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ORIGINAL RESEARCH ARTICLE

Assessment of Delay in Treatment of Breast Cancer: Trend and Determinants

Kavish Arora[1], Rashika Sachan[2*], Piyush Kumar[3]

ABSTRACT

Introduction: In developing countries, most breast cancer patients with advanced stage. Stage at diagnosis is the most important prognostic factor, but delay in diagnosis and treatment of breast cancer is not uncommon, especially in developing countries. This study was conducted to analyze the barriers in the early detection of cancers and to address the obstacles, which could be reciprocated in improvement.

Material and methods: This hospital-based, cross-sectional study was conducted in the Department of Radiation Oncology at Shri Ram Murti Smarak Institute of Medical Sciences, located in Bareilly, Uttar Pradesh. All the patients of breast cancer who had presented first time in OPD, from 01.01.2025 till 31.03.2025, as well as those who have recently started treatment, were taken in this study, considering they were able to recall the details required, have been enrolled in this study.

Data from the questionnaire were entered in Excel sheets and given proper codes for calculation. Frequencies and proportions were calculated, majorly in the form of mean or median values.

Results: A total of 41 patients has been enrolled. The median age of presentation for breast cancer was 50 years (range 31-67 years), 41.4% were illiterate, 63.4% belonged to rural areas, and 85.4% were financially dependent. The median time interval between noticing symptom first time and seeking first consultation (T1) was 30 days (10–60 days); first consultations to reaching tertiary cancer center (T2) 20 days (10–40 days); to make diagnosis was 7 days (4–9 days); from diagnosis to start treatment was 6 days (3–10 days) while overall median delay was 50 days (10–60 days).

Conclusion: There was insufficient knowledge and awareness of breast cancer, its risk factors, symptoms, treatment, or available healthcare facilities in close proximities, especially in rural areas that too delay in treatment of breast cancer patients. Cancer screening and awareness may lead to early presentation in the hospital for treatment.

Keywords: Breast cancer, Delay, Determinants.

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[1]Undergraduate (MBBS), [2]Assistant Professor, [3]Professor,

Department of Radiation Oncology, Shri Ram Murti Smarak Institute of Medical Sciences, Bareilly, Uttar Pradesh, India.

***Corresponding Author:** Rashika Sachan, Assistant Professor, Department of Radiation Oncology, Shri Ram Murti Smarak Institute of Medical Sciences, Bareilly, Uttar Pradesh, India, e-mail: sachanrashika@gmail.com

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INTRODUCTION

In developing countries, most breast cancer patients are in advanced stages. The stage at diagnosis is the most important prognostic factor in malignancy of any site,[1] but delay in diagnosis and treatment is not uncommon, especially in developing countries.[2] Delay may happen due to late presentation of symptoms (deep situated tumors usually go unnoticed), lack of awareness[3] about tertiary care centers, financial constraints, long waiting periods or limited health care facilities at nearby centers, etc. Recently, the concept of 'health-seeking behavior' has also gained attention to understand delaying factors related to the beliefs and preferences of various population groups.[4-7]

The underlying cause of delay can be analyzed in three broad categories: the period between notice of symptoms and first consultation with health care professional (as patient delay), the period from first consultation to start of investigations for cancer-related symptoms (doctor delay), and the period from initiation of investigations to commencement of treatment (system delay).[8]

The present study was needed to understand the factors involved in all these three categories of delay by using customized questionnaire proforma (annexure-1).[9]

The results of such a study may be helpful as an initial point to analyze the barriers to early detection of cancers, and addressing the obstacles could be reciprocated in improvement.

MATERIAL AND METHODS

Study Setting

Hospital-based, cross-sectional study.

Study Area

Department of Radiation Oncology, Shri Ram Murti Smarak Institute of Medical Sciences, Bareilly

After seeking institutional ethical clearance. All the patients of breast cancer presented in R R cancer OPD for the next 3 months have been enrolled in this study. All patients who presented to the R.R. cancer OPD for the first time from 01.01.2025 to 31.03.2025, as well as those who had recently started treatment, were included in this study. Those who were able to recall the required details were enrolled.

Study Duration

3 months.

Data Retrieval

From customized proforma designed for study.

Inclusion Criteria

all patients of breast cancer who had not taken any cancer-directed therapy previously for the same and presented first time in our OPD, as well as who have recently started on treatment, were taken in this study, considering they were able to recall the details required.

Exclusion Criteria

Patients who have completed cancer-directed treatment.

Survey Tools

A customized questionnaire for patients was taken from a study conducted by Unger-Saldaña *et al*.[9] Patients' demographic data, such as age, education level, marital status, and financial dependency on the provider, were included in the first category. In the second category, the history of the present disease and other associated characteristics were included. In the third category, patients' and providers' (spouse or the person bearing the treatment expenses) attitudes and general awareness towards the disease, such as its symptoms, risk factors, screening, diagnosis, and available treatment, were included.

Data Collection and Analysis

Data from the questionnaire were entered into Excel sheets and given proper codes for calculation. Frequencies and proportions were calculated, majorly in the form of mean or median values.

Most of the questions in the questionnaire were coded in 'yes' or 'no' and given code 1 or 2, respectively.

RESULTS

A total of 41 patients have been enrolled in this study from February 2025 to April 2025. All the data has been collected in pro forma by taking details from the patient themselves and from a spouse (considering they are the primary provider) wherever possible.

In this study, the median age of presentation for breast cancer was 50 years (range 31–67 years). Of the patients, 16 (39%) were 45 years of age or younger. To estimate education level, a score of 1 was given to illiteracy, a score of 2 to primary education, and a score of 3 to at least completing higher secondary education. About 17 women (41.4%) were found to be illiterate, 19 (46.3%) were educated to the primary level, while only five (12.3%) had gained education up to or above higher secondary (Table 1).

To understand patients' psychology or thought process regarding health awareness and symptoms, they were questioned whether they were aware of the screening process for cancers (Table 2).

All 41 patients had noticed the symptoms by themselves, and the first symptom noted, and the most worrisome one was lump only.

About 19 females (46.3%) were noticed and worried but not consulted to specialist while 22 (53.6%) had consulted general physician or specialist which reflects the mindset and awareness of females towards their own health. But none of them had perceived it as severe as malignancy, initially.

After noticing symptoms, till the time they reached to hospital, with dedicated cancer services, most of them had developed lymphadenopathy or lump pain. Patients also enquired about breast ulcers, arm pain, paraesthesia of the breast and/or breast skin changes, ipsilateral arm, breast ulcer, breast pruritus, breast enlargement, and form changes of the breast nipple discharge, but these

Table 1: Distribution of socio-demographic, clinical and other vaiables among study subjects

Variables	*Frequency*
Age (in years) median 50 years	
< 45	16 (39%)
>45	25 (61%)
Literacy status	
Illiterate	17 (41.4%)
Primary schooling	19 (46.3%)
Higher secondaries	5 (12.3%)
Residence area	
Rural	26 (63.4%)
Urban	15 (36.5%)
Financially dependent	
Yes	35 (85.4%)
No	6 (14.6%)
Family history of breast cancer	
Yes	0
No	41 (100%)
Awareness about breast cancer	
Rural	7 (17%)
Urban	10 (66.7%)

symptoms were not common. Most of the patients (20, 48.7%) had reached the dedicated cancer care centers only when the symptoms started worsening. Only 12 (21.9%) had consulted immediately after noticing symptoms. In 9 (21.9%) had waited for symptoms to resolve on their own and consulted for the persistence of symptoms.

To analyze the reasons for the delay in diagnosis, 29% of patients delayed themselves due to being uncomfortable with sharing the facts, but in most cases, the delay was on the provider's side (56%). Table 2 shows different reasons for the delay in detail, either from patients themselves or by providers.

After realization or diagnosis, most patients (73%) sought consultation in the private sector instead of the public sector or other healthcare facilities. The possible reason could be lack of any public tertiary healthcare centre nearby. Most of the patients (78%) had also taken a second opinion or more than two healthcare services.

The diagnostic impression of the first doctor consulted was carcinoma in 30 (73%) cases, while in 10 cases (24.3%), it was misdiagnosed as inflammation, and conservative treatment was started. These cases were further referred by a primary physicians to higher centers as symptoms were not improved.

In our study, the median time interval between noticing the symptom first time and seeking the first consultation (T1) was 30 days (10–60 days); first consultations to reaching the tertiary cancer center (T2) 20 days (10–40 days); to make diagnosis was 7 days (4–9 days); from diagnosis to start treatment was 6 days (3–10 days) while the overall median delay was 50 days (10–60 days).

Table 2: Patient's perceived barriers to have caused care provider delay

Delay stage	*Perceived reasons*	*Frequency*
Patient's perceived barrier to delay in treatment	Thought symptoms would resolve alone.	24 (58.5%)
	Carelessness/neglect	15 (36.5%)
	Didn't know where to seek care	7 (17%)
	Lack of Financial resources	30 (73%)
	Shame associated with disease	29 (70.7%)
	Fear of treatment	19 (46.3%)
	Absence of pain	15 (36.5%)
Care provider's perceived barrier to delay in treatment	Lack of information on health services	11 (26.8%)
	Lack of financial resources	30 (73.1%)
	Fear	19 (46.3%)
	Difficulty to miss work	4 (9.7%)
	Perceived error in diagnosis of the first doctor consulted.	8 (19.5%)
	Long waiting time for medical appointments or misdiagnosis	12 (29.2%)
	Had to take care of youngsters, elders, or ill relatives	15 (36.5%)
	Information not available	10 (24.3%)

DISCUSSION

This study was done in a tertiary care center, well equipped with all the possible cancer care facilities were available needed to treat breast cancers.

Our study observed a median age of 50 years and an age range of 31 to 67 years, which is comparable to other Indian studies. Chandra *et al*., show the average age of breast cancer of 49.16 years.[10] Similarly, Somanna *et al.,* had also observed a median age of 49 years in study with a range of 20 to 83 years.[11] The difference in range may be due to the difference in sample size, which is much less (41) in comparison to this study (181). In this same study, cases diagnosed below the age of 45 years were 40.3%, while in our study, it was 16 (39%). Pakseresht *et al.,* had reported 38.4% of diagnosed breast cancer at or below age 40.[12] This data is different from global data of 61.8 years as reported in Bidoli E *et al.,* which may be due to differences in demography and other modifiable known risk factors.[13]

Many studies have shown that delays in consultation are often associated with low socio-economic status, where education levels are also low, leading to a lesser understanding of diseases and the importance of early consultation and diagnosis and a shift in priorities from health to basic sustenance. In our study, the literacy level was noted in almost half of the population (58.7%), and a total of 6 (14.6%) patients were financially independent of the provider. Women from rural areas (26; 63.4%) were a major portion of this study. Several studies have suggested that education level and employment are also associated with general awareness about health and the significance of early consultation with specialized health care centers, which in turn reflects in cure and overall survival.[16-18] Hence, measures to spread awareness

about the signs and symptoms of cancers and available treatment options should be taken through cancer awareness camps.

Cultural and religious factors also played an important role in seeking health services indirectly due to stigma, fear, and shyness to share problems related to private parts of the body, especially noticed in Muslim women.[19,20]

In our study, only 13 (32%) women had some knowledge about breast cancer, mostly gained by overhearing the cancer incidence among relatives or neighbors. Studies from India and other developing countries have shown large data of women lacking knowledge of any aspect of breast cancer.[21-23] Uche *et al.* observed that very few (4.6%) women were aware of self-breast examination, which is also similar to our study (4.8%).[24] Awareness about screening was also acknowledged by less than 3% of women. These studies show the need for awareness campaigns about every aspect of breast cancer, including screening programs in rural as well as urban areas.

The delay in diagnosis and treatment directly affects overall survival in all types of malignancies. A study from Tata Memorial Hospital done by Dinshaw *et al*. showed that more than 70% of women in India who were diagnosed at an advanced stage got much less effect than expected after any form of therapy.[25] In our study, the median time interval between noticing symptoms the first time and seeking the first consultation (T1) was 30 days; first consultations to reaching the tertiary cancer center (T2) 20 days; to making a diagnosis was 7 days; from diagnosis to start treatment was 6 days while the overall median delay was 50 days. These time intervals were different for other studies. Lim *et al*., and Gangane *et al*., demonstrated a delay of more than 3 months, particularly in the T1 category.[26,27] This difference might be due to a smaller number of women (22%) having visited multiple physicians in comparison to other studies. Shieh *et al*., and Moodley *et al*., demonstrated in their studies that visiting multiple consultants was a primary reason for prolonging the T1 interval. Other reasons were financial constraints or unawareness of the diagnosis and treatment of breast cancer.[28,29]

In our study, the delay experienced by patients in the initial stage was mostly due to shame associated with the disease (71%), which was comparable to the study by Sree Kutty S J *et al*., where patients had the impression that the symptoms would resolve on their own (59%).[30] In some cases, symptoms were neglected due to the absence of pain (37%) or a careless attitude toward own health. Patients with advanced stages had delayed their treatment mostly due to financial constraints (73%) or fear of treatment (46.3%). A study done by Otieno *et al*. also showed that nearly 40% of patients were delayed in taking treatment as they failed to notice the painless lump early.[31]

This study also analyzed the delay caused by the care provider. The main factors were a lack of financial resources (73.1%), a lack of information (26.8%), and fear or inhibition (46.3%) in reaching the tertiary healthcare facility due to distance or being in a different city. Some (36.5%) also mentioned a lack of time, as they had to take care of other ill family members, including youngsters and elders.

In a few cases (29%), care providers cited the reason for delay as being due to long waiting lists in renowned government healthcare facilities, and sometimes misdiagnosis and false reassurance provided by primary physicians. Kumar *et al*., also suggested that primary health care providers need to be sensitized and trained in screening for breast cancer and referral of suspected cases of cancer. It is also noted that a number of dedicated cancer care facilities should be established to cover the maximum number of remote areas and decrease the overall burden of cancer.[32]

Our study found no delay in the hospital system and management of our institute. The time taken between consulting in a tertiary center and diagnosis (T3) and the start of treatment (T4) was appropriate in our study, with median times of 7 and 6 days, respectively.

Overall, the median delay from noticing symptoms to the start of final cancer-directed therapy (T5) was 50 days, with the main contributions due to patients' delays and providers' delays. It also suggests the importance of spreading information regarding screening, signs and symptoms, risk factors, early detection of breast cancer or any other malignancy, and fund-providing agencies either through government or NGOs.

CONCLUSION

This study analyzed insufficient knowledge and awareness of breast cancer, its risk factors, symptoms, treatment, and available healthcare facilities in close proximities, especially in rural areas. Very few patients were aware of cancer screening programs or self-breast examinations, which suggests the need for screening and awareness camps more frequently. Knowledge regarding self-breast examination also need to be introduced in such camps. To make it more comprehensive, visual diagrams or videos explaining the examination procedure should be included. The target population for the awareness program should also include young girls from school so that they can be aware of all aspects of this disease and also encourage their mothers and female relatives to participate in such camps.

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