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PATHOLOGICAL RESPONSE AFTER NEOADJUVANT CHEMORADIATION IN LOCALLY ADVANCED RECTAL CANCER

Oncology

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ABSTRACT

Background: Locally advanced rectal cancer can be downstaged by neoadjuvant therapy and the resultant tumour response can be quantified histologically.
Aim: To assess pathological response in patient with locally advanced rectal cancer treated by neoadjuvant chemoradiation.
Methods And Materials:A total of 30 consecutive patient with locally advanced rectal cancer treated in father muller medical college were reviewed. Pre-operative neo-adjuvant chemo radiation was delivered with a total dose of 50.4 Gy in 28 fraction concurrent with Tab.capecitabine 825mg/m2. Surgery was planned at 6-8 weeks from completion of neo-adjuvant chemo radiation. The pathological response to therapy was assessed by histopathological report of surgical specimen.
Results:A total of 30 patient with 17 male and 13 female patient. Initial clinical staging of patient revealed 90% were staged T3/T4 N1-2M0 and 10% were staged T3N0. Patient received neo-adjuvant chemo radiation followed by surgery as per protocol. In which 50% underwent Abdominoperineal resection, 23.3% underwent Anterior resection, 20% underwent low Anterior resection, 6.6% underwent Pelvic exentration. Complete pathological response was observed in 23.3% and partial response in 76.7% of patient. Positive lymph node metastasis was confirmed in 35% of cases.
Conclusion: Neoadjuvant chemoradiation is a reasonable option for cases of locally advanced rectal cancer to achieve pathological response and sphincter preserving surgery.

KEYWORDS

Neo-adjuvant Chemo Radiation, Abdominoperineal Resection, Anterior Resection, Low Anterior Resection, Pelvic Exentration, Pathological Reponse.

INTRODUCTION

Colorectal cancer remains a major worldwide health problem. Colorectal cancer is the third most commonly diagnosed malignancy and the fourth leading cause of cancer death in world, accounting for about 1.4 million new cases and almost 700000 death in 2012[1].

Rectal cancer accounts for nearly 30% of all colorectal cancer[2]. Surgery is the cornerstone in treatment of rectal cancer. Following resection, 5 year varies according to disease extent[3,4].

After establishing the diagnosis and completing the staging work-up, a decision is made whether to pursue immediate resection/administer pre-op chemo radiation[5].

Strategy of performing pre-op instead of post-op treatment has the proven advantage of lower acute toxicity[6], lower total dose of radiation needed[7] and eventually tumor regression and down staging to enable curative resection and even sphincter preservation[7-12].

Objective of this study to assess the pathological response in patient with locally advanced rectal cancer treated by neo-adjuvant chemo radiation in father Muller medical college, Mangalore between 2018-2019.

MATERIALS AND METHODS

A total of 30 consecutive patients with locally advanced rectal cancer treated in father Muller medical college were reviewed.

Pre-operative Neo-adjuvant chemo radiation was delivered with a total dose of 50.4Gy in 28 fraction, 2Gy per fraction, 5 fraction per week by conformal technique concurrent with Tab.capecitabine 825mg/m2. Total mesorectal excision of the rectal tumor either by Anterior/ APR was planned at 6-8 weeks from completion of pre-operative Neo-adjuvant chemo radiation. The pathological response to therapy was assessed by histopathological report of surgical specimen. Report included presence of lymph nodes and if they were involved or not. Data was introduced and analyzed by computer program (SPSS version 17).

RESULTS

A total of 30 patient with 17 male and 13 female patients. Initial clinical staging of patient revealed 90% were staged T3/T4 N1-2 and 10% were staged T3N0M0. More than 53% of cases have tumor between 4-8cm from anal verge (Fig:1).

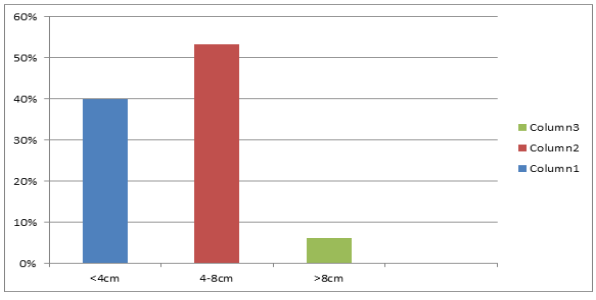

Figure 1: Tumor Site From Anal Verge

Patient received neo-adjuvant chemo radiation and followed by surgery after 6-8 weeks as per protocol. In this study about 50% of cases underwent APR, 23.3% underwent AR, 20% underwent LAR and 6.6% underwent pelvic exentration (in Fig :2).

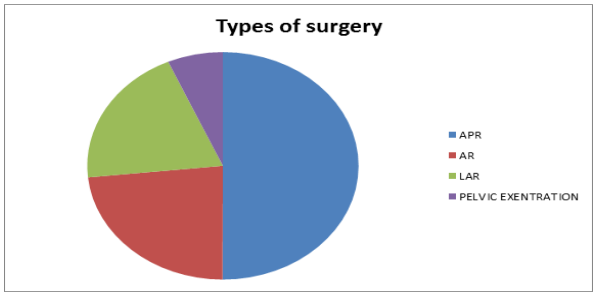

Fig 2:Surgery

Following surgery post-operative histopathological report was reviewed and found that complete pathological response was observed in 23.3% of cases and partial response was observed in

76.7% of cases (in Fig:3). Positive lymph node metastasis was confirmed in 35% of cases.

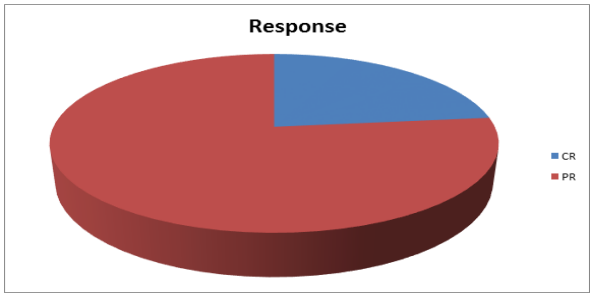

Fig 3:Response

DISCUSSION

Advances in colorectal cancer treatment create a development of a neo-adjuvant chemo radiation which became widely accepted now[13]. Neo-adjuvant chemo radiation is very effective in reducing the tumor mass as 7 out 30 patient showed no palpable mass, per digital rectal examination (DRE), after Neo-adjuvant chemo radiation. All cases were amenable for surgery after neo-adjuvant chemo radiation including those who presented with fixed tumor. This reflected the effectiveness of NACRT in the study.

Patient Characteristics

Total no.of patient	30
Medianage	51years(21-68years)
Male	17
Female	13
Grade:	
Welldifferentiated	16
Moderatelydifferentiated	9
Poorlydifferentiated	5
Tumor site fromanalverge:	
<4cm	12(40%)
4-8cm	16(53%)
>8cm	2(6%)
Stage:	
T3/T4N1-2	27(90%)
T3N0M0	3(10%)
Radiationdose	50.4Gy/28fraction
Concurrentchemotherapy	Tab.capecitabine
Surgery	
APR	15(50%)
AR	7(23.3%)
LAR	6(20%)
Pelvicexentration	2(6.6%)
Patho logical staging	
YpT0N0	7(23.3%)
ypT1-2N0-1	7(23.3%)
YpT3-4N0-2	16(53.3%)

In this study 90% of our patient had T3/T4 N1-2 staged disease and post chemo radiation almost 45% of patient had down staging of disease. 10% of patient who had T3N0 staged disease had complete response with down staging of disease of 100%.Radiological complete resolution was observed in 40% of cases. Overall down-staging in this study was observed in 70%. In comparison with a study done by Rashid A et.al they showed down-staging was found in 56.7% of cases[14]. Duke`s university study showed down-staging in 82% of cases, and this was compatible with our findings[15].

In a study conducted in shanghai (2001-2005), 105 patients were studied, of these 13 patient showed complete tumor response after chemoradiation and they spared the operation[16]. In our study 7/30 patients (23.3%) had complete pathological response which was comparable to findings of Dunst et.al[17], they have pathological complete response was achieved in six patients (7%, 95% confidence interval: 3-14%). In another study conducted in Karachi, Rashid A et.al found that pathological complete response of tumor was achieved in 3.3%[14].

In our study, Positive lymph node metastasis was confirmed in 35% of cases, this correlates well with the series reported by De laFuente SG et.al[18], who found that fewer total lymph nodes were retrieved in the neo-adjuvant therapy patients compared to those who did not receive pre-operative chemo radiation.

CONCLUSION

Neoadjuvant chemoradiation is a reasonable option for cases of locally advanced rectal cancer to achieve pathological response and sphincter preserving surgery.

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