

Sociodemographic and Clinical Profile of Breast Cancer Patients in a Tertiary Care Hospital of Kashmir, India

Bhat Manzoor Ahmad¹, Dar Abdul Waheed², Lone Mushtaq Ahmad³, Kaneez Subiya⁴, Kuchay Sonallah⁵

¹Associate Professor, Department of Radiation Oncology, Government Medical College, Srinagar, Jammu and Kashmir, India, ²Senior Resident, Department of Radiation Oncology, Government Medical College, Srinagar, Jammu and Kashmir, India, ³Associate Professor, Department of General Medicine, Government Medical College, Anantnag, Jammu and Kashmir, India, ⁴Assistant Professor, Department of Radiation Oncology, Government Medical College, Srinagar, Jammu and Kashmir, India, ⁵Professor, Department of Radiation Oncology, Government Medical College, Srinagar, Jammu and Kashmir, India

Abstract

Introduction: Globally, breast cancer is leading to cancer found among women. It is well known that cancer is an age-related disease and this holds true in breast cancer as well. Breast cancer is the most frequently diagnosed cancer in women, and it was estimated that there will be 252,710 new cases of invasive breast cancer and 63,410 new cases of *in situ* breast cancers among women in the United States in 2017.

Purpose: The aim of the present study was to analyze the demographic spectrum of breast cancers in the Kashmir valley.

Materials and Methods: This was an observational chart based study on breast cancer patients aged above 18 years of age who were diagnosed with either invasive or *in situ* breast cancer at Government Medical College Hospital, Srinagar, Kashmir. The duration of the study was from June 2015 to December 2018. A retrospective study was conducted to find the information regarding age, sex, clinical presentation, anatomical site, histopathological type, and stage of the disease.

Results: A total of 151 patients with histopathologically confirmed breast cancers formed the study population. The majority of the patients (46%) among females were <45 years of age and among males >45 years in age, with males and females constituting 4% and 96% of patients in their respective groups. The upper outer quadrant was involved in 81 (54%) patients followed by upper inner 14% and central quadrant involvement in 25 (16%) patients. Among 151 patients, 42 women (28%) presented in Stage IIA, 32 patients (21%) presented with Stage IIB disease, 19 patients (12%) in Stage IIIA, and 20 patients (13%) in Stage IIIC; however, 17 patients (11%) presented with Stage IV disease. G2 was the most common histological grade. On the whole, liver was the most common presenting site for distant metastasis followed by lung and brain metastases.

Conclusion: Early age, female sex, and residence within an endemic geographical region seem to be the prime determinants affecting breast cancer prevalence in a given population. A significant number of breast cancer patients in Kashmir present with early stage of disease and major clinical presentation were breast swelling. The majority of the cases reported in Stages II and III. Furthermore, there was significant number of patients presenting with metastasis, i.e., Stage IV.

Key words: Breast cancer awareness, Breast cancer, Sociodemographic profile

INTRODUCTION

Globally, breast cancer is leading to cancer found among women. It is well known fact that cancer is an age-related

disease which holds true in breast cancer as well. Breast cancer is the most frequently diagnosed cancer in women, and it was estimated that there will be 252,710 new cases of invasive breast cancer and 63,410 new cases of *in situ* breast cancers among women in the United States in 2017.^[1] In contrast to the significant number of breast cancer cases in women, it was expected that 2470 cases of breast cancer will be diagnosed in men in 2017, with approximately 460 breast cancer deaths in men. There is considerable geographic, ethnic, and racial variability in breast cancer incidence. Ethnicity and national origin rank highly as predictors of risk for breast cancer, with up to a 10-fold

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Corresponding Author: Dar Abdul Waheed, Department of Radiation Oncology, Government Medical College, Srinagar, Jammu and Kashmir, India.

variation throughout the world.^[2] Breast cancer in men is rare, accounting for <1% of breast cancer cases in the US. However, since 1975, the incidence rate has increased slightly from 1.0 case/100,000 men during 1975–1979 to 1.3 cases/100,000 men during 2010–2014. Men are more likely than women to be diagnosed with advanced-stage breast cancer, which likely reflects decreased awareness and delayed detection because screening mammography is not recommended for men due to the rarity of the disease.^[3] Compared with other well-established risk factors such as age of menarche and menopause, age at first childbirth, and family history, geographic and ethnic variability are quite significant. It is likely that a complex interaction of multiple factors, including genetic, environmental, and socioeconomic, contributes to the wide variability in age-adjusted incidence across populations. Breast cancer incidence has increased dramatically in many countries over the past two decades, especially in developing countries, which can be attributed largely to factors such as aging of the population, delaying the period of first pregnancy, and increased intake of high-calorie Western diets.^[4] A study by Hirko *et al.* noted that there was a steep increase in breast cancer cases from 2009 to 2015 especially among women aged 30–39 and among women aged 40–49 years.^[5] Postmenopausal breast cancer risk is about 1.5 times higher in overweight women and about 2 times higher in obese women than in lean women. This is likely due, in part, to higher estrogen levels because fat tissue is the largest source of estrogen in postmenopausal women.^[6] The tumor, node, and metastasis (TNM) classification of tumors uses information on tumor size and how far it has spread within the breast and to adjacent tissues (T), the extent of spread to the nearby lymph nodes (N), and the presence or absence of distant metastases (spread to distant organs) (M).

This study conducted in a tertiary cancer center reviewed the data of breast cancer patients registered and treated there with respect to their sociodemographic and clinical characteristics.

MATERIALS AND METHODS

This was an observational chart based study on breast cancer in female and male patients aged above 18 years of age who were diagnosed with either invasive or *in situ* breast cancer at Government Medical College Hospital, Srinagar, Kashmir. The duration of study was from June 2015 to December 2018. Clinically suspected breast carcinoma subsequently proved to be non-malignant lesions after histological examination; non-Hodgkin lymphoma and other non-epithelial tumors of the breast were excluded from this study. The study was conducted to find the information regarding age, sex, clinical presentation, anatomical site, histopathological type, and

stage of the disease including metastases. Scrutinization of all available records was done to get relevant information. Staging of cancer was done by American Joint Committee on Cancer 2018. Baseline investigations were done to assess the patient's fitness for surgery. Treatment modalities included surgery, neoadjuvant or adjuvant chemotherapy, hormonal therapy, and radiotherapy.

Statistical Analysis

A descriptive analysis was used to report the study results. Categorical data were summarized as percentages. We analyzed the cancer characteristics according to age and sex. The aim of the present study was to analyze the demographic spectrum of breast cancers in the Kashmir valley.

RESULTS

A total of 151 patients with histopathologically confirmed breast cancers formed the study population. The male to female ratio was 1:24. The majority of the patients (46%) among females were <45 years of age and among males >45 years in age, with males and females constituting 4% and 96% of patients in their respective groups. The age group varied from 16 to 80 years with most common age group <45 years followed by patients age 45–64 years. Less than 45 years age group constituted 46% of the cases. The majority of patients had Eastern Cooperative Oncology Group Performance score 1 (50%) followed by 0 (30%). However, 65 (43%) women were overweight body mass index (BMI >25) and 54 (36%) were obese (BMI >30). Married women were 148 (98.00%) and 3 (2%) were unmarried. The salient observations of the study are shown in Table 1.

Clinical Presentation, Anatomical Sites, Histological Patterns, and Tumor Stage

The duration of symptoms at presentation ranged from 1 month to 6 months, with a mean duration of 3 months. In breast cancers local swelling was the chief complaint in 80% of the patients followed by axillary swelling in 11% of the patients and ulcer in 9% of the patients, as shown in Table 1. Table 2 shows distribution of study subjects according to the breast quadrant involved. The upper outer quadrant was involved in 81 (54%) patients followed by upper inner quadrant 21 (14%) and central/retroareolar involvement in 25 (16%) patients. Lower inner quadrant was affected in 7 (5%) patients and lower outer quadrant was involved in 17 (11%) patients. The most common histopathological type of breast cancer detected was invasive ductal carcinoma in 148 (98%) patients followed by lobular carcinoma in 3 (2%) patients.

Table 3 shows the distribution of cases according to clinical stage of cancer at the time of presentation. Among 151

Table 1: Demographic profile

Observation	n	%
Age (years)		
<45	69	46
45–64	61	40
>64	21	14
Gender		
Male	6	4
Female	145	96
Performance score (ECOG)		
0	45	30
1	75	50
2	21	14
3	10	6
Presenting symptoms		
Breast swelling	120	80
Ulcer	14	9
Axillary swelling	17	11
Marital status		
Married	148	98
Unmarried	3	2
BMI (kg/m ²)		
<25	32	21
25–30	65	43
30+	54	36
Laterality in breast		
Right breast	80	53
Left breast	71	47
Total	151	100

ECOG: Eastern Cooperative Oncology Group, BMI: Body mass index

Table 2: Site/quadrants of breast cancer

Site of breast	n	%
Upper outer quadrant	81	54
Lower outer quadrant	17	11
Upper inner quadrant	21	14
Lower inner quadrant	7	5
Center/retroareolar	25	16
Total	151	100

Table 3: Tumor, node, and metastasis staging

Stage	n	%
IA	10	7
IB	4	3
IIA	42	28
IIB	32	21
IIIA	19	12
IIIB	7	5
IIIC	20	13
IV	17	11
Total	151	100

patients, 42 women (28%) presented in Stage IIA, 32 (21%) presented with Stage IIB disease, 19 (12%) in Stage IIIA, and 20 (13%) in Stage IIIC; 17 (11%) presented with Stage IV disease. G2 was the most common histological grade. On the whole, liver was the most common presenting site for distant metastasis followed by lung and brain.

Treatment Modalities

The treatment plan was made according to the stage of disease at presentation assessed by clinical examination and radiological findings. Operability and type of surgery were assessed by the operating surgeon by clinical examination and evaluation of imaging studies. Oncological treatments such as neoadjuvant or adjuvant chemotherapy, hormonal treatment, and radiotherapy were given according to indications and as per protocols.

DISCUSSION

Globally, breast cancer is leading to cancer found among women. It is well known fact that cancer is an age-related disease which holds true for breast cancer as well. Breast cancer is the most frequently diagnosed cancer in women, and it was estimated that there will be 252,710 new cases of invasive breast cancer and 63,410 new cases of *in situ* breast cancers among women in the United States in 2017.^[1]

The present study included 151 patients of breast cancer. A study by Hirko *et al.*^[5] noted that their study results showed a steep increase in breast cancer cases from 2009 to 2015, especially among women aged 30–39 and among women aged 40–49 years. Our study was similar to a study conducted by Hirko *et al.*, which showed the age group varied from 16 to 80 years with most common age group in breast cancer being <45 years followed by age range of 45–64 years.

Breast cancer in men is rare, accounting for <1% of breast cancer cases in the US.^[3] In contrast to the significant number of breast cancer cases in women, it was expected that 2470 cases of breast cancer will be diagnosed in men in 2017, with approximately 460 breast cancer deaths in men. A study conducted by Anderson *et al.* showed since 1975, the incidence rate has increased slightly from 1.0 case/100,000 men during 1975–1979 to 1.3 cases/100,000 men during 2010–2014. Our study was similar to Anderson *et al.*, in that the males and females constituting 4% and 96% of patients in their respective groups. The duration of symptoms at presentation ranged from 1 month to 6 months with mean duration of 3 months. In breast cancers local swelling was the chief complaint in 80% of the patients followed by axillary swelling in 11% of the patients and ulcer in 9% of the patients. The most common histopathological type of breast cancer detected was invasive ductal carcinoma in 148 (98%) patients followed by lobular carcinoma in 3 (3%) patients, findings which were similar to those of Meshram *et al.*^[7] and Sandhu *et al.*^[8] About 98% were married which were consistent with Montazeri *et al.*^[9]

In our study, left breast was affected in 71 (47%) cases while right breast was affected in 80 (53%) cases, which was in

contradiction to study conducted by Meshram *et al.*,^[7] who found that 50.48% of cases had breast cancer on left side and 49.52% of cases had it on right side. On the whole, most studies do show that the left side involvement is more common than right although no reason has been found for this.

The distribution of disease site in this study as per the quadrant of breast involved, showed upper-outer quadrant to be involved in 81 (54%) patients followed by upper-inner quadrant in 14% and central or retroareolar area in 25 (16%) patients. Lower-inner quadrant was involved in 7 (5%) patients and lower-outer quadrant in 17 (11%) patients. This is consistent with Sandhu *et al.* (2010)^[8] who found that majority (47.75%) patients of breast cancer, upper- outer quadrant was involved.

The distribution of cases according to the TNM classification/stage of cancer at the time of presentation showed that among 151 patients, 42 women (28%) presented in Stage IIA, 32 (21%) presented with Stage IIB disease, 19 (12%) in Stage IIIA, and 20 (13%) in Stage IIIC. Around 17 (11%) presented with Stage IV disease. Our study was in contradiction to study conducted by Raina *et al.*^[10] who noted that the most commonly observed stage of presentation was Stage IIIB in 35.2% cases, followed in decreasing order by Stages IIIA, Stage IIB, Stage IV, and Stage I. Meshram *et al.*^[7] and Harrison *et al.*^[11] also found that most of the cases were detected in Stage III and Stage IV.

Postmenopausal breast cancer risk is about 1.5 times higher in overweight women and about 2 times higher in obese women than in lean women. This is likely due, in part, to higher estrogen levels in obese females because fat tissue is the largest source of estrogen in postmenopausal women.^[6] The present study was similar to a study conducted by La Vecchia *et al.* 2011, which also showed that 65 (43%) women were overweight (BMI >25) and 54 (36%) were obese (BMI >30).

Limitations

We do accept that there were some limitations that we appreciated during the course of this study. First, the number of patients enrolled in the study was less, the reason for which, partly, is that majority of patients go for treatment to another tertiary care center in our valley at Skims Soura and a few who can afford to spend money on their treatment go to corporate cancer centers outside Kashmir valley. Hence, our study group may not reflect the actual prevalence and incidence of breast cancer in the whole population in this region. Despite this, our institution is the first level contact between patient and doctor and hence, caters to the initial management of a large chunk

of patients. In this context, our department has started a hospital-based cancer registry for past 1 year so that more comprehensive data will be generated. In any case, the data presented in the current study may reflect the nature of the disease in this population and emphasize the significance of early diagnosis by proper and timely evaluation and management of the disease in a multidisciplinary setting.

CONCLUSION

Early age, female sex, and living within an endemic geographical region seem to be the prime determinants affecting breast cancer prevalence in a given population. Early detection will reduce the number of deaths of breast cancer patients. A significant number of breast cancer patients in Kashmir present with early stage of disease probably due to breast self-examination awareness with major clinical presentation being a breast swelling. The majority of the cases in our study presented in Stages II and III, but there were quite few patients presenting with metastases, i.e., Stage IV. The reason for this may be due to lack of knowledge about the disease in these patients or more commonly due to social reasons, which make females especially in far off rural areas to hesitate in seeking medical advice. People should be educated for an early consultation if and when symptoms develop and high-risk individuals should be encouraged for screening. The health program about breast cancer screening, symptoms, presentation, etc., should be carried out in far off and inaccessible areas to give more information about cancer to people who actually need it and who do not have access to such endeavors and public outreach programs.

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