

Response Assessment after Concurrent Chemoradiation in Carcinoma Cervix – A Prospective Study

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Abstract: Carcinoma of uterine cervix is common cancer among women worldwide. Treatment for locally advanced cancer is concurrent chemoradiation. The purpose of this study is to assess the clinical response of the cervical cancer 1 week after concurrent cisplatin based chemotherapy and external beam radiation. Response was assessed clinically. Significant response was noticed after concurrent chemoradiation. It was concluded that concurrent chemotherapy and external beam radiation reduces the tumor size and it forms major part in treatment of carcinoma cervix along with brachytherapy.

Keywords: Carcinoma, Cervix, Chemoradiation, Respons

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I. Introduction

Cervical cancer is the major health problem among women worldwide. In India every year there are 122,844 cases and 67,477 deaths with highest age standardized incidence of cervical cancer in South Asia at 22. In India the peak age for cervical cancer incidence is 55–59 years. The cervical cancer stands second to breast cancer in spite of declining trends in Indian cancer registries. [1] The common symptom includes foul smelling watery or white discharge. Intermittent painless per vaginal bleeding or spotting. Post coital bleeding is also seen. Other symptoms include back pain and abdominal pain. With advanced disease urinary bladder and rectal symptoms like hematuria, dysuria and rectal bleeding is also noticed. [2] Treatment for early stage IA-IIA cervical cancers is surgery or radiotherapy. But for more advanced stages beyond II-B, chemoradiation is the standard of care. [3] Five prospective randomised trials showed a significant improvement of the clinical outcome for patients who received this combined treatment compared with those who received radiotherapy alone. A meta-analysis of 13 randomised clinical trials revealed that concurrent chemoradiotherapy obtained a 6% improvement in 5-year survival [4] This study is conducted to assess the clinical response of cervical cancer tumor seen 1 week after external beam radiation and concurrent chemotherapy (i.e. before brachytherapy) at our institution.

II. Materials And Methods

All the patients with histologically and radiologically proven carcinoma cervix at the Department of Radiotherapy in Father Muller Medical College, Mangalore, from January 2017 to January 2018, with ECOG performance status of 0-2, adequate hematological, renal and liver function parameters were taken up for the study.

Study Design: Prospective observational study

Study Location: This study done in Department of Radiotherapy in Father Muller Medical College, Mangalore, from January 2017 to January 2018

Study Duration: January 2017 to January 2018.

Sample size: 42 patients.

Sample size calculation: The sample size was estimated by the formula provided by institutional statistician. $n = Z^2 Ap(1-p)/e^2$ Where, $Z_{\alpha} = 1.96$ at 95% CI (Common Interval) $P = 22\% = 0.22$, $e =$ allowable error = 10%. The calculated sample is estimated to 42.

Subjects & selection method: Patients with prior radiotherapy, chemotherapy, distant metastasis, other active malignancies were excluded from the study. 42 carcinoma cervix patients, satisfying the inclusion and exclusion criteria were taken up for the study. The treatment consists of a combination of external beam radiation with concurrent weekly 40 mg/m² cisplatin and high dose rate (HDR) brachytherapy. All external beam radiation was

planned with a four-field box technique using a ECLIPSE 8.6 treatment planning system and photons were delivered from a 6 MV Varian linear accelerator . A total of 46-50 Gy (2 Gy/fr, daily, Monday through Friday).Response was clinically assessed before brachytherapy. Informed consent was obtained from all the patients. Each patient underwent clinical evaluation which included detailed history, physical examination, laboratory investigations, and imaging studies.

Inclusion criteria:

1. Histologically confirmed carcinoma cervix
2. Aged ≥ 18 years,
3. ECOG performance status of 0-2
4. adequate hematological, renal and liver function parameters Fasting

Exclusion criteria:

1. Pregnant women;
2. Presence of distant metastasis
3. Other active malignancy
4. HIV and HBsAg positive patients

Statistical analysis :The statistical software SPSS 23.0 was used for the analysis. Frequency,percentage,mean and chi-square test were done for the comparison. A ‘p’ value of less than 0.05 was considered as statistically significant. Microsoft word and Excel have been used to generate graphs, tables.

III. Results

The study comprised of 42 cervical cancer patients. The mean age was 53.59 years.In the entire study population, 54.76% were stage IIB carcinoma cervix,30.95% were stage IIIB,9.52% were stage IIA,2.3% were stage IB & IIIA respectively.92.87% were of squamous cell carcinoma histology and rest of 7.14% were of adenocarcinoma. Most common symptom was bleeding per vagina comprising 73.8%,followed by white discharge per vagina-69.04%,abdominal pain-30.95%,low back ache-30.95%,urinary symptoms-7.14%,none of them had rectal symptoms.16.66% has hypertension,7.14% had hypothyroidism,11.9% had diabetes mellitus.21.42% of patients received all 5 cycles of cisplatin,38.09% received 4 cycles of cisplatin,26.19% received 3cycles of cisplatin.and 14.28% received 2 cycles of cisplatin.

Table 1: patient charecteristics

Age at diagnosis	Number of patients	Comorbidities	Number of patients
30-40	6	Diabetes mellitus	5
41-50	15	Hypertension	7
51-60	6	hypothyroidism	3
61-70	14	FIGO stage	Number of patients
71-80	1	IB	1
Symptoms	Number of patients	IIA	4
Bleeding per vagina	31	IIB	23
White discharge per vagina	29	IIIA	1
Low backache	13	IIIB	13
Abdominal pain	13	Number of chemotherapy cycles completed	Number of patients
Burning micturition	3	5	9
Histology type	Number of patients	4	16
scq	39	3	11
adenocarcinoma	3	2	6

Clinical response after 1 week of external beam radiotherapy with concurrent cisplatin was assessed.Partial response was seen in 69% of the patients,complete response in 4.8% of the patients and no response in 26.2% .

Table 2:clinical response

Clinical response assesment	frequency	percentage	
No response	11	26.2	P<0.001
Partial response	29	69.0	
Complete response	2	4.8	

IV. Discussion

Multidisciplinary approach is required for the management of carcinoma of cervix. The treatment depends on stage of the disease and patient factors. For early stage cancer IA-IIA treatment is radiotherapy or surgery. In locally advanced stage IIB-IVA treatment is concurrent chemoradiation with brachytherapy [3]. NCI (National Cancer Institute) alert reviewed the results of 5 randomised trials of concurrent chemoradiation in cervical cancer which showed reduction in risk of relapse/death by 30-50%. When cisplatin was used 10-15% survival benefit was seen [4,5,6]. In the current study the most common stage was IIB (54.76%) carcinoma cervix, followed by stage IIIB (30.95%) with mean age of 53.59 years. The most common symptoms were bleeding per vagina (73.8%) and white discharge per vagina (69.04%). The common comorbidities were hypertension (16.66%) and diabetes mellitus (11.9%) followed by hypothyroidism (7.14%). All the patients completed prescribed dose of external beam radiotherapy to a dose of 46-50 Gy. 21.42% of patients received all 5 cycles of cisplatin, 38.09% received 4 cycles of cisplatin, 26.19% received 3 cycles of cisplatin, and 14.28% received 2 cycles of cisplatin. Complete response was seen in 4.8%, partial response in 69% and no response in 26.2% of the patient. It was noted that one patient with stage IB, who completed all 5 cycles of cisplatin along with radiation there was complete response after external beam radiation and chemotherapy. It was also observed patients of stage II & III who received more than 3 cycles of cisplatin along with radiation there was partial response with reduction in bulk of the disease after external beam radiation and chemotherapy. Most of the no response was seen in stage III disease but there was reduction in the bulk of the disease.

IV. Conclusion

In the present study of carcinoma cervix after external beam radiotherapy with concurrent cisplatin it was observed that maximum number of patient had partial response. It was also noted that that only external beam radiotherapy with concurrent cisplatin is not sufficient for curative intent. Hence in the management of carcinoma cervix both concurrent chemoradiation and brachytherapy plays major role.

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