast cancer and 52.94% of these cases were  $\leq 50$  years of age.

**Conclusions:** It was found that majority of the breast cancer patients belong to 41-50 years age group in our Indian Himalayan state and this finding is in line with data from other parts of India and other Asian regions. These young women commonly present with stage II or stage III breast cancer.

**Keywords:** Breast cancer, young age, TNM staging, Himalayan population

## INTRODUCTION

Breast cancer is the most commonly diagnosed cancer in women in majority of the countries and a leading cause of cancer death among women worldwide. Breast cancer is ranked number one cancer among Indian females. [1] With rising incidence and awareness, breast cancer is the commonest cancer in urban Indian women and second commonest in rural Indian women. [2] Increasing urbanization and westernization associated with changing lifestyle and food habits has lead breast cancer to attain top position in all major urban registries. [3]

In India, the average age of developing breast cancer is different. Breast cancer occurs one decade earlier in Indian women as compared to Western women suggesting that Indian females present with breast cancer at a younger age. [4,5] The peak age of presentation is between 40- 50 years for Asian women and 60- 70 years for Western women. [6]

More than 80% of Indian patients are younger than 60 years of age. The average age of patients in 6 hospital- based registries ranged from 44.2 years in Dibrugarh, 46.8 years in Delhi, 47 years in Jaipur, to 49.6 years in Bangalore and Chennai. [7] Breast cancer in young age is very aggressive and has a worse clinical

outcome as compared to that in the older group. [8,9] Young age is associated with large tumor size, higher number of axillary lymph node metastases, high pathological grade, poor hormone receptor status, earlier and more frequent loco-regional recurrences and poorer overall survival. [2]

In India, majority of new breast cancer cases are advanced stage or locally advanced at the time of diagnosis. [10,11] According to various studies majority of breast cancer cases in the West report in Stages I and II of disease, whereas in India 45.7% report in advanced stages. [6,12]

Number of studies have been published with respect to epidemiological and clinicopathological profiles of breast cancer patients from India. [4,5,13-15] Present study describes profile of breast cancer patients presenting at a tertiary care centre in Indian Himalayan state.

## MATERIALS AND METHODS

This record-based descriptive study was conducted in the Department of Radiotherapy and Oncology, Tertiary Care Cancer Centre, Indira Gandhi Medical College, Shimla in Himachal Pradesh state of India. It included women with histologically confirmed breast cancer, who were registered from January 2014 to December, 2014. After obtaining approval from the Institutional Ethics Committee, all the files of breast cancer patients were reviewed. The details like age, residence, histology and TNM stage at presentation were recorded. Staging was done according to Tumor Node Metastasis (TNM) classification (based on American Joint Committee on Cancer system- 2010).

## STATISTICAL METHODS

The data was collected, entered and cleaned using Microsoft Excel spreadsheet. The data was checked for normal distribution. We presented the quantitative data as mean and standard deviation; and the qualitative data was presented as frequencies and proportions. The data was

analysed using software EpiInfo Version 7.2.

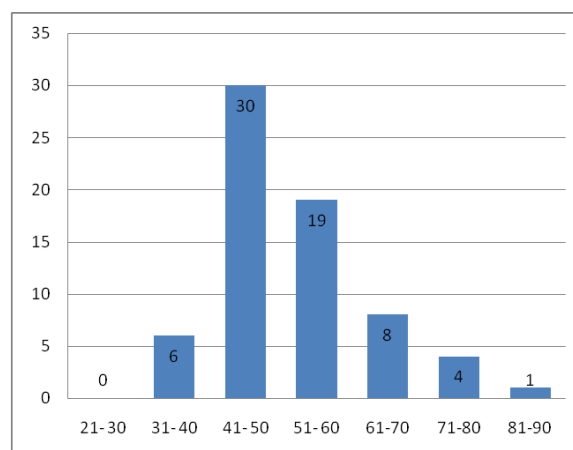
## RESULTS

A total of 139 patients were registered in year 2014 at our institution. Out of these, two male patients were excluded. Hence, a total of 137 female breast cancer patients were included in the study. Minimum age was 33 years and maximum was 82 and mean age of patients was 55.14 years (standard deviation = 11.32). Maximum patients belonged to 41 to 50 years age group. Out of 137 patients, 76 (55.5%) were  $\leq 50$  years of age (Table 1).

Table 1. Age group wise distribution of breast cancer patients

Age group	N	%
21- 30	0	0
31- 40	20	14.60%
41- 50	56	40.88%
51-60	34	24.81%
61-70	17	12.41%
71- 80	7	5.11%
81-90	3	2.19%

Of the total 137 patients, 69 (50.36%) presented with early stage (Stage I and II) and 68 (49.64%) presented with advanced stage (Stages III and IV) of breast cancer. About 52.94% (36/68) of these advanced stage cases were  $\leq 50$  years of age (Graph 1).



Graph 1: Age wise distribution of advanced breast cancer cases

In our hospital, 91.24% (125/137) of breast cancer patients belonged to rural background. Invasive ductal carcinoma; not otherwise specified (NOS) was the most

common histology (91.90%, 126/137) followed by invasive lobular carcinoma (5.10%, 7/17). Other variants included medullary carcinoma (1.46%, 2/137), mucinous carcinoma (0.72%, 1/137) and apocrine carcinoma (0.72%, 1/137).

Stage wise distribution of cases reflected that 5 (3.64 %) were in stage I, 64 (46.7%) in stage II, 46 (33.5 %) in stage III and 22 (16.05 %) in stage IV. Overall, Stage II was the most common stage at presentation followed by stage III. Tumor, node, and metastasis (TNM) staging showed that most common group was T2N0M0 (18.98%) followed by T2N1M0 (17.52%) (Table 2).

**Table 2. Tumor, node, and metastasis (TNM) staging among breast cancer patients**

Staging	TNM	N	%
IA	T1N0M0	5	3.65
IIA		31	22.63
	T0N1M0	0	0
	T1N1M0	5	3.65
	T2N0M0	26	18.98
IIB		33	24.09
	T2N1M0	24	17.52
	T3N0M0	9	6.57
IIIA		19	13.87
	T0N2M0	0	0
	T1N2M0	0	0
	T2N2M0	5	3.65
	T3N1M0	12	8.76
	T3N2M0	2	1.46
IIIB		24	17.52
	T4N0M0	2	1.46
	T4N1M0	12	8.76
	T4N2M0	10	7.30
IIIC	Any T N3M0	3	2.19
IV	Any T Any N M1	22	16.06

## DISCUSSION

Breast cancer incidence rates increase with age throughout the lifespan in Western countries, although the rate of increase is greater up to the age of 50 years than after 50 years. [16] The mean age of women with breast cancer in our study is 55.14 years which is higher than reported by Chopra B et al. [4] In our study maximum patients belong to 41 to 50 years age group. Chopra B et al. [4] found that there were two peaks in the age group at diagnosis of breast cancer i.e. 41-50 years age group and 51-60 years age group. Nigam et al. [17] suggested that most common age of presentation was in 4<sup>th</sup> -5<sup>th</sup> decade of life. This reflects that

Indian women commonly present with breast cancer before 50 years of age.

The majority of the patients in our study are from rural area (91.24%) and the remaining from urban area (8.76%). The majority of the population (89.96%) belongs to rural background in Himachal Pradesh, though 68.84% of the total Indian population is rural. [18]

Invasive ductal carcinoma; not otherwise specified (NOS) is the most common histology followed by invasive lobular carcinoma which is consistent with the literature published. [5,13]

In our study, stage wise distribution of cases reflected that Stage II is the most common stage at presentation (46.72%, 64/137) followed by stage III (33.58%, 46/137). Wani et al. [15] observed that stage IIB is the commonest stage followed by stage IIIA and stage IIIB. Saxena et al. [13] observed that stage IIIB is commonest followed by stage IIIA and stage IIB. In the present study, Tumor, node, and metastasis (TNM) staging shows that most common group is T2N0M0 (18.98%) followed by T2N1M0 (17.52%). This is in line with findings of Nigam et al. [14] where most common group was pT2N0 M0 (19.5%) followed by pT2N1M0 (17.1%).

In our study, patients in ≤50 years age group belonging to stage II or III breast cancer are 78.95% (60/76). Gajdos et al., [19] demonstrated that 60% patients were more likely to be diagnosed with Stage II or III cancer in the age group younger than 36 years.

According to various studies, majority of breast cancer patients in the West present in stages I and II of disease, whereas in India 45.7% report in advanced stages. [6,12]

In our study, 49.64% (68/137) presented with advanced stage (Stages III and IV) of breast cancer and approximately 53%, (36/68) of these advanced stage cases were ≤ 50 years of age

Chopra B et al. [4] reported that 45% patients presented with advanced stage

disease and 77.7% patients out of these advanced cases were below 50 years of age.

## CONCLUSION

In conclusion, this study has shown that majority of the breast cancer patients belong to 41-50 years age group in our Indian Himalayan state. These young women commonly present with stage II or stage III breast cancer. Breast cancer education regarding various risk factors and self breast examination can help in raising awareness and reducing the fear and stigma of this disease. Implementation of screening programs and free breast cancer detection camps can promote diagnosis of breast cancer at early stage, which is associated with higher long-term survival rates.

The main limitation of this study was small sample size and retrospective analysis of data. So, the findings cannot be generalized and we need to confirm these findings on a larger prospective study.

## Declarations

Sources of financial support: Nil

Conflict of interest: None

Ethical approval: Institutional ethical committee

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