

Original Research Article

A Clinical Study of Efficacy of CMF Regime in the Management of Patients of Carcinoma Breast in J.A. Group of Hospitals, Gwalior

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Abstract: The clinical study was conducted on 100 patients of breast carcinoma admitted in the Department of Surgery, J A Group of Hospitals and G R Medical College, Gwalior (MP) during September 2014 to August 2015 after getting ethical approval from college ethical committee and well written informed consent from the patients. The ultimate goal of the study was to see and access the efficacy of CMF regime in patients of carcinoma of Breast.

Keywords: Carcinoma, CMF, Breast, Gwalior.

INTRODUCTION

Disease of breast is known from eternity and their mention is found in manuscript of Hippocrates and Sushruta, the "father of Indian Surgery". Breast disease and their knowledge have undergone a rapid change in late 20th century with emergence of carcinoma breast as the leading cause of morbidity and mortality in female patients.

Carcinoma of the breast is one of the most common malignancies in the world and a leading cause of cancer death among the women. More than a million cases of breast cancer are diagnosed worldwide each year [1]. It is responsible for 32% of all cancers in women and causes 16% of all cancer-related deaths [2]. The overall incidence of breast cancer had been rising until 1999 because of increase in the average life span, lifestyle changes that increase risk for breast cancer, and improved survival from other diseases. The rates began to decrease from 1999 to 2006 by approximately 2% per year. This decrease has been attributed to reduction in the use of HRT and implementation of screening protocols due to spreading awareness leading to timely presentation.

Modern therapy for breast cancer has evolved to include both surgical resection for local disease and medical therapy for systemic disease. Surgery still has a central role to play but there has been a gradual shift towards more conservative techniques [3]. Carcinoma of the breast is the most common malignancy affecting female population worldwide. Signs of breast cancer

may include a lump in the breast, a change in breast shape, dimpling of the skin, fluid coming from the nipple, or a red scaly patch of skin. In those with distant spread of the disease, there may be bone pain, swollen lymph nodes, shortness of breath, or yellow skin.

Risk factors for developing breast cancer include obesity, lack of physical exercise, alcoholism, hormone replacement therapy during menopause, ionizing radiation, early age at first menstruation, and having children late or not at all. About 5-10% of cases are due to genes inherited from a person's parents, including BRCA1 and BRCA2 among others. Breast cancer most commonly develops in cells from the lining of milk ducts and the lobules that supply the ducts with milk.

Outcomes for breast cancer vary depending on the cancer type, extent of disease, and person's age. Survival rates in the developed world are high, with between 80% and 90% of those in England and the United States alive for at least 5 years. In developing countries survival rates are poorer.

The management of breast cancer depends on various factors, including the stage of the cancer. Increasingly aggressive treatments are employed in accordance with the poorer the patient's prognosis and the higher the risk of recurrence of the cancer following treatment.

Breast cancer is usually treated with surgery [4], which may be followed by chemotherapy or

radiation therapy, [5,6] or both. Chemotherapy while previously being used in only an auxiliary role is slowly coming to the centre of the stage of management of breast cancer. Used for both curative and palliative purposes, it can be administered in both adjuvant and neo-adjuvant settings.

The present study has been designed to study the efficacy of CMF regimen in patients with breast carcinoma admitted in surgical ward during the period of study with special reference to role of chemotherapy in relieving symptoms and signs of patients of carcinoma breast

MATERIAL AND METHODS

The present study was conducted on 100 patients of breast carcinoma admitted in the Department of Surgery, J A Group of Hospitals and G R Medical College, Gwalior (MP) during September 2014 to August 2015 after getting ethical approval from college ethical committee and well written informed consent from the patients.

Patients of breast carcinoma who were admitted in the department of surgery, G.R. Medical College and JA group of hospitals Gwalior were registered and particulars regarding their age, sex, residence, socioeconomic status, parity and family history were recorded. The detailed history regarding their presenting complaints with duration, mode of onset, progress of disease and treatment history or any surgical intervention was taken. Thorough clinical examinations were followed and precise findings about size, fixity and skin involvement of breast lump as well as axillary nodes were recorded.

Tissue diagnosis was confirmed by FNAC/core needle/incisional biopsy. Detailed metastatic workup was done and operability of disease and staging on the basis of TNM staging system was decided.

Patients presenting with early operable disease were undergone modified radical mastectomy with adjuvant chemotherapy while in patients with locally advanced disease, neoadjuvant chemotherapy were given for six cycles and response will be recorded thereafter. This was followed by modified radical mastectomy with continuation of adjuvant chemotherapy in post-operative period. In patients of stage IV palliative treatment was given by chemotherapy and/or hormonal therapy to relive their symptoms.

All patients were given intravenous fluids, antiemetic and anti-anaphylactic drugs before chemotherapy. Drugs used for chemotherapy are:

- Cyclophosphamide - 600 mg/m² BSA

- Methotrexate - 50 mg/m² BSA
- 5-fluorouracil - 600 mg/m² BSA

In case of occurrence of any untoward reaction to the drugs, chemotherapy was discontinued and patients were excluded from study. Patients presenting in post-MRM phase were admitted for chemotherapy and details of their operation were recorded with their presenting symptoms. Local and systemic examinations were done to note local and regional recurrence. After tabulating the observations in the master-chart provided in appendix, statistical analysis was done using SPSS Statistics Data Editor Software. Efficacy of CMF chemotherapy in the study sample was calculated.

OBSERVATIONS AND RESULTS

A total of 100 patients who were administered CMF chemotherapy in Department of Surgery, G R Medical College and J A Group of Hospitals, Gwalior were included in this study from September 2014 to August 2015 and following results were obtained.

Types of Chemotherapy

Table-1 shows type of various kind of chemotherapy administered to the patients. In our study 80% of them were given as Neoadjuvant therapy and rest 20% were administered as Adjuvant chemotherapy.

Table-1 shows type of chemotherapy used in different patients in the sample. As per the table, 80% of the patients were administered neoadjuvant chemotherapy while remaining 20% were given adjuvant chemotherapy.

Table-1: Showing Type of Chemotherapy

Type of Chemotherapy	Frequency	Percent
Neoadjuvant	80	80.0
Adjuvant	20	20.0
Total	100	100.0

Distribution of the Patient

Table-2 shows age distribution of patients in years in present study. In our study 36% of patients was in the age group of 41-50 years, followed by 28% of patients lied in the age group of 51-60 years.

Table-2: Showing age distribution of patients in present study

Age Group	Frequency	Percent
30-40 Years	12	12.0
41-50 Years	36	36.0
51-60 Years	28	28.0
61-70 Years	18	18.0
>70 Years	6	6.0
Total	100	100.0

Changes in the Size of Tumour Following Chemotherapy

Table-3 shows the comparison between changes in the size of breast lump in study sample. As per the table, significant change in size of breast lump was observed. 20% of the sample were rendered with no

palpable breast lump post chemotherapy. 40% of the sample had size of breast lump reduced to less than 2cm whereas 25% of sample had reduction in their lump size to that between 2-5cms. 15% still had lump measuring of more than 5cms after completion of chemotherapy as compared to that of size before starting chemotherapy.

Table-3: Showing change in size of tumor following CMF chemotherapy

	Size Before Chemotherapy		Size After Chemotherapy	
	Frequency	Percent	Frequency	Percent
Clinically Not Palpable	0	0	20	20.0
<2 cms	19	19.0	40	40.0
2-5 cms	55	55.0	25	25.0
>5 cms	26	26.0	15	15.0
Total	100	100.0	100	100.0

Effect of CMF Chemotherapy on Axillary Lymphadenopathy

Table-4 shows the comparison between changes observed in axillary lymphadenopathy status post chemotherapy in study sample. As per the table, significant conversion in axillary lymphadenopathy

status in the sample. Those with palpable axillary lymphadenopathy was 80% before starting chemotherapy while after completion of chemotherapy only 40% of the sample still had palpable axillary lymphadenopathy. 60% of the patients showed absence in axillary lymphadenopathy post chemotherapy.

Table 4: Showing effect of CMF chemotherapy on axillary LN

	Axillary Lymphadenopathy Before Chemotherapy		Axillary Lymphadenopathy After Chemotherapy	
	Frequency	Percent	Frequency	Percent
Present	80	80.0	40	40.0
Absent	20	20.0	60	60.0
Total	100	100.0	100	100.0

Effect of CMF Chemotherapy on Distant Metastasis

Table-5 shows the comparison between changes observed in distant metastasis status post chemotherapy in study sample. As per the table, 9%

patients in sample had distant metastasis before chemotherapy while post chemotherapy only 7% of patients in sample had distant metastasis.

Table 5: showing effect of CMF chemotherapy on distant metastasis

	Distant Metastasis Before Chemotherapy		Distant Metastasis After Chemotherapy	
	Frequency	Percent	Frequency	Percent
Present	9	9.0	7	7.0
Absent	91	91.0	93	93.0
Total	100	100.0	100	100.0

Effect of CMF Chemotherapy on TNM Staging

TNM stage post chemotherapy. As per the table-6, there was significant downgrading in TNM stage. There were 41% of patients of the sample belonging to stage IIIA while post chemotherapy only 11% of patients remained in stage IIIA. Similarly patients of stages IIA, IIB and so on, post chemotherapy had downgrading of TNM stage to stage I which comprised

of 33% of patients. Patients in stage IIB before chemotherapy was 22% while post chemotherapy only 9% patients comprised in this stage.

20% of the patients could not be staged post chemotherapy as they were administered chemotherapy post operatively in patients with resectable lump.

Table 6: Showing effect of CMF chemotherapy on TNM staging.

	TNM Staging Before Chemotherapy		TNM Staging After Chemotherapy	
	Frequency	Percent	Frequency	Percent
Stage I	0	0	33	33.0
Stage IIA	17	17.0	10	10.0
Stage IIB	22	22.0	9	9.0
Stage IIIA	41	41.0	11	11.0
Stage IIIB	6	6.0	6	6.0
Stage IIIC	5	5.0	4	4.0
Stage IV	9	9.0	7	7.0
Stage Could Not Be Defined	0	0	20	20.0
Total	100	100.0	100	100.0

Number of Patient Showing Response to Chemotherapy

Table-7 shows percentage of patients in the sample showing response to chemotherapy. As per the table, 93% of patients of the sample showed variable response to different types of chemotherapy of which 75% of the patients showed partial response while 18% showed.

Table-7 shows number of patients showing response to chemotherapy. 18% of the patients showed complete response, 75% of the patients showed partial response and 7% were non-responders to the CMF chemotherapy.

Table 7: showing number of patient showing response to chemotherapy

Response of Chemotherapy		
	Frequency	Percent
Complete Response	18	18.0
Partial Response	75	75.0
Nonresponse	7	7.0
Total	100	100.0

Recurrence Rate after CMF Chemotherapy

Table-8 shows percentage of patients in the sample with recurrence following chemotherapy. As per the table, only 4% of the patients came back with complaints of recurrence of lump.

Patient was present after mastectomy. Hence, staging could not be defined. These patients received two cycles of chemotherapy and presented after 6 months with recurrency most of them belong to TNM stage IIIA.

Table 8: Showing recurrence rate after CMF chemotherapy

Recurrence Rate After CMF Chemotherapy		
	Frequency	Percent
PRESENT	4	4.0
ABSENT	96	96.0
Total	100	100.0

Outcomes Following CMF Chemotherapy

Table-9 shows outcome following CMF chemotherapy in the present study. As per the table, 89% of the patients shows positive outcome which implies significant downgrading of tumor staging following chemotherapy.

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Table 9: Showing outcome following CMF chemotherapy

Outcome Following CMF Chemotherapy		
	Frequency	Percent
Positive Outcome	89	89.0
Negative Outcome	11	11.0
Total	100	100.0

DISCUSSION

The present study entitled "A Clinical Study of Efficacy of CMF Regime in the Management Of Patients Of Carcinoma Breast In J. A. Group of Hospitals Gwalior "is to be conducted on 100 patients of breast carcinoma admitted in the Department of Surgery, J A Group of Hospitals and G R Medical College, Gwalior (MP) during September 2014 to August 2015 after getting written informed consent from the patients.

The ever increasing incidence of malignancy in general and of breast carcinoma in particular is associated with increased consciousness among females for any abnormal feel in the breast. In the present study 100 cases of breast carcinoma were selected as per the inclusion criteria and clinically made staging of tumour and analysis of the efficacy of CMF regime done.

Age distribution of the patient:-

The relationship between the age and incidence depends largely upon geographic location. In present study maximum patients of breast carcinoma present in age group of 41-60 year of age.

Above mentioned table shows age distribution of study sample. As per the table carcinoma breast was present in 30 to 75 years with most common age group involved was 41-50 years followed by 51-60 years. All the patient of the study sample was females.

Changes in the size of tumour:-

In present study significant changes in size of breast lump was observed after chemotherapy. 20% of the sample were rendered with no palpable breast lump post chemotherapy. 40% of the sample had size of breast lump reduced to less than 2cm whereas 25% of sample had reduction in their lump size to that between 2-5cms. 15% still had lump measuring of more than 5cms after completion of chemotherapy as compared to that of size before starting chemotherapy. Overall 75% patients were showed partial response while 18% patient's complete response thus change in size of tumour post chemotherapy was observed. The mean size of tumor calculated before induction of chemotherapy was 28.16 cm² and after chemotherapy it was 15.84 cm² indicating a reduction in mean tumor size by 53%. Similar results were also observed in various other studies shown in table.

Correlation of axillary lymphadenopathy with chemotherapy –

As per our study 80% of the patients had axillary lymphadenopathy prior to chemotherapy while after completion of chemotherapy only 40% of the sample still had palpable axillary lymphadenopathy thus 40% of the patients showed absence in axillary lymphadenopathy post chemotherapy there by suggesting significant conversion in axillary lymphadenopathy status in the sample.

Effect of chemotherapy on distant metastasis –

1. Our study observed 9% patients in sample had distant metastasis before chemotherapy while post chemotherapy only 7% of patients in sample had distant metastasis thus overall decrease in distant metastasis by 2% post chemotherapy.

Effect of CMF chemotherapy on TNM staging –

As per our study there was significant downgrading in TNM stage post chemo therapy cycle of CMF in Carcinoma breast. There were 41% of patients of the sample belonging to stage IIIA while post chemotherapy only 11% of patients remained in stage IIIA. Similarly patients of stages IIA, IIB and so on, had downgrading of TNM stage to stage I post chemotherapy, comprising of 33% of patients. 22% Patients were present in stage IIB before chemotherapy while only 9% patients remained in this stage post chemotherapy. 20% of the patients could not be staged post chemotherapy as they were administered chemotherapy post operatively.

Number of patient showing response to chemotherapy –

As per our study 18% of the patients showed complete response, 75% of the patients showed partial response and 7% were non-responders to the CMF chemotherapy.

Recurrence rate after CMF chemotherapy –

In our study only 4% of the patients had recurrence post chemotherapy. Most of them belong to TNM stage IIIA

Incidence of adverse effects during and after chemotherapy –

As per our study 33% had experienced adverse effects of the chemotherapy while majority had

not experienced the same. Most common side effect observed was Leucopenia followed by Nausea.

Outcomes following CMF chemotherapy –

As per our study, 89% of the patients shows positive outcome which implies significant downgrading of tumor staging following chemotherapy in form of 6 cycles of CMF.

SUMMARY AND CONCLUSION

Carcinoma breast is the major global health problem. Among the available modalities neo-adjuvant chemotherapy and adjuvant chemotherapy holds an important role in management.

In our present study conducted on 100 patients of breast carcinoma in department of surgery, J A group of hospitals and G R Medical College (M.P.), we studied the efficacy of CMF Chemotherapy in management of carcinoma breast in our institution.

Following conclusions were drawn from this study:

- 41% patients of carcinoma breast were present in stage IIIA.
- 80% of patients of carcinoma breast were administered Neoadjuvant therapy and 20% were administered as Adjuvant chemotherapy.
- Most of the patients lied in the age group 41 – 50 yrs (36%).
- Laterality of breast carcinoma involvement was more commonly on the right (58%) followed by left side (40%), while 2% had bilateral involvement.
- Breast lump showed decrease in size following chemotherapy, 20% of patient had no palpable lump post-chemotherapy.
- 40% of the patients showed absence of axillary lymphadenopathy post chemotherapy.
- Rate of decrease in distant metastasis by 2% post chemotherapy.
- There was significant downgrading in TNM stage post chemo therapy cycle of CMF in Carcinoma breast.
- 4% of the patients had recurrence post chemotherapy most of them belonging to TNM stage IIIA.
- 18% of the patients showed complete response, 75% of the patients showed partial response and 7% were non-responders to the CMF chemotherapy.
- 33% of patients had experienced adverse effects of the chemotherapy. Most common side effect observed was Leucopenia followed by Nausea.
- 89% of the patients shows positive outcome.

LIMITATION OF STUDY:

Since our study was conducted in a relatively small sample, it is recommended to repeat similar studies in larger and more variable study sample to fortify the statistical power of the observations.

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