

Clinical and Epidemiological Evaluation and Assessment of Various Modes of Therapeutic Management of Locally Advanced Carcinoma of Breast in a Tertiary Care Hospital: An Observational Study

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Abstract

Background: Worldwide breast cancer is the most frequent cancer in women and represents the second leading cause of cancer death among women (after lung cancer). Higher incidence in developing countries is due to lack of active screening, and early detection programs, low awareness of breast cancer, poor access to health care due to poverty, and cultural issues are other contributory factors for late presentation. The locally advanced breast cancer (LABC) is characterized by varying clinical presentations of tumors belonging to Stages IIIA, IIIB, IIIC, and inflammatory breast cancer and the aim of this study is to evaluate the epidemiologic characteristics such as age distribution, clinical presentation, stage at presentation, and various modalities of treatment.

Methodology: The present study is a descriptive hospital-based study conducted in the department of general surgery in a tertiary care hospital during the period of November 2013–October 2015. All patients presenting to the hospital with Stage IIIA, IIIB, IIIC, and inflammatory carcinoma were included in the study. The multimodality treatment approach of LABC commenced in the majority of cases with neoadjuvant chemotherapy (NACT), followed by local therapy in the form of modified radical mastectomy (MRM) (Auchincloss modification). The patients were then subjected to consolidating radiotherapy to locoregional area.

Statistical Analysis: Descriptive statistics were done. Data were expressed as absolute numbers and percentage.

Results: Observations were made regarding demographics, quadrants involved, menstrual status, tumor size, and fixity to chest wall, lymph node status, stage of the disease, inoperability, chemotherapy regimen, receptor status, and complications of surgery.

Conclusion: Patients administered NACT showed a good response with 13.2% and 65.8% of the patients showing clinically complete and partial response, respectively. 92% of inoperable tumors became operable confirming that NACT is an effective method of downstaging the tumor.

Key words: Chemotherapy, Locally advanced breast carcinoma, Metastasis, Radiotherapy, Surgical treatment

INTRODUCTION

Worldwide breast cancer is the most frequent cancer in women and represents the second leading cause of cancer

death among women (after lung cancer).^[1,2] Hippocrates of the 5th century B.C. has considered cancer of the breast incurable and a classic description of a woman succumbing of late breast cancer appears in his volume “diseases of women.”

At present, 75,000 new cases occur in Indian women every year. Locally advanced breast cancer (LABC) constitutes more than 50–70% of the patients presenting for treatment.^[3] Higher incidence in developing countries is due to lack of active screening, and early detection programs, low awareness of breast cancer, poor access to health care

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due to poverty, and cultural issues are other contributory factors for late presentation.^[4,5] The LABC is characterized by varying clinical presentations such as presence of a large primary tumor (>5 cm), associated with or without skin or chest-wall involvement or with fixed (matted) axillary lymph nodes or with disease spread to the ipsilateral internal mammary or supraclavicular nodes in the absence of any evidence of distant metastases. These are tumors belonging to Stages IIIA, IIIB, IIIC, and inflammatory breast cancer.

Although the clinical features at presentation and prognosis among women with LABC vary, there are two common problems in the treatment. Achieving local control and prolonging survival by preventing or delaying distant metastasis.

Today treatment of LABC requires a combination of systemic and local/regional therapies.^[6,7] The most common approach for treating LABC in developed countries consists of neoadjuvant chemotherapy (NACT) with anthracyclines and taxanes followed by surgery and radiation therapy; hormonal treatment is added for receptor-positive disease, and patients with HER2/neu-positive disease receive trastuzumab therapy.^[8,9] Most patients have good clinical responses to induction chemotherapy in both the primary tumor and regional lymph nodes.

An attempt is made in this study to evaluate the epidemiologic characteristics such as age distribution, clinical presentation, stage at presentation, and various modalities of treatment.

Aims and Objectives

The objectives are as follows:

- To study the clinical presentation of locally advanced breast carcinoma
- Age distribution of locally advanced breast carcinoma
- To study the various modes of management
- Neo-adjuvant chemotherapy
- Surgery and immediate post-operative complications
- Commonly used chemotherapy regimens and immediate adverse effects, i.e., cyclophosphamide, methotrexate and 5-fluorouracil (CMF) doxorubicin and cyclophosphamide (AC), and other modalities such as hormonal therapy and radiotherapy.

MATERIALS AND METHODS

The present study is a descriptive hospital-based study conducted in the department of general surgery in a tertiary care hospital during the period of November 2013–October 2015.

Sample size: The sample size was 50 patients.

Method of Collection of Data

Inclusion criteria

All patients presenting to the hospital with Stage IIIA, IIIB, IIIC, and inflammatory carcinoma were included in the study.

Exclusion criteria

Patients who were clinically diagnosed as having LABC (i.e., Stage IIIA, IIIB, IIIC, and inflammatory carcinoma) but on investigations found to have distant metastasis were excluded from the study.

Fine needle aspiration cytology and other investigations that were available in the hospital were utilised for the diagnosis of Breast cancer.

Routine investigations such as complete blood count, urine analysis, random blood sugar, blood urea, and serum creatinine and electrocardiogram were obtained.

For patients to be put on doxorubicin echocardiography were done and ejection fraction noted.

Investigations to rule out metastasis were obtained. Ultrasonography abdomen and pelvis liver function test, chest X-ray, and skeletal X rays were done.

The multimodality treatment approach of LABC commenced in the majority of cases with NACT, followed by local therapy in the form of modified radical mastectomy (MRM) (Auchincloss modification). Chemotherapy was resumed to complete a total of 6 cycles.

The patients were then subjected to consolidating radiotherapy to locoregional area. The patients with inoperable tumors who showed no change in the size of tumors, which showed no decrease in the size of a tumor following NACT were subjected to radiotherapy as local therapy and followed up further.

Measure of response to neoadjuvant (induction) chemotherapy:

- Clinical complete response (CR) is defined as no palpable tumor in the breast and axilla.
- >50% reduction in the size of tumor was taken as a partial response (cPR).
- <50% reduction in the size of tumor was taken as stable disease (SD).

In certain cases of Stage IIIA disease considered operable at presentation (Stage T3N1) treatment is initiated with local therapy, i.e., MRM (Auchincloss modification) followed by adjuvant chemotherapy with a standard chemotherapy regimen. Furthermore, hormonal modality and regional radiotherapy are used as mentioned earlier.

The response to NACT was studied by serial clinical examination noting the regression in the size of the lump (or ulcer) and change in the lymph node status of axilla:

- <50% of reduction in size was taken as SD.
- The patients who had no change in size of tumor following NACT were subjected to radiotherapy and followed up.

OBSERVATIONS AND RESULTS

Proportion of Cases

The total number of patients with carcinoma breast admitted during the study period was 136. Out of these 60 patients were identified as patients of LABC based on the accepted definition. Thus, 44% of patients admitted with carcinoma breast presenting for treatment were identified as patients with LABC as represented in Figure 1.

Age Distribution

The age of the presenting patients ranged from 27 to 65 years. The highest number of patients was in the age group of 41–50 years age group with 17 (34%), followed by 31–40 years age group with 13 (26%). The mean age of patients was 45.1 years as represented in Table 1 and Figure 2.

Duration of Symptoms

The highest number of patients had symptoms for 3–6 months, i.e., 19 (38%). The duration of symptoms ranged from 1 to 28 months. The mean duration of symptoms was found to be 8.84 months as represented in Table 2 and Figure 3.

Symptoms at Presentation

Lump is the most consistent symptom and presented in all the patients. 8 (16%) of these patients presented with an ulcer over the lump. Pain was the complaint in 13 (26%)

of the patients. 6 (12%) patients complained of lump in the ipsilateral axilla as represented in Table 3 and Figure 4.

Quadrants Involved

The upper outer quadrant is the most common predominantly involved quadrant with a total of 29 (58%) cases. Since most of the lumps were large, they spanned more than one quadrants as represented in Figure 5 and Table 4.

Menstrual Status

30 (60%) of the patients were premenopausal and 20 (40%) were postmenopausal [Table 5 and Figure 6].

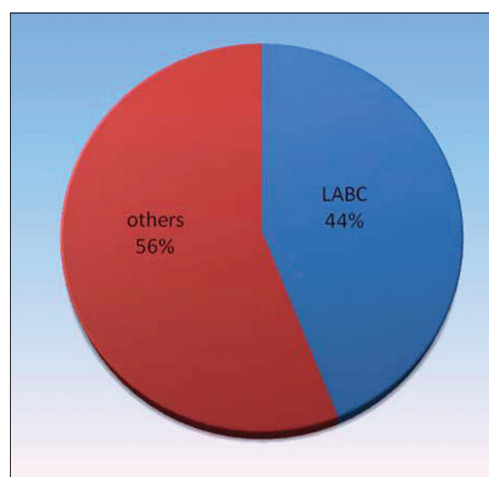


Figure 1: Proportion of cases

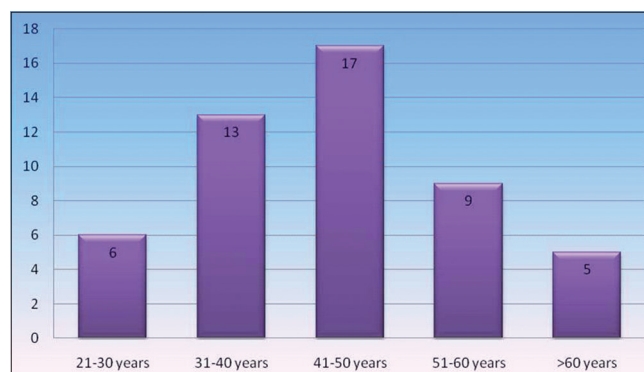


Figure 2: Age distribution

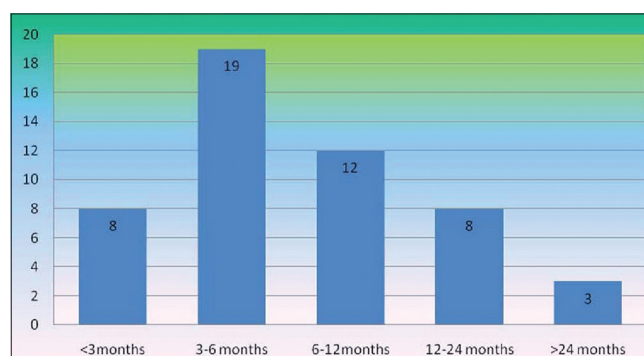


Figure 3: Duration of symptoms

Table 1: Age distribution

Age group (years)	Number of patients (%)
21-30	6 (12)
31-40	13 (26)
41-50	17 (34)
51-60	9 (18)
>60	5 (10)

Table 2: Duration of symptoms

Duration of symptoms	Number of patients (%)
<3 months	8 (16)
3-6 months	19 (38)
6-12 months	12 (24)
12-24 months	8 (16)
>24 months	3 (6)

Tumor Size

The tumor size ranged from 4 to 12 cm in the highest dimension. The smallest tumor measured 4 * 3 cm while the largest 12 * 10 cm. Majority of the tumors were 5–8 cm size. The mean size of the tumors is 6.6 cm. As represented in Table 6 and Figure 7.

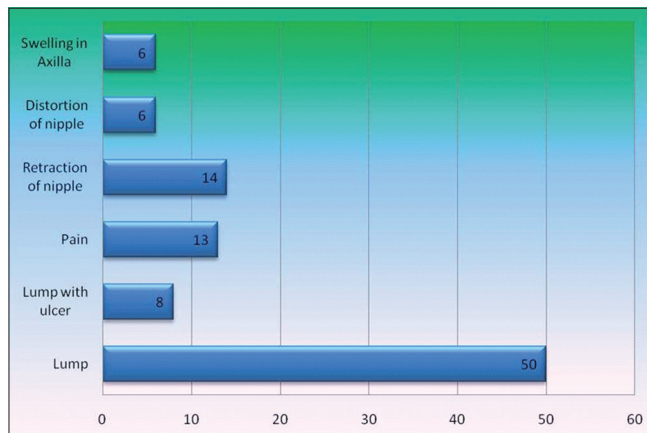


Figure 4: Symptoms on presentation

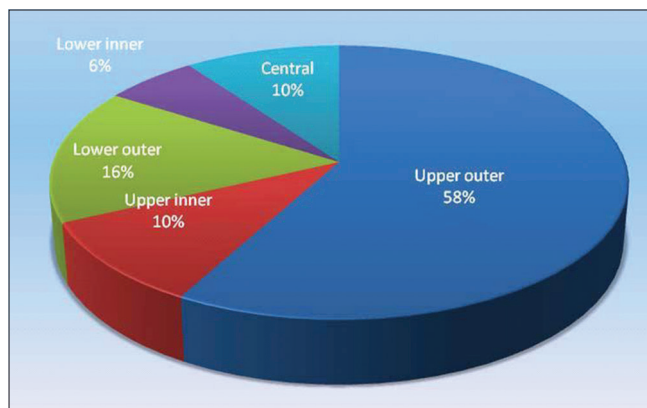


Figure 5: Quadrants involved

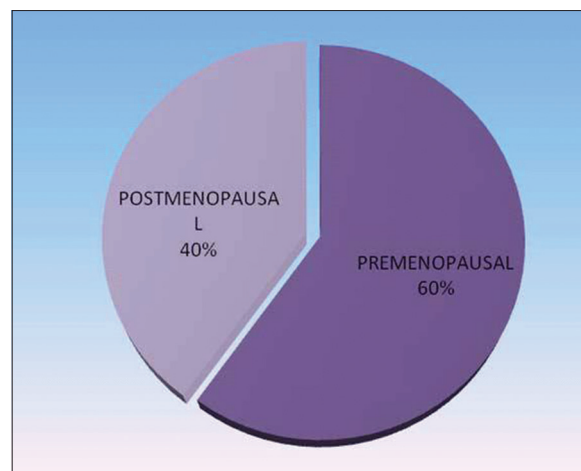


Figure 6: Menstrual status

One patient presenting with inflammatory carcinoma had a diffuse lump.

Fixity to Skin and Chest Wall

24 (48%) of 50 cases were found to have fixity skin. Highest number 12 (24%) were found to have peau d' orange implying skin fixity and 8 (16%) had ulcer over the lump. Chest wall fixity was found in 5 (10%) cases as represented in Table 7 and Figure 8.

Lymph Node Status

The axillary node status seen in the study is depicted in the following Table 8 and Figure 9.

Stage of the Disease

24 of the 50 cases studies 23 (46%) were of Stage IIIA, 24 (48%) are Stage IIIB, 2 cases (4%) are Stage IIIC, and

Table 3: Symptoms at presentation

Symptom	Number of cases (%)
Lump	50 (100)
Ulcer with lump	8 (16)
Pain	13 (26)
Retraction of nipple	14 (28)
Nipple discharge	6 (12)
Swelling in axilla	6 (12)

Table 4: Quadrants involved

Predominantly involved quadrant	Number of cases (%)
Upper outer	29 (58)
Upper inner	5 (10)
Lower outer	8 (16)
Lower inner	3 (6)
Central	5 (10)

Table 5: Menstrual status

Menstrual status	Number of patients (%)
Premenopausal	30 (60)
Postmenopausal	20 (40)

Table 6: Tumor size

Tumor size (cm)	Number of patients
<5	7 (14.2)
5–8	37 (75.5)
8–10	0 (8.2)
>10	1 (2)

Table 7: Fixity to skin and chest wall

Fixity	Feature	Number of patients (%)
Skin	Peau d' orange	12 (24)
	Ulcer	8 (16)
	Sat nodule	4 (8)
Chest wall		5 (10)

1 case (2%) is inflammatory carcinoma as represented in Table 9 and Figure 10.

Proportion of Inoperable Cases

A total of 38 (76%) cases were considered to be inoperable. These include 24 cases of IIIB, 2 IIIC, and one inflammatory cancer with 11 cases of IIIA which had fixed or matted nodes [Table 10 and Figure 11].

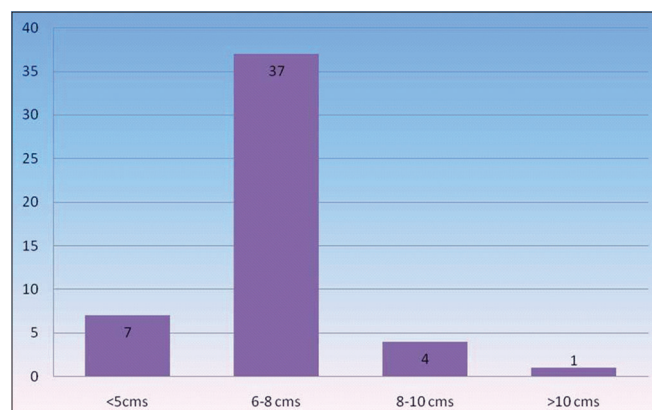


Figure 7: Tumour size

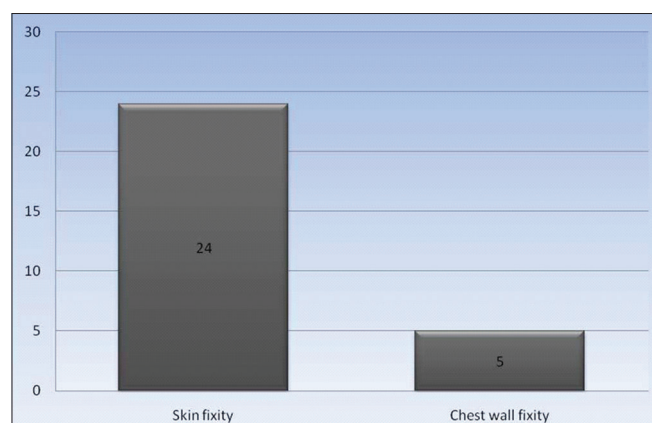


Figure 8: Skin and chest wall fixity

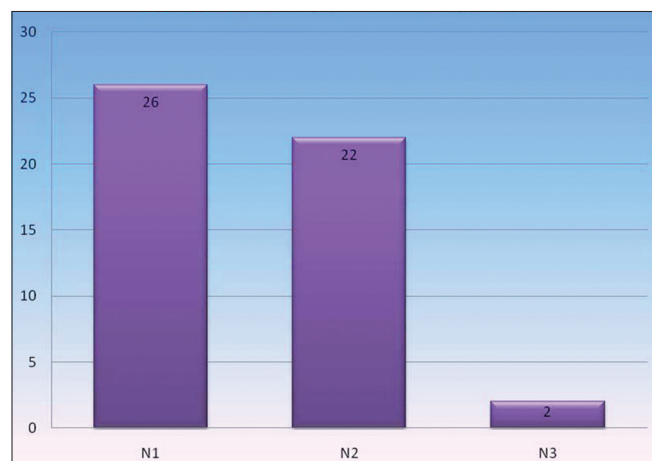


Figure 9: Lymph node status

Sequencing of Treatment

A total of 12 (24%) patients presenting inoperable stages (T3N1) were treated with MRM and adjuvant chemotherapy. 7 cases were later subjected to radiotherapy. 38 (76%) cases presenting in inoperable stages were subjected to NACT, and 35(92%) that were converted into operable stages were subjected to MRM followed by completion of chemotherapy and radiotherapy [Table 11 and Figure 12].

Chemotherapy Regimen

Standard regimen was used in the study. CMF was used the most in 26 (52%) of the patients. AC regimen was used in 24 (48%) as represented in Table 12 and Figure 13.

Table 8: Lymph node status

Lymph node status	Number of patients (%)
N1	26 (52)
N2	22 (44)
N3	2 (4)

Table 9: Stage of the disease

Group stage	TNM stage	Number of patients	Number of patients (%)
IIIA	T3N1M0	12	23 (46)
	T3N2M0	10	
	T2N2	1	
IIIB	T4aN1M0	1	24 (48)
	T4aN2M0	4	
	T4bN1M0	13	
	T4bN2M0	6	
IIIC	T3N3M0	2	2 (4)
Inflammatory Ca	T4d	1	1 (2)

Table 10: Operability of tumors

Operability	Number (%)
Operable	12 (24)
Inoperable	38 (76)

Table 11: Sequencing of treatment

Sequencing	Number of cases (%)
NC+S+C+R	33 (66)
NC+S+C	2 (4)
NC+R	3 (6)
S+C+R	7 (14)
S+C	5 (10)

Table 12: Chemotherapy regimen

Regimen	Number of patients (%)
CMF	26 (52)
AC	24 (48)

CMF: Cyclophosphamide, methotrexate and 5-fluorouracil, AC: Doxorubicin and cyclophosphamide

Response to Neoadjuvant Chemotherapy

Response to neoadjuvant chemotherapy was assessed by calculating the percentage decrease in the volume of the tumor. The response is classified according to the stage and depicted in Table 13 and Figure 14.

One case of inflammatory carcinoma had no response to therapy.

In our study of the 38 patients who received neoadjuvant chemotherapy, 5 (13.2%) patients had complete clinical

response, 25 (65.8%) patients had clinical partial response (pCR), and 8 (21%) had SD [Figure 15].

Proportion of inoperable tumors converted to operable stages:

A total of 38 (76%) cases presenting as inoperable were subjected to NACT, of these 35 were converted to operable, and only 3 remained inoperable. These tumors which remained inoperable were subjected to radiotherapy.

Receptor Status

Both ER and PR were positive in 23 (46%) of the cases, both ER/PR were negative in 20 (40%). ER positivity with

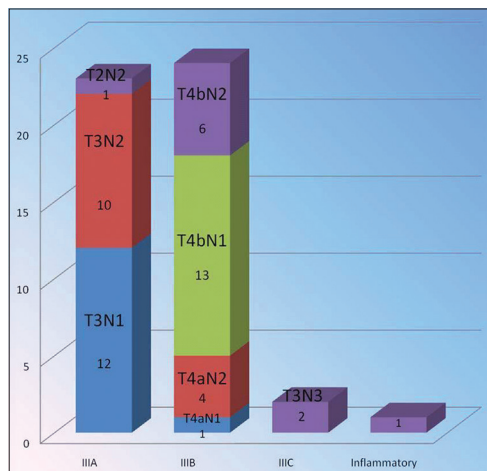


Figure 10: Stage of disease

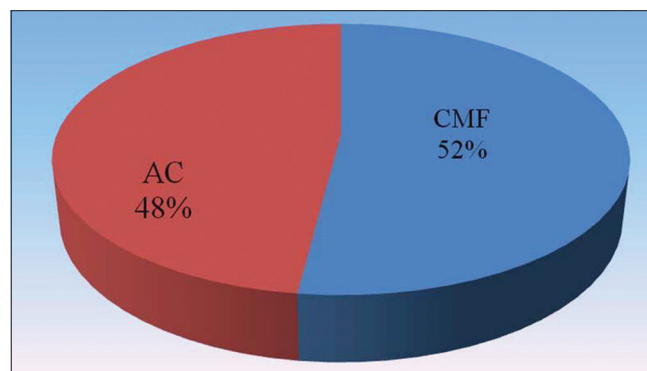


Figure 13: Chemotherapy regimen

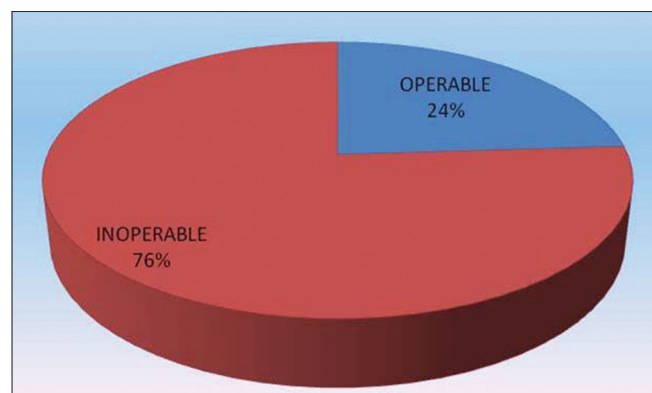


Figure 11: Operability of tumors

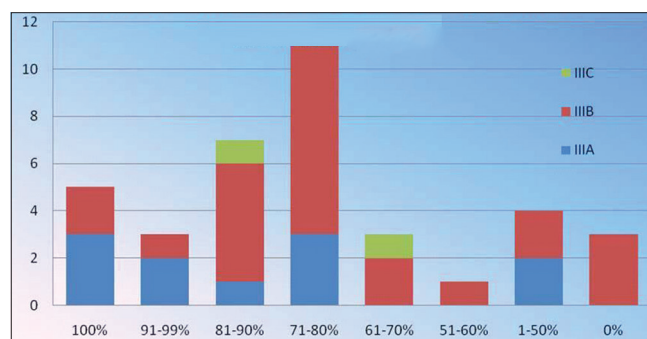


Figure 14: Response to neoadjuvant chemotherapy

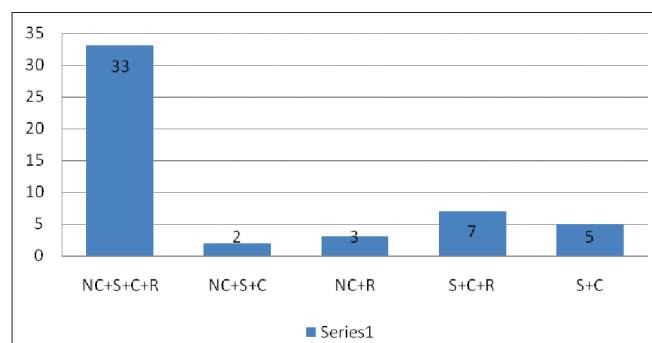


Figure 12: Sequencing of treatment

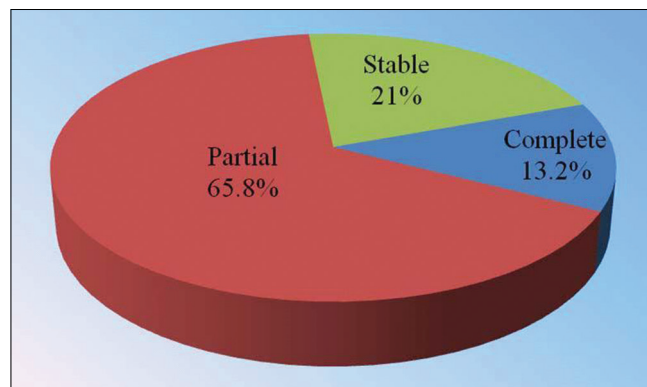


Figure 15: Clinical response to neoadjuvant chemotherapy

PR negativity was seen in 5 (10%). ER negativity with PR positivity was seen in 2 (4%). Overall, receptor positivity is seen in 30 (60%) patients. Tamoxifen 20 mg O.D for 5 years was advised to all patients with hormone receptor positive status [Table 14 and Figure 16].

Histopathology

Infiltrating intraductal carcinoma was the predominant type seen in 46 (92%) Of the patients. Other types seen were 1 (2%) each of medullary, colloid, lobular, and inflammatory types [Table 15 and Figures 17-18].

Complications of Surgery (MRM)

Of the 47 patients who underwent MRM the following complications were seen. Seroma in 4 (8.5%), edema of the arm in 4 (8.5%), wound infection in 3 (6.3%), and wound dehiscence is seen in 2 (4.2%) of the patients [Table 16].

Table 13: Response to neoadjuvant chemotherapy

Clinical response	IIIA	IIIB	IIIC
cCR			
100%	3	2	-
cPR			
91-99%	2	1	-
81-90%	1	5	1
71-80%	3	8	-
61-70%	-	2	1
51-60%	-	1	-
SD			
1-50%	2	2	-
0%	-	3	-

One case of inflammatory carcinoma had no response to therapy. SD: Stable disease, cPR: Partial clinical response, cCR: Complete clinical response

Table 14: Receptor status

Receptor status	Number of patients (%)
Both ER/PR positive	23 (46)
ER-positive PR negative	5 (10)
ER-negative PR positive	2 (4)
Both ER/PR negative	20 (40)
Overall receptor positive	30 (60)

Table 15: Histopathology

Histopathology type	Number of patients (%)
Infiltrating intraductal	46 (92)
Medullary	1 (2)
Colloid	1 (2)
Lobular	1 (2)
Inflammatory	1 (2)

Table 16: Complications of surgery

Complication	Number of patients
Seroma	4 (8.5)
Edema of the arm	4 (8.5)
Wound infection	3 (6.3)
Wound dehiscence	2 (4.2)

Toxicity of Chemotherapy

It was noted that toxicity is, in general, more common in AC regimen. Most common toxicity noted is alopecia followed by anemia. Life-threatening toxicities are rare, with neutropenia being noted in one patient on AC other toxicities noted are nausea in 3.8% and 20.8% of patients of CMF and AC, emesis in 11.5% and 37.5%, mucositis noted in 15.4% and 12.5% of patients on CMF and AC, respectively [Table 17].

Radiotherapy

Among 45 patients who received radiotherapy, only one patient (2.2%) developed local recurrence. Radiotherapy was tolerated by all patients. Only 7 (15.5%) of 45 patients reported to have nausea. No other toxicity was reported.

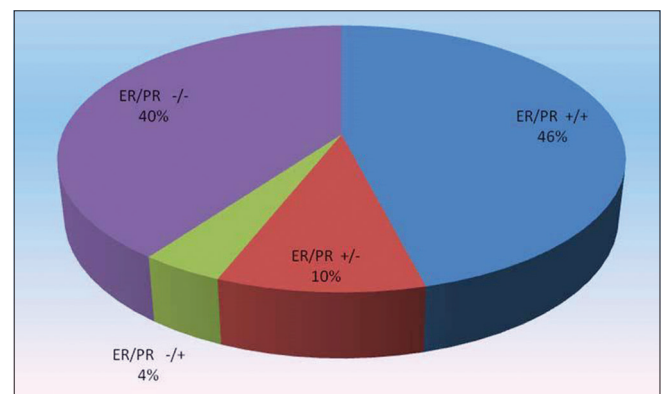


Figure 16: Receptor status

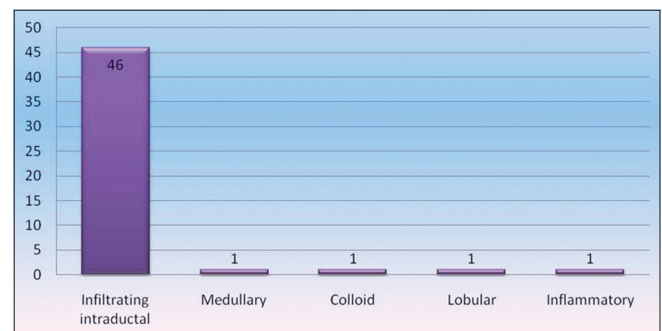


Figure 17: Histopathology

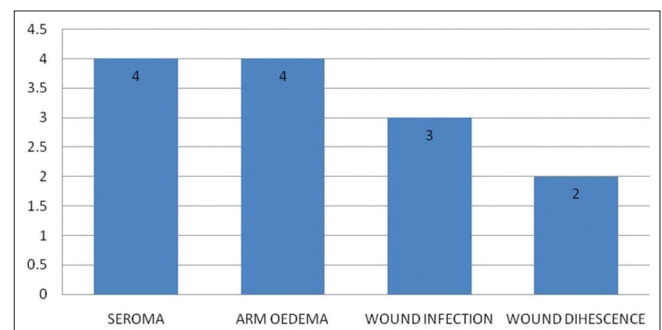


Figure 18: Surgery complications

Table 17: Chemotherapy toxicity

Toxicity	Number (%)	
	CMF	AC
Allopecia	10 (38.46)	20 (83.33)
Anemia	5 (19.2)	6 (25)
Mucositis	4 (15.4)	3 (12.5)
Nausea	1 (3.8)	5 (20.8)
Emesis	3 (11.5)	9 (37.5)
Fatigue	2 (7.7)	4 (16.6)
Neutropenia	0 (0)	1 (4.1)

CMF: Cyclophosphamide, methotrexate and 5-fluorouracil, AC: Doxorubicin and cyclophosphamide

Outcome

The patients were regularly followed up, and at the end of the study, 35 (70%) of the patients were doing well. 4 (8%) of the patients developed distant metastasis and 3 (6%) of the patients developing local recurrence. 8 (16%) of the patients were lost to follow-up.

DISCUSSION

Proportion of Cases

In our hospital, 44% of the patients admitted for the treatment of breast cancer were locally advanced. Chopra R states the proportion of LABC to the total number of reported breast cases to be 28.9%, 40.5%, and 52% in Mumbai, Trivandrum, and Chennai, respectively.^[10] The proportion of LABC is very high in developing countries compared to the western countries. LABC is a very common clinical scenario especially in developing countries (30–60%) possibly due to various factors such as lack of education and poor socioeconomic status.^[11]

The patients ignore the mass as it is commonly painless and does not interfere with the regular lifestyle of the patient. There is also a considerable delay in presenting to the hospitals due to ignorance allowing the lump to attain larger proportions.

Late diagnosis is a major factor for increased mortality as the majority of the patients present in the advanced or metastatic stage. This is primarily attributed to lack of access to medical facilities, virtually non-existent breast cancer screening programs, lack of awareness, and social-cultural attitudes

Age Distribution

The age incidences are compared in the Table 1 above. The highest number of cases is seen in the age group of 41–50 years in all the studies including ours except in Goel *et al.*, the peak is seen in 31–40 years age group.^[12]

The mean age is 46.5 years and 47.39 years in Aggarwal *et al.* and Sandhu *et al.*; series, respectively.^[13,14] The mean age in our study, i.e., 45.1 years matches closely with the above-mentioned studies.

In general, breast cancer has been reported to occur a decade earlier in Indian patients compared to their western counterparts. While the majority of breast cancer patients in western countries are postmenopausal and in their 60s and 70s, the picture is quite different in India with premenopausal patients constituting about 50% of all patients.^[15]

Symptoms at Presentation

The presenting features are compared with the percentages of presenting features in some of the similar series from India. The most consistent symptom is that of a lump and is seen in all cases in our study and 87.9%, 74%, and 96.5% in Sandhu *et al.*, Gang *et al.*, and Raina *et al.* series, respectively.^[16,17]

Quadrants Involved

In all the series, the percentage in the upper outer quadrant by far exceeds the percentage of location in other quadrants. The percentages of lump in the upper outer quadrants are 58%, 47%, 49%, and 48% in the current, Sandhu *et al.*, Sen and Dasgupta *et al.*, and Fields *et al.* series, respectively.^[18,19]

The possible explanation is that the upper outer quadrant has a relatively larger volume of breast tissue.

Duration of Symptoms

Most of the cases present with 3–6 months duration. The percentage of patients in this range was 38% and 32.9% in our study and Sandhu *et al.* series, respectively. The cases with <3 months duration were higher in Sandhu *et al.* series compared to our study.

Menstrual Status

In our study, more patients were premenopausal 30 (60%) than postmenopausal 20 (40%). Similar profile can be seen in Aggarwal *et al.* series.

In Sandhu *et al.* study 42.27% of the patients were premenopausal and 55.76% of the patients were postmenopausal. Karlson *et al.* reported 41% premenopausal patients versus 59% postmenopausal patients to be affected with carcinoma breast. Compared to the west, the percentage of premenopausal patients affected with breast carcinoma is reported to be more in India.

Tumor Size

The tumor sizes in our study are compared with Chintamani *et al.* and Aggarwal Himanshu *et al.* studies.^[21,22] Maximum

tumors are in the range of 5–8 cm. The percentage of tumors in that range is considerably higher in our study.

Lymph Node Status

Vishambaran *et al.* reported N1 stages to be 93% and N2 stages to be 7%.^[23] Compared to this study, our patients showed a higher incidence of N2 disease.

However, results similar to ours were seen in series of Chintamani *et al.* and Himanshu *et al.*

Stage of the Disease

In the present study, more percentage of cases were of Stage IIIB (48%), than Stage IIIA (46%). 4% and 2% of cases were of Stage IIIC and inflammatory carcinoma

Vishambaran *et al.* have reported 70% Stage IIIA and 30% Stage IIIB stages among their patients.

The percentages for IIIA were 24%, 55%, and 27.2%, respectively, in Yadav *et al.*, William *et al.*, and Nolen *et al.*^[24-26]

Stage IIIB cases were 33%, 27%, and 36.4%, respectively, in Yadav *et al.*, William *et al.*, and Nolen *et al.*

Stage IIIC cases were reported in Yadav *et al.* and William *et al.* with 25% and 2% of cases, respectively.

Sequencing of Therapy

In the present study, the inoperable tumors were treated with NACT. A majority of these cases the treatment was sequenced as NACT followed by surgery and completion of the remaining cycles of chemotherapy if any. This was followed by consolidation radiotherapy. This compares well with studies conducted by various authors who treated the patients with the same sequence and is also in sync with the current guidelines. The operable cases underwent surgery followed by adjuvant chemotherapy and radiotherapy in our study as in the study of Loprinzi *et al.*^[27]

The cases which presented inoperable stages are subjected to NACT to downstage the tumor and facilitate surgery, for local control of the disease. The patients undergoing surgery are then advised radiotherapy to prevent local recurrence.

Response to NACT

A total of 38 (76%) patients who presented inoperable states were subjected to neoadjuvant chemotherapy. CMF and an anthracycline-based regimen AC were used.

The primary objectives of NACT are to downstage the tumors and in cases of inoperable tumors to convert them into operable ones.

It was observed that the maximum number of cases in all the studies is under the category of pCR. In our study also a maximum number of cases 25 of 38 (65.8%) had partial response.

The rates of partial response were 45.45%, 65%, 73%, and 56.3% in Nolen *et al.*, Yadav *et al.*, Vishambaran *et al.*, and Aggarwal *et al.*, respectively. CR in our experience was seen in 13.2%, comparing closely with 22.7%, 22%, 13%, 16.3%, and 5% seen in Nolen *et al.*, Yadav *et al.*, Vishambaran *et al.*, Aggarwal *et al.*, and Karlsson *et al.*

In their article Raut and Chordiya present data related to response rates of various trials.^[28]

Our data relates closely with the results mentioned in the article of Raut and Chordiya.

Conversion rates of inoperable tumors.

Out of 38 inoperable tumors treated with NACT, 35 were rendered operable. Thus, 92% of inoperable tumors were converted to operable ones. This data show that in our study fairly good objective response to NACT was seen and that NACT downstages a good number of tumors and make them operable and give better locoregional control.

Receptor Status

Receptor status of our study compares closely with the results of receptor status study by Shet *et al.* conducted at Tata memorial hospital, Mumbai from 1999 to 2006.^[29] The receptor positivity is 60% in our population and 55.8% in Shet *et al.* study. It matches with the incidence in Indian population which is about 10% less than western population. All the patients with hormone receptor positive status were put on tamoxifen 20 mg O.D for 5 years. It was also noted that receptor status tended to be negative in younger patients.

Histopathology

Intraductal carcinoma is overwhelmingly common in all the studies mentioned below and account for more than 90% of cases.

Complications of Therapy

Toxicity of chemotherapy regimen

The toxicities of chemotherapy noted in our study are compared with study conducted by Kurapathy *et al.*^[30] In both the studies, overall the toxicity rates are higher in anthracycline-based regimen like AC than in CMF. Most common adverse effect noted is alopecia followed by emesis and anemia in AC regimen and anemia and mucositis in CMF regimen. Neutropenia was noted in only one patient on the AC regimen. The rates of toxicity are comparable to the above-mentioned study.

Surgical Complications

The complications noted were edema of the arm and seroma in 4 (8.5%) patients each. Wound infection was seen in 3 (6.3%) cases and wound dehiscence was seen in 2 (4.2%) of the patients.

The overall rate of complications was <30%.

Effects of Radiotherapy

Local recurrence was seen in about 2% of patients who received radiotherapy. It is an effective modality against local recurrence but still longer follow-up is required to conclusively prove the same. The only reported adverse effect of radiotherapy was nausea, seen in 7 (15.5%) of the 45 patients who underwent radiotherapy. No other toxicity was reported. Radiotherapy was well tolerated among our patients.

Outcome

Majority of the patients, 35 (70%) of the patients were doing well at the end of the study. The most distressing outcome was the development of distant metastasis in 4 (8%) of the patients. These cases included one inflammatory carcinoma, and other three were Stage IIIB, two of which had not responded to NACT and had remained inoperable.

Local recurrence was seen in 3 (6%) of the patients. Two of these cases were of Stage IIIA and were not on radiotherapy. One case belonged to Stage IIIB and had completed radiotherapy.

8 (16%) of the cases were lost to follow-up.

CONCLUSION

- About half of the cases presenting with breast cancer are in locally advanced stages.
- Lump in the breast is the most common symptom, upper outer quadrant being its most common location.
- Highest number of cases presented in 5th decade, followed by 4th decade indicating the presentation is a decade earlier in Indian patients compared to the west.
- Fixity to skin was seen in about 48% of the cases and was the most common cause of inoperability.
- Only a quarter of the cases were operable rest inoperable.
- Patients administered NACT showed a good response with 13.2% and 65.8% of the patients showing clinically complete and partial response, respectively. 92% of inoperable tumors became operable confirming that NACT is an effective method of downstaging the tumor.
- Chemotherapy was well tolerated in most patients, alopecia being the most common adverse effect followed by anemia and emesis.

- Surgical complications were seen in <30% of the cases.
- Hormone receptor positivity was seen in 60% of the patients and tamoxifen was advised in hormone receptor-positive patients.
- Infiltrating ductal carcinoma is the common histological variant seen.

Multimodality therapy is the effective treatment of locally advanced carcinoma of breast, but distant metastasis seen in 4 patients and local recurrence in 3 patients shows that management is a challenge and improvement in therapies are needed to further reduce disease-free interval and overall survival period.

SUMMARY

- A very high number of cases 44% presented in locally advanced stage of breast cancer in tune with trend in developing countries
- Highest incidence was seen in the fifth decade with 17 (34%) of patients presenting in this age group followed by the fourth decade with 13 (26%) of patients. Mean age being 45.1 years
- Lump in the breast is the common presentation and the most common location of the tumor being upper outer quadrant 29 (58%)
- Most of the patients 19 (38%) present with duration of symptoms from 3 to 6 months with mean duration being 8.8 months
- 60% of patients were premenopausal
- Size of 75% of tumors were in the range of 5–8 cm with mean size 6.6 cm.
- Fixity to skin and chest wall was seen in 38% and 10% of cases 24% of cases were operable at presentation and 76% inoperable.
- 46% presented in Stage IIIA, 44% presented in Stage IIIB, and 4% in Stage IIIC, and 2% of inflammatory breast cancer.
- NACT was administered to these all inoperable cases converting 92% these to operable stages. Clinical CR was seen in 13.2%, clinical partial response seen in 65.8% and 21% had SD.
- Chemotherapy was well tolerated in patients with alopecia being most common side effect.
- Surgical complications were seen in <30% of patients.
- Radiotherapy is effective in preventing local recurrence and well tolerated.
- 60% of patients are hormone receptor positive.

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