



E-ISSN: 2616-3470
P-ISSN: 2616-3462
© Surgery Science
www.surgeryscience.com
2019; 3(3): 284-285
Received: 21-05-2019
Accepted: 25-06-2019

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Efficacy of single cycle neoadjuvant chemotherapy in carcinoma breast

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DOI: <https://doi.org/10.33545/surgery.2019.v3.i3e.185>

Abstract

Purpose: To evaluate and quantify the response to single cycle neo-adjuvant chemotherapy in stage IIB & IIIA breast cancer.

Methods: A total number of 25 cases of breast carcinoma were selected for the study. All the patients diagnosed as breast carcinoma with stage IIB and IIIA and admitted in surgical wards were selected for this prospective study at R.L. Jalappa. Hospital and Research Centre, Tamaka, Kolar Attached To Sri Devaraj Urs Medical College between December 2013 and June 2015. Clinical tumor size was estimated before the start of chemotherapy (FAC regimen) and after an interval of 10 days by sonomammography.

Results: In our study we found that there is decrease in tumor size in 16% of patients (i.e 4 patients among 25) in those who received single cycle neo adjuvant chemotherapy in patients with stage IIB and IIIA patients. With 95% confidence interval ranging from 6.40-34.65. This decrease in tumor size has resulted in down staging among three cases (Down staged from stage IIB to stage IIA).

Conclusion: In our study we found that single cycle NAC does not decrease the tumor size in significant number. The decrease in tumor size was noticed in patients who had no nodal involvement and in multiparous women. Single cycle Neoadjuvant chemotherapy is preferred in patients who cannot take up 3 cycles of NAC. These patients can be tried with single cycle NAC which helps to halt the disease in tumor progression.

Keywords: Carcinoma breast, chemotherapy, single cycle, neoadjuvant

Introduction

Breast cancer is the second most common cancer among women in India and accounts for 7% of global burden of breast cancer and one-fifth of all cancers among women in India. 1 Preoperative or neoadjuvant chemotherapy (NAC) has been widely accepted as a standard of care in patients with inoperable as well as operable breast cancer^[2].

The rationale for NAC in operable breast cancer is that most invasive breast cancers are systemic diseases.

NAC can reduce metastatic disease before surgery and reduce the size of the primary tumor, thus increasing breast conservation rates and to allow an improved cosmetic outcome with breast conserving surgery and lower levels of psychological morbidity^[3].

This study will be conducted to observe whether single cycle neoadjuvant chemotherapy helps in downstaging the tumor which results in patient compliance and the reduction of morbidity post surgically.

Patients and Methods

This prospective study involved 25 patients with Stage IIB and IIIA breast cancer who were admitted at R L JALAPPA hospital, Dept. of General surgery during a period of 2 years from December 2013 and June 2015. The exclusion criteria were patients with systemic metastasis, pregnant/lactating patients, patients who are allergic to above mentioned drugs, impaired renal and hepatic function, patients with cardiac diseases. Female patients fulfilling the inclusion criteria were included in this study based on detailed history, clinical examination, FNAC/Trucut biopsy, Ultrasonography (USG) breast and axilla, USG abdomen, mammography and chest x-ray. The breast carcinoma was staged according to TNM staging (AJCC) and stage IIB and IIIa received a single cycle of chemotherapy consisting of

- 5- Fluorouracil 500 mg/m²

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- Adriamycin 50 mg/m²
- Cyclophosphamide 80 mg/m² (FAC regimen) which was administered intravenously. Clinical tumor size was estimated before the start of chemotherapy and after an interval of 10 days by Sonomammography. The product of the two greatest perpendicular diameters and volume of tumor was used to compare tumor size before and after chemotherapy, as defined by the International Union Against Cancer criteria.

Statistical analysis

Descriptive and inferential statistical analysis has been carried out in the present study. Results on continuous measurements are presented on Mean ± SD (Min-Max) and results on categorical measurements are presented in Number (%). Significance is assessed at 5% level of significance

Statistical software: The Statistical software namely SAS 9.2, SPSS 15.0, Stata 10.1, MedCalc, Systat 12.0 and R environment ver.2.11.1 were used for the analysis of the data and Microsoft word and Excel have been used to generate graphs, tables etc.

Results

In our study 44% of the patients admitted for the treatment of breast cancer were locally advanced. The highest number of cases are seen in the age group of 51-60 years, the most consistent symptom is that of a lump and is seen in all cases, the percentages of lump in the upper outer quadrant is 64%, most of the cases present with 3-6 months duration. Maximum tumors are in the range of 5-8 cms. We found that there is decrease in tumor size in 16% of patients (i.e 4 patients among 25) in those who received single cycle neo adjuvant chemotherapy in patients with stage IIB and IIIA patients. With 95% confidence interval ranging from 6.40-34.65. This decrease in tumor size has resulted in down staging among three cases (Down staged from stage IIB to stage IIA).

Discussion

Results of NSABP B-18 (National Surgical Adjuvant Breast Project) on the effect of preoperative chemotherapy on tumor response indicate that following administration of preoperative chemotherapy, 36% of patients obtained a clinical complete response and 43% of patients obtained a clinical partial response, for an overall response rate with downstaging of 79%.^[4, 5]

Study conducted by Veeram sunil kumar reddy with 3 cycles of neo adjuvant chemotherapy shows the down staging of 76.6%. 6 Study conducted by Awad Ali M. Alawad with 2 cycles of neo adjuvant chemotherapy shows the clinical response rate was 83%; 11 patients (11.2%) had a complete clinical remission (cCR); 71 had a partial remission (72.4%); 13 had stable disease (13.3%), and 3 had progressive disease (3.1%). Seven patients had complete pathological responses also it states that Neoadjuvant chemotherapy can achieve a high objective response rate in patients with locally advanced breast cancer even after two cycles.⁷

Table 1: Tumour size changes after NAC

Tumour size after NAC	After NAC	%	95%CI
Increased	0	0.0	0.0
Remain same	21	84.0	65.35-93.60
Decreased	4	16.0	6.40-34.65
Total	25	100.0	-

Conclusion

In our study we found that single cycle NAC does not decrease the tumor size in significant number. The decrease in tumor size was noticed in patients who had no nodal involvement and in multiparous women. Single cycle Neoadjuvant chemotherapy is preferred in patients who cannot take up 3 cycles of NAC.

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