Original Research Article

Comparative Study in Locally Advanced Breast Cancer Treated with Either Cyclophosphamide, Adriamycin, 5-Flourouracil Regimen or Adriamycin, Cyclophosphamide Followed by Paclitaxel

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Received: 29-04-2021 / Revised: 04-06-2021 / Accepted: 11-07-2021

Abstract

Introduction: Carcinoma breast is the leading cause of death among the cancer patients worldwide. Carcinoma breast is not a single entity but spectrum of diseases. **Aims and objectives:**This is a prospective two arm comparative study of toxicity and quality of life in patients of locally advanced breast cancer treated with either cyclophosphamide, Adriamycin, 5-flourouracil regimen or Adriamycin, cyclophosphamide followed by paclitaxel.**Materials and methods:**The study is a prospective randomized two arm study conducted in department of radiotherapy, For a period of 2 years on breast cancer patients treated divided as Patients in CAF (ARM-A) received cyclophosphamide 600mg/m^2, Adriamycin 60mg/m^2, 5-flourouracil 600mg/m^2 as intravenous infusion on day 1 and repeated every 3 weekly for 6 cycles. Patients in ARM-B received cyclophosphamide 600mg/m^2, Adriamycin 60mg/m^2, as IV infusion every 3 weekly for 4 cycles followed by paclitaxel 175mg/m^2 every 3 weekly for 4 cycles. Pre-medication include Ondansetron 8mg , dexamethasone 8mg intravenous push and pantoprazole 40 mg as intravenous infusion.**Results:**The maximum incidence was observed between 41-50yrs of age in both arms.The most common presentation was postmenopausal status 46.6% in CAF arm and 36.6% in TAC arm. Most common stage of presentation was stage IIIA , 55% in CAF and 48.3% in TAC arm. 75% patients in CAF arm and 63% patients in TAC arm were ER positive.Complete clinical response after neoadjuvant chemotherapy was seen more in TAC arm (16.6%). Among all toxicities alopecia was significant statistically. Peripheral neuropathy was higher in TAC arm. Diarrhea was higher in CAF arm. Nausea and vomiting were similar in both arms. Better quality of life was seen in TAC arm patients.**Conclusion:** Neoadjuvant chemotherapy integrated into a multimodality program is the established treatment in LABC. Paclitaxel based regimen showed significant increase in complete clinical response of tumor.

Keywords: Neoadjuvant chemotherapy, Paclitaxel, cyclophosphamide

Introduction

Carcinoma breast is the leading cause of death among the cancer patients worldwide. Approximately 16,76,633 new cases diagnosed and 5,21,817 deaths attributed to the disease in 2012. More than 1,00,000 patients are estimated to be newly diagnosed in India which depicts the disease burden. Due to lack of awareness and poor health care facilities most of them present in locally advanced and advanced stages[1].

Over the past several decades there has been a fairly steady and large increase in incidence of disease. 1in 8 women have lifetime risk of developing breast cancer and since the past 10 years, there has been a rapid acceleration of our understanding of breast cancer biology, which has fueled new approaches to treatment. Carcinoma breast is not a single entity but spectrum of diseases. There are differences in demography, histopathology, mode of spread, response to treatment and survival. The term locally advanced breast cancer includes both slow growing as well as aggressive tumors which depicts a heterogenous spectrum. LABC is relatively more common entity in developing countries where as it accounts only 5% of major cases in developed countries. This difference is majorly accountable due to lack of public awareness and taboos in the society as well as poor accessibility to medical facilities[2].Locally advanced breast cancers are those with no clinical evidence of distant metastasis but with large tumor burden at the time of presentation. According to AJCC staging 7th edition (annexure Data from the National Cancer Institute's Surveillance, Epidemiology and End Results (SEER) program indicated that approximately 7% of breast cancer patients have stage III disease at diagnosis. Median survival time is 4.9 years, while the 5-year relative survival rate for this group of women is 55% when treated with multimodality treatment not including biologics.Tumor size, lymph node involvement and the presence of inflammatory carcinoma are the main prognostic factors, while the prognostic value of tumor grade, ER/PR and HER-2/ neu status is not fully clarified. Complete pathological response has also established favorable prognostic marker in this category[3].Overall survival(OS), disease free survival(DFS) are the major goals in this selected group.

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The conversion of initially inoperable breast cancer to an operable one is of crucial importance. The major tasks clinically in LABC are locoregional control and systemic control as the risk of recurrence and death are extremely high in this group. Hence neoadjuvant chemotherapy is integrated into the multimodality treatment of LABC[4].This is a prospective two arm comparative study of toxicity and quality of life in patients of locally advanced breast cancer treated with either cyclophosphamide, Adriamycin, 5-flourouracil regimen or Adriamycin, cyclophosphamide followed by paclitaxel.

Materials and Methods

The study is a prospective randomized two arm study conducted in department of radiotherapy, Regional Cancer Centre, Indira Gandhi institute of medical sciences, Patna, an autonomous Institute of Bihar and duly recognized by Government of India. This study has been done between October 2014 to March 2016 after the approval of Institutional Ethical Committee. The study conformed to the Helsinki declaration (world medical association, 1995) and applicable guidelines for good clinical practices were looked into consideration. Written informed consent was signed by the patients who were taken into study on the basis of following selection criteria and treated on outpatient basis.

Inclusion Criteria: Histologically confirmed locally advanced non metastatic breast carcinoma, Age 20-70 years, ECOG performance status 0-2, Hematological parameters with total leukocyte count of >4000cells/cumm, platelet counts >1.5 lakh/cu mm, Renal clearance with serum creatinine<1.2mg/dl and Her2 receptor negative patients

Exclusion Criteria: Metastatic and early breast cancers, Any prior treatment received for the tumor, Patients with abnormal cardiac function, renal, hematological parameters and co-morbid illness. Pregnant females and Male breast carcinoma.

Sample size: A total of 60 patients in each arm, who satisfied the above criteria were included. Sample size was calculated using the below statistical formula where n is sample size for two independent groups.

$$n_i = \{p_1(1-p_1) + p_2(1-p_2)\}\left(\frac{Z}{E}\right)^2$$

Full medical history and physical examination including gynaecological examination.Local examination as initial clinical assessment of tumor stage. Diagnostic workup consisting of hemoglobin, total and differential WBC count, renal function tests, liver function tests. X-ray chest PA view, Ultrasonography whole abdomen. Diagnostic mammography of both breasts.Fine needle aspiration cytology of breast lump and biopsy for confirmation of diagnosis.Determination of tumor ER/PR/HER2 status. Genetic counselling for patient if patient is at high risk of hereditary breast cancer. CT chest for staging of disease. ECG and Echocardiography before start of chemotherapy. All patients were staged based on TNM staging system: AJCC 7th edition. Quality of life assessment using EORTC QLQ-C30 and QLQ-BR23 questionnaire.After evaluation, selected patients were subjected to randomization following voluntary consent process. Patients were randomly allocated by computer generated random table numbers into two groups ARM-A and ARM-B.

Chemotherapy:Patients in CAF (ARM-A) received cyclophosphamide 600mg/m^2,Adriamycin 60mg/m^2,5-flourouracil 600mg/m^2 as intravenous infusion on day 1 and repeated every 3 weekly for 6 cycles.Patients in ARM-B received cyclophosphamide 600mg/m^2, Adriamycin 60mg/m^2, as IV infusion every 3 weekly for 4 cycles followed by paclitaxel 175mg/m^2 every 3 weekly for 4 cycles. Pre-medication include Ondansetron 8mg , dexamethasone 8mg intravenous push and pantoprazole 40 mg as intravenous infusion.Chemotherapy will be withheld in patient who develop grade 3 lower GITtoxicity, leukocyte count <2000cell/cumm , platelets <100000/cumm and with rising liver function test.

Patients will be managed conservatively with intravenous fluid supplementation and prophylactic antibiotics. Chemotherapy will be restarted in patients whose toxicity regressed and achieved normal leucocyte, platelet and liver function.Response of neoadjuvant chemotherapy was assessed clinically in terms of reduction in size of tumor and reduction in axillary lymph node size. Complete response-Complete disappearance of all known disease by physical examination for at least 4 weeks. Partial response-defined as more than 50% decrease in measurable lesion for a minimum of four weeks as determined by product of perpendicular diameter of lesion.After completion of neoadjuvant chemotherapy patients were sent to surgery. Depending upon the response after chemotherapy, either modified radical mastectomy or breast conservative surgery was done. All patients were treated with cobalt-60 teletherapy unit of 80cm SSD (THERATRON780C). The treatment volumes typically included the chest wall and draining lymphatics, consisting in the supraclavicular (SCV) and infraclavicular (ICV) nodal region. In selected cases only chest wall was irradiated. Patients are placed on slant board to compensate for slope of sternum and chest wall and may also prevent breast from falling superiorly towards supraclavicular fossa in case of radiation to intact breast

Dose:The chest wall and SCF is treated to 50.4Gy at 1.8-2Gy per fraction.0.5-1cm bolus may be used to over chest wall increase surface dose to skin.

Monitoring and management:All patients were closely monitored during their course of each chemotherapy and observed for immediate occurrence of any toxicity. Hematological, liver and renal parameters were assessed on 3 weekly basis before giving chemotherapy. Patients were personally interviewed for subjective toxicities like nausea, vomiting and were graded as per NCI-CTC CTCAE (National Cancer institute - Common terminology criteria of adverse events) scale v 4.0. They were clinically examined during visits for toxicities like alopecia, peripheral neuropathy etc. Response to chemotherapy in view of primary tumor size was monitored in each cycle clinically and at end of the chemotherapy using ultrasonography of breast.

Data analysis:Data was entered in Microsoft excel and analysis was done using SPSS version 20. Descriptive statistical analysis was done. Results on continuous measurements are presented as Mean & Standard Deviation. Results on categorical measurements are presented as Percentages. Significance is assessed at 5 % level of significance. Student t test (independent , two tailed) has been used to find out the significance of study parameters on a continuous scale between two groups . Chi square test is used to find out the significance of study parameters on a categorical scale between two groups.

Results

Table 1: Demographic distribution in study

	CAF (N=60)		TAC (N=60)		P-value
Age group (Yr)	**No**	**%**	**No**	**%**	
<30	1	1.6	3	5	
31-40	7	11.6	15	25	
41-50	25	41.6	23	38.3	
51-60	19	31.6	15	25	0.214 NS
>60	8	13.3	4	6	

Menstrual status:					
Premenopausal	18	30	27	45	
Postmenopausal	28	46.6	22	36.6	0.407 NS
Perimenopausal	8	13.3	6	10	
Hysterectomy	6	10	5	8.3	
STAGE					
T2N1M0	6	10	5	8.3	
T2N2M0	4	6.6	4	6.6	
T3N0M0	14	23.3	13	21.6	
T3N1M0	18	30	19	31.6	
T3N2M0	11	18.3	5	8.3	
T4N0M0	1	1.6	3	5	0.366 NS
T4N1M0	5	8.3	10	16.6	
T4N2M0	1	1.6	1	1.6	
TYPE					
Infiltrating duct carcinoma	49	81.6	53	88.3	0.558 NS
Lobular	5	8.3	4	6.6	
Papillary	4	6.6	1	1.6	
Poorly differentiated	2	3.3	2	3.3	

The table shows maximum incidence of locally advanced breast cancer was observed between 41-50 yrs of age, 41.6% in CAF arm and 38.3% in TAC arm. The youngest patient in this study is 28 yrs while the oldest is 64 yrs.Incidence of LABC is slightly higher in postmenopausal women in CAF arm (46.6%) whereas it was more preponderance in premenopausal women in TAC arm (45%). Patients undergone hysterectomy were 10% in CAF arm and 8.3% in TAC arm.The above table shows that more number of patients fall under T3N1M0 stage (30%) in CAF group while in TAC group it was (31.6%). Most common histological type was Infiltrating duct carcinoma in both the groups.

Table 2: Estrogen/Progesterone (ER/PR) status

Estrogen Receptor	**CAF (n=60)**		**TAC (n=60)**		**P-Value**
	No.	**%**	**No.**	**%**	
Positive	45	75	38	63.3	0.370 NS
Negative	11	18.3	17	28.3	
Unknown	4	6.6	5	8.3	
Progesterone Receptor					
Positive	26	43.3	21	35	0.639 NS
Negative	30	50	34	56.6	
Unknown	4	6.6	5	8.3	

75% of patients in CAF arm and 63% of patients in TAC arm were ER positive. Progesterone receptors were negative in 50% of cases of CAF arm and 56.6% in TAC arm. Four patients in CAF group and five patients in TAC group did not get the ER/PR study done.

Table 3: Grading of side effects in study

Grade	**Arm-A N=60**	**Arm-B N=60**	**P-Value**
Anaemia:			
1	10(16.6%)	0	
2	13(21.6%)	0	0
3	3(5%)	0	
Total	36(60%)	0	
Leukopenia:			
1	8(13.3%)	14(23.3%)	**0.746 NS**
2	2(3%)	7(11.6%)	
3	0	0	
Total	10(16.6%)	21(35%)	
Thrombocytopenia:			
1	2(3%)	0	
2	0	0	0
3	0	0	
Total	2(3%)	0	
Nausea:			
1	23(38.3%)	33(55%)	
2	31(51.6%)	24(40%)	**0.159 NS**
3	6(10%)	3(5%)	
Total	60(100%)	60(100%)	
Vomiting:			
1	27(45%)	33(55%)	
2	19(31.6%)	13(21.6%)	
3	7(11.6%)	7(11.6%)	**0.422 NS**

Total	53(89%)	53(89%)	
Stomatitis:			
1	19(31.6%)	2(3%)	
2	9(15%)	0	**0.572 NS**
3	2(3%)	0	
Total	30(50%)	2(3%)	
Diarrhea:			
1	4(6.6%)	0	
2	2(3%)	0	0
3	2(3%)	0	
Total	8(13%)	0	
Hyperpigmentation:			
1	32(53.3%)	0	0
2	7(11.6%)	0	
3	0	0	
Total	39(65%)	0	
Alopecia:			
1	23(38.3%)	43(71.6%)	**0.001 *S**
2	37(61.6%)	17(28.3%)	
Total	60(100%)	60(100%)	
Myalgia:			
1	2(3%)	29(48.3%)	
2	0	19(31.6%)	
3	0	7(11.6%)	**0.419 NS**
Total	2(3%)	55(92%)	
Arthralgia			
1	3(5%)	31(51.6%)	
2	0	11(18.3%)	
3	0	6(10%)	**0.450 NS**
Total	3(5%)	48(80%)	
Peripheral neuropathy			
1	2(3%)	27(45%)	
2	0	19(31.6%)	**0.438 NS**
3	0	4(6%)	
Total	2(3%)	50(83%)	

All side effects are insignificant in both groups only alopecia is significant

Table 4: Response after chemotherapy

Response	CAF	AC-P
Complete Response	3(5%)	10(16.6%)
Partial Response	39(65%)	39(65%)
Stable Disease	15(25%)	9(15%)
Progressive Disease	3(5%)	2(3%)

X 2 = 5.469 df= 3 p = 0.140 NS

Patients underwent conservative surgery in CAF arm were 16.6% (10) whereas in AC-P arm 30%(18). Rest of them had MRM (modified radical mastectomy) done after chemotherapy. Quality of life QLQ- C30

Table 5: Functional and physical score in study

Global health score:	Pre chemo	Treatment Completion
% of patients with	Score greater than	50%
Arm-A	56%	88%
Arm-B	74%	100%
Mean scores		
Arm-A	55.30	75.97
Arm-B	53.64	79.97
	P=0.110	P=0.116
Physical functioning:		
% of patients with	Score greater than	50%
Arm-A	100%	100%
Arm-B	100%	100%
Mean scores		
Arm-A	76.6	75.3

Arm-B	78.6	92.7
	P=0.156	P=<0.001
Role functioning:		
% of patients with	Score greater than	50%
Arm-A	71.6%	81
Arm-B	73.3%	83
Mean scores		
Arm-A	95.6	66
Arm-B	98.4	99.5
	P=0.123	P=0.006
Emotional functioning:		
Arm-A	95%	95
Arm-B	97%	98
Mean scores		
Arm-A	97.5	98.5
Arm-B	97.7	99.2
	P=0.911	P=0.698
Cognitive functioning		
Arm-A	76.6%	81
Arm-B	76.6%	85
Mean scores		
Arm-A	99.9	99.5
Arm-B	98.9	99
	P=0.579	P=0.781
Social functioning		
Arm-A	75%	79
Arm-B	75%	82
Mean scores		
Arm-A	96.1	97.5
Arm-B	96.5	98.7
	P=0.824	P=0.506

Table 6: Symptom scales in study

Fatigue:	Pre chemo	TreatmentCompletion
% of patients with	Score greater than	50%
Arm-A	20%	0
Arm-B	20%	0
Mean scores		
Arm-A	29.9	22.24
Arm-B	20.8	16.66
	P=<0.001	P=<0.001
Pain:		
Arm-A	71%	59%
Arm-B	70%	54%
Mean scores		
Arm-A	44.66	29.33
Arm-B	48.66	26.66
	P=0.224	P=0.588
Appetite loss:		
Arm-A	86%	90%
Arm-B	94%	91%
Mean scores		
Arm-A	44.66	68.99
Arm-B	48.66	71.33
	P=0.224	P=0.125

Peripheral neuropathy was higher in TAC arm. Diarrhea was higher in CAF arm.Nausea and vomiting were similar in both arms. Better quality of life was seen in TAC arm patients.

Discussion

Locally advanced breast carcinoma is the presentation in majority of patients at our centre. There is steady increase in the health care burden due to breast cancer in developing countries like India. In last few decades, the treatment modalities have undergone drastic changes from single option mastectomy to multidisciplinary approach including chemotherapy, and radiotherapy. Neoadjuvant chemotherapy has been the topic of discussion currently in locally advanced breast cancer due to its advantage of conservative surgery and conversion of inoperable to operable breast cancer. Primary chemotherapy offers an important test bed for novel therapies including new drugs or combination of drugs. It provides an early surrogate end point, i.e. downstaging information. High complete

response rate is an essential prerequisite for a significant increase in relapse-free survival rates. As paclitaxel has significant antitumor activity in metastatic breast cancer and lacks cross-resistance with anthracyclines, its incorporation may bring added benefit to an anthracycline-based combination chemotherapy regimen in the group of patients with locally advanced breast cancer

Age incidence:
LABC is most commonly seen in fourth and fifth decade in our series which is a decade earlier than that of western counterparts. In western countries the patients are in their 60's and 70's[70]. More than 80% Indian patients are below 60yrs of age. The mean age in this study is 49.6 years in CAF arm and 46.37years in TAC arm. The average age of patients in 6 hospital-based cancer 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. The average age of breast cancer patients has been reported to be 50–53 years in various population-based studies done in different parts of the country. In this study maximum incidence was observed between 41-50yrs of age 41.6% in CAF arm and 38.3% in TAC arm. Overall median age of this study was 48yrs.
Menstrual status:Incidence of LABC is slightly higher in postmenopausal women in CAF arm (46.6%) whereas it was more preponderance in premenopausal women in TAC arm (45%) in this study. The youngest patient age in this study is 28 yrs. A significant younger proportion of Indian breast cancer patients are seen who are less than 35 years of age. This proportion varies between 11% (Tata Memorial Hospital (TMH) Mumbai)[5]to 26% (SGPGIMS Lucknow)[6]. Young age has been associated with larger tumor size, higher number of metastatic lymph nodes, poorer tumor grade, low rates of hormone receptor-positive status, earlier and more frequent locoregional recurrences, and poorer overall survival[7].
Stage distribution:Many patients in India recognize the breast lump themselves by palpation or after the changes like skin or chestwall secondary to lump[6].Manifestations of invasion of the skin, such as skin edema, ulceration, and fungation, and/or of the chest wall are evident in almost half of all Indian patients who are free of any distant metastases. This is similar to the picture in many other countries with limited resources, and similar reports are available from the developing Arab World, natives of Mexico, and the Indian subcontinent. Lack of awareness about disease and many logistics resulted in only few women following self breast examination or periodic examination by healthcare worker or mammography for screening in India. This leads to advanced stage presentation in many of the patients. In my present study 55% in CAF and 48.3% in TAC arm were of IIIA stage. 13% in CAF and 23% in TAC arm were of IIIB stage. Saxena at al cohort study showed IIIB stage 35% followed by IIIA 27% and IIb 16% at New Delhi hospital[8].
Histology:More than 80% patients had infiltrating ductal carcinoma in our study which is similar to Dinshaw et al study[9]. This is also similar to the other studies quoted by many other authors. High grade tumors have more chances of systemic recurrences, distant metastasis and high mortality than that of low grade tumors. In our study there is pattern of both gradeII and III with almost equal numbers. 75% patients were node positive in both the groups in this series similar to mohapatra et al and saxena study[10]
ER/PR status:In this series 75% patients in CAF arm and 63% patients in TAC arm were ER positive which is better than the study in Delhi..At TMH Mumbai, the ER+ status was found in 33%, and PR+ in 46% of patients. Progesterone receptors were negative in 50% of cases of CAF arm and 56.6% in TAC arm.Usually this set of data is inadequate to say as many of the Indian patients data lack hormone status. Four patients in CAF group and five patients in TAC group did not get the ER/PR study done in our series.
Neoadjuvant chemotherapy:Initially many nonrandomized trials involved patients with operable breast cancer resulted in high rates of clinical responses but the observed complete pathological responses are much lower as shown in Gogas et al study.[11]The results of our study demonstrated that TAC arm had significant antitumor activity clinically than CAF arm. High fraction of clinical complete response is seen in TAC arm(16.6%) than CAF arm(5%). This is somewhat lower than the reported studies. Partial response clinically is equal in both arms. Overall clinical response showed a difference but the p value is (p = 0.140) not significant statistically. Very few patients showed poor response or no response to drug regimens. The questions concerning equivalence of efficacy can only be answered in large prospective randomized phase III trials.The toxicity profiles are not so distinctly different in both arms. Toxicities were graded with CTCAE criteria. Anaemia is seen only in CAF arm in this series. Grade 3 anaemia is seen only in 5% of patients which is much less than the study of Sambasiviah et al[12]Grade 3 leukopenia was not seen in our study unlike Martin et al. in western population which showed anaemia 91.5% and grade3-4 leukopenia 65.5% with taxane containing regimen[13]. Thrombocytopenia was insignificant in both the arms. In Buzdar et al. study, thrombocytopenia was absent with CAF arm but 18% patients developed thrombocytopenia with same regimen in similar study done by Wood et al[14]. Thrombocytopenia was developed in both arms in study done by Martin et al[13].Different gastrointestinal adverse effects like nausea, vomiting, stomatitis, and diarrhea were compared, which showed that patients allocated to both the regimens developed comparable nausea and vomiting. The review of literature indicates that nausea, vomiting, stomatitis were seen in patients receiving FAC and AC-P. In this study diarrhea is seen only in CAF arm. However, the incidence was much less as compared to our study where nausea and vomiting occurred in > 85% of the patients receiving both the regimens and the study done by Abu Khalaf et al., nausea or vomiting occurred in 24% of the patients receiving the AC-P regimen, which was much less when compared to our study subjects receiving the AC-P regimen[15].Mucositis was less (3%) in our study subjects as compared to 18% in the study by Abu Khalaf et al. In the study conducted by Martin et al, nausea and vomiting were significantly more in patients receiving FAC, while in our study it was almost equal. In the same study stomatitis and diarrhea were more when taxane containing regimen was used. The study conducted by Sambasiviah et al. indicated that mucositis (13.6%) was more common in patients receiving FAC, which was consistent with our study[12].Alopecia was similar in both the arms which is statistically significant. Hyperpigmentation was seen in CAF arm. In the study conducted by Martin et al., skin changes were more in the taxane containing regimen, while the incidence of alopecia was similar in both the groups.In the south Indian study by Sambasiviah et al. alopecia was seen in all patients receiving the FAC regimen[12]. In other studies done by Buzdar et al. and Wood et al[14,16] high incidence of alopecia with FAC was noted, while in the study done by Henderson et al. all patients receiving AC-P developed alopecia[17]. A comparison of musculoskeletal adverse effects such as myalgia and arthralgia showed that both the adverse effects were more with the AC-P regimen. In the study comparing FAC and TAC by Martin et al[13], a significant increase in these adverse effects was seen in patients receiving taxanes. In the studies conducted by Abu Khalaf et al. it was 6%. Peripheral neuropathy was a significant adverse effect of the AC-P regimen, which developed in 82% of the patients, while only 3% on the FAC regimen developed this adverse effect. These findings were consistent with the studies by Martin et al., which showed that the neurosensory adverse effects were more (25.2%) in the taxane containing regimen. As the patients in the AC-P regimen received pre-medication prior to paclitaxel infusion, none of them developed hypersensitivity reactions, which had been reported with the use of paclitaxel.
The findings of the study showed that women who were in the younger age group of 30 to 39 years old experienced more nausea ,vomiting and worries than the older age group. They also had more concerns in the aspects of body image and future health function than

women who were 40 years old and above. Several other studies supported the study findings that women in the younger age group had a lower QOL in terms of body image and future health function as compared to the older women. Many younger women often have major concerns of getting married and having children in the future after going through various cancer interventions such as chemotherapy that may cause premature menopause and fertility loss. They are also worried about the possibility of cancer recurrence that may affect their health, families, work and career. Women with better education are more likely to obtain information about breast cancer treatments and outcomes for the future. In this process, they tend to focus on their illness which can impact their QOL of physical and psychosocial functioning. Whereas women who have lower educational background may not source for more information about their illness and may be less affected physically and emotionally.[18,19] Better quality of life was observed in TAC arm in regards of functional scales and lower values in symptom scales in this study which was comparable to many studies by other authors. However longer duration of follow up needed to have significant and accruable data with larger population of patients.

Conclusion

Neoadjuvant chemotherapy integrated into a multimodality program is the established treatment in LABC. There is increased rate of breast conservation by using paclitaxel based chemotherapy. Paclitaxel based regimen showed significant increase in complete clinical response of tumor.In Locally advanced breast cancer Paclitaxel is having manageable toxicity profile. Paclitaxel can be added to neoadjuvant chemotherapy as first line. Better clinical outcomes can be observed with paclitaxel based regimen even in ER negative patients. Paclitaxel based regimen is easily administered and affordable. Larger trials with longer follow up to be done to have significant results.

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Conflict of Interest: Nil
Source of support:Nil