ISSN- O: 2458 - 868X, ISSN–P: 2458 – 8687
Index Copernicus Value: 49. 23
PubMed - National Library of Medicine - ID: 101731606

International Journal of Medical Science and Innovative Research (IJMSIR)
IJMSIR : A Medical Publication Hub
Available Online at: www.ijmsir.com
Volume – 4, Issue – 1, January - 2019, Page No. : 151 - 156

Evaluation of Response in Locally Advanced Head and Neck Carcinoma after Short Course Palliative Hypofractionated Radiotherapy

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Type of Publication: Original Research Paper

Conflicts of Interest: Nil

Abstract

Introduction: Advanced stage of head and neck carcinomas patients are inoperable and have shorter life span with poor quality of life. The aim of this study is to evaluate the treatment response at the primary and nodal sites, improvement of symptoms and toxicity after a short course hypofractionated radiotherapy schedule.

Methods: Fifty Patients With Advanced Stage Head And Neck Cancers With Hard Fixed Neck Nodes Were Included In This Study. All Patients Included Were Previously Untreated, Histopathologically Proven Squamous Cell Carcinoma And ECOG Performance Between 2 & 3, Received Short Course Hypofractionated Radiotherapy (20Gy/5fraction/4Gy Per Fraction/5 Days In A Week).

Result: Pain And Dysphagia Were Most Common Presenting Complaints. Evaluation Was Done At 15th And 30th Day After Completion Of Treatment Using WHO Criteria And Toxicities Were Assessed Using RTOG Criteria. Complete Response(CR) And Partial Response(PR) Was Achieved In 2 And 47 Patients Respectively. One Patient Had Stable Disease. Grade II And III Toxicities Were Observed In Most Patients. None Of The Patients Had Progressive Disease Or Grade IV Toxicities.

Conclusion: Hypofractionated Radiotherapy Should Be Included As A Means Of Palliation In Advanced Inoperable Head And Neck Cancer Patients To Achieve A Significant Symptom Relief.

Keywords: Head And Neck Cancer, Palliative Hypofractionated Radiotherapy.

Introduction

According to GLOBOCON 2018, the total population of whole world and India was 7.63 billion, and 1.36 billion respectively. Among these, total new cancer cases and deaths from cancer were 18.1 million and 9.6 million in world and 1.1 million and 0.9 million in India respectively.[1] It is estimated that from a cancer registry in India, the number of tobacco related head and neck cancer would be 3,16,734 and 2,18,421, respectively by 2020[2]. Cigarette-smoking and alcohol consumption are the main reasons for HNSCC in the Western population, whereas the use of smokeless tobacco and areca nut is the most common cause of HNSCC in Southeast Asia.[3][4] The various forms in which smokeless tobacco is used in developing countries include khaini, mava, paan (betel quid), zarda, snuff, mashiri, etc.[5] Current evidence

suggests that Human Papilloma Virus 16 (i.eHPV16) is associated with tonsil cancer (including Waldeyer ring cancer), base of tongue cancer and other oropharyngeal cancer sites.[6]

Surgery is the treatment of choice for early staged carcinomas of head and neck. But most patients presented to our institution at an advanced stage at which surgery is not possible, reason being prolonged asymptomatic period or procrastination of the treatment. Fixed neck nodes are important term explored while determining prognosis in such cases. Santos and associates [7] explained the term fixed nodes means that the attachment or fixity of nodes to adjuvant structures such as mandible, carotid artery, base of skull, deep muscle of anterior and posterior triangle of neck, clavicle or skin.

Radiotherapy alone or in combination with chemotherapy remains the treatment of choice for managing such end stage patients. Alleviation of distressing signs and symptoms and to improve quality of life (QOL) is the main objective of radiotherapy in these patients. Prolonged treatment time and repeated visits to the hospital hinders completion of radiation schedule. Shorter duration of overall treatment time in hypofractination radiotherapy overcomes this problem and provides improvement in QOL.

Materials and Methods

Fifty previously untreated patients with locally advanced stage IV histopathologically proven squamous cell carcinomas of the head and neck with hard fixed neck nodes were included in this study. All patients included had ECOG performance status between 2 &3 with life expectancy less than 1 year. Complete history and general physical examination, clinical performance status, dental status, assessment of patient's quality of life and evidence of any lymphadenopathy were done for each patient before start of treatment. All the patients received external beam radiotherapy on Theratron 780-E Tele-Unit machine using Co-60 isotope in total dose of 20Gy for 5 fractions, 4Gy per fraction, from day 1 to day 5 then rest for 15 days. These patients will be evaluated at 30th day for response assessment at primary and nodal site. Patients were treated in supine position. Parallel opposed fields were applied for disease with bilateral presentation and crossing midline. For further treatment of patient whether curative and palliative with depend upon tumour regression status and will be done. The patients were assessed for overall treatment response using the WHO criteria.[8] Acute skin and mucosal reactions observed during the course of treatment were graded according to the Radiation Therapy Oncology Group toxicities Criteria.[9] [10]

Results

In our study all 50 patients (39males & 11females) belonged to stage IV squamous cell carcinomas and ECOG performance status was between 2 & 3. 2(4%), 15(30%), 27(54%) and 6(12%) patients were in 31-40, 41-50, 51-60 and 51-60 year age group respectively. Primary site of disease are shown in Table 1. 28(56%) and 22(44%) patients presented in T3 and T4 stage of the primary tumour respectively. According to nodal stage of patients, 36% and 64% patients presented at N2 and N3 stage respectively. Main presenting complaints were pain, dysphagia, hoarseness, otalgia and respiratory distress as shown in Table 2.

Anatomical Site	No. Of Patients (%)
Tonsil	12(24%)
Floor Of Mouth	05(10%)
Soft Palate	02(04%)
Base Of Tongue	16(32%)
Larynx	06(12%)
Hypopharynx	02(04%)

Vallecula	02(04%)
Buccal Mucosa	03(06%)
Retromolar Trigone	02(04%)
Total	50(100%)

Table 1: Anatomic location of Primary Disease

S. No.	Complaints	No. Of Patients (%)
1	Pain	27(54%)
2	Dysphagia	12(24%)
3	Hoarseness	05(10%)
4	Otalgia	02(04%)
5	Respiratory distress	03(06%)

Table 2: Presenting Complaints Skin and mucosal toxicities, obserevd are shown in Table 3.

Grading		Time Period In Weeks			
		1st	2nd	3rd	4th
II	Skin	1(2%)	2(4%)	2(4%)	4(8%)
	Mucosal	1(2%)	3(6%)	6(12%)	2(4%)
III	Skin	1(2%)	3(6%)	2(4%)	3(6%)
	Mucosal	2(4%)	5(10%)	4(8%)	2(4%)
IV	Skin	(0%)	0(0%)	0(0%)	0(0%)
	Mucosal	0(0%)	0(0%)	0(0%)	0(0%)

Table 3: Skin and Mucosal Reactions

Main Symptoms	No	Mild	Moderate	Severe
Pain (before)	5(10%)	3(6%)	16(32%)	8(16%)
Pain (after)	2(4%)	1(2%)	5(10%)	1(2%)
Dysphagia (before)	4(8%)	1(2%)	12(24%)	7(14%)
Dysphagia (after)	1(2%)	0(0%)	3(6%)	1(2%)

Table 4 : Pain And Dysphagia relief Before & After Treatment

None of the patients showed grade 4 toxicity. Significant relief in pain and dysphagia was observed in these patients after treatment as shown in Table 4.

T & N Status	CR(%)	PR(%)	SD(%)
T3	01(02%)	28(56%)	01(02%)
T4	01(02%)	24(48%)	01(02%)
N1	00(00%)	00(00%)	00(00%)
N2	15(30%)	12(24%)	02(04%)
N3	09(18%)	24(48%)	02(02%)

Table 5 : Primary and Nodal Response

Response	No. Of Patients (%)
CR	02(04%)
PR	47(94%)
SD	01(02%)

Table 6 : Overall Response On

Primary Disease

Treatment response at primary and nodal site is shown in Table 5.Overall response was observed as Complete response (CR), partial response (PR) and stable disease (SD) in 2(4%), 47(94%) and 1(2%) patients respectively as shown in Table 6. None of the patients showed progressive disease or died during treatment.

Discussion

Head and neck cancer is one of the highly prevalent cancers in developing countries like India.[11][12] Surgery is not possible because of advanced stage at the time of presentation, the local failure rates are as high as 50-70%[13] Radiotherapy with or without chemotherapy remains the mainstay of management in locally advanced head & neck cancers.[14][15][16]

In the year 2013, **Das S**,[18] conducted a novel study on 33 inoperable advanced head and neck cancer patients(29 male & 4 female). The median age was 57.8 years. These patients had very advanced disease (27% IVA, 61% IVB, 9% IVC, TNM stage and 3% recurrent disease) and received total dose 40Gy in 10 fractions. Main complains were distressing pain at primary site (42%), dysphagia(18%), neck swelling(30%) & hoarseness of voice (10%). RTOG criteria was used to assess treatment related toxicity. Pain, dermatitis and grade III mucositis were found to be 24%, 3% and 18% respectively. Median overall survival was 7 months. There was improvement seen in QOL assessment (17.4 vs 20.01, P=0.03). Pain reduction was observed in 88% patients. 60% patients had improvement of performance status. The study showed that short palliative radiotherapy is a viable option for advanced inoperable head and neck cancer to achieve significant palliation.

In another large study of 505 patient with stage IV head and neck squamous cell carcinoma, **Mohanty**[19] et al, treated with a uniform regimen of 20Gy/5 fractions, once daily. Good symptomatic relief was reported in more than 50% for pain, 53% for dysphagia, 57% for hoarseness, 47% otalgia, 76% for respiratory distress and 59% for cough. Median overall survival was 200 days. 153 patients received curative dose, had significant overall survival of 400 days. In our study, similar good symptomatic relief was reported. The main acute toxicity of palliative radiotherapy was similar to above study.

In 2009, **Sushmita Ghoshal**[20] et al, conducted a study on 15 patients with stage IV disease and KPS 50-70 and delivered a total dose of 14Gy in 2days, 2 fractions/day,6 hour apart. For assessing quality of life, Washington University quality of life questionnaire was used before and after radiation. Patients having greater than 50% regression of the disease, received another course of similar radiation. The median age of the patients was 62 years. After the first course, all patients had good symptom relief, improved in quality of life and 13 out of 15 had more than 50% objective response. The results were quite similar to those reported in our study.

At the end of treatment and first month follow up, complete response, partial response, and stable disease status in T3 and T4 stage patients was found to be 01(02%),28(56%), 01(02%) and 01(02%), 24(48%), 01(02%) respectively. For nodal site, complete response, partial response and stable disease status in N2 and N3 stage patients was found to be 15(30%), 12(24%), 02(04%) and 09(18%), 24(48%), 02(04%) respectively. The overall response were observed at the end of treatment and first month revealed that 2(4%) patients had complete response (CR), 47(94%) had partial response (PR) and 1(2%) had stable disease respectively.

Some of the patients showed significant symptom control and further may be planned for curative treatments. Further due to a shorter duration of treatment, it will be both economical to the patients in terms of less hospital

visits, less expenses to travel from native place to hospital for treatment and less stay in hospitals during radiotherapy and also less load over treating technicians and radiotherapy machines. Though results obtained from our study were acceptable, still there is necessity for studies with larger number of patients and longer followup to answer some of the issues such as standard fractionation, identification of proper patients for palliative treatment, related toxicities and most importantly improving the quality of life.

References

1. GLOBOCAN 2018 (IARC) http://globocon.iarc.fr
2. Murthy NS, Chaudhry K, Rath GK Burden of cancer and projections for 2016, Indian scenario: gaps in the availability of radiotherapy treatment facilities. Asian Pac J Cancer Prev. 2008 Oct-Dec; 9(4):671-7.[PubMed] [Ref list]
3. Graham S, Dayal H, Rohrer T, Swanson M, Sultz H, Shedd D, Fischman S Prevalence of oral cancer and precancerous lesions in 'pan'/'supari' chewers J Natl Cancer Inst. 1977 Dec; 59(6):1611-8. [PubMed] [Ref list]
4. Dayal PK, Mani NJ, Bhargava K Indian J Public Health. 1978 Jul-Sep; 22(3):234-45. [PubMed] [Ref list]
5. Mehta FS, Hamner JE. Tobacco Habits in India In: Tobacco-Related Oral Mucosal Lesions and Conditions in India. New Delhi, India: Jaypee Brothers; 1993. pp. 89–99. [Ref list]
6. India HPV Information Centre, http://www.hpvcentre.net/statistics/reports/IND.pdf
7. Santos VB, Strong S et al Role of surgery in head and neck cancer with fixed nodes
8. Miller AB, Hoogstraten B, Staquet M, Winkler A. Reporting results of cancer treatment. Cancer. 1981;47:207–14. [PubMed]
9. Radiation Therapy Oncology Group Acute Radiation Morbidity Scoring Criteria. [Last accessed on 2016 Aug 04]. Available from http://www.rtog.org
10. Cox JD, Stetz J, Pajak TF. Toxicity criteria of the Radiation Therapy Oncology Group (RTOG) and the European Organization for Research and Treatment of Cancer (EORTC)Int J Radiat Oncol Biol Phys. 1995;31 (5):1341–1346doi:10.1016/0360-3016(95)00060-C.[PubMed] [CrossRef]
11. Trivedi NP, Kekatpure VD, Trivedi NN, Kuriakose MA. Head and neck cancer in India: Need to formulate uniform national treatment guideline? Indian J Cancer. 2012;49:6–10. [PubMed]
12. Yeole BB, Sankaranarayanan R, Sunny M Sc L, Swaminathan R, Parkin DM. Survival from head and neck cancer in Mumbai (Bombay), India. Cancer. 2000;89:437–44. [PubMed]
13. Brizel DM, Adelstein DJ. In: Principles and Practice of Radiation Oncology. 6th ed. Halperin EC, Wazer DE, Perez CA, Brady LW, editors. Philadelphia: Lippincott Williams and Wilkins; 2013. Locally Advanced Squamous Cell Carcinoma of Head and Neck; pp. 718–730
14. Lavaf A, Genden EM, Cesaretti JA, Packer S, Kao J. Adjuvant radiotherapy improves overall survival for patients with lymph node-positive head and neck squamous cell carcinoma. Cancer. 2008;112(3):535–543. doi: 10.1002/cncr.23206. [PubMed] [CrossRef]
15. Mendenhall WM, Morris CG, Amdur RJ, Hinerman RW, Malyapa RS, Werning JW, Lansford CD. et al. Definitive radiotherapy for tonsillar squamous cell carcinoma. Am J Clin Oncol. 2006;29(3):290–297
16. Perez CA, Carmichael T, Devineni VR, Simpson JR, Frederickson J, Sessions D, Spector G. et al. Carcinoma of the tonsillar fossa: a nonrandomized comparison of irradiation alone or combined with

surgery:long-termresults.HeadNeck.1991;13(4):282-290.

17. Chen AM, Vaughan A, Narayan S, Vijayakumar S Palliative radiation therapy for head and neck cancer: toward an optimal fractionation scheme Head Neck. 2008 Dec; 30(12):1586-91.[PubMed] [Ref list]
18. Das S, Hypofractionated Palliative Radiotherapy in Locally Advanced Inoperable Head and Neck Cancer: CMC Vellore Experience.Indian J Palliat Care. 2013 May;19(2):93-8. doi: 10.4103/0973-10759.116709
19. Mohanti BK, Umapathy H, Bahadur S, Thakar A, Pathy S. Short course palliative radiotherapy of 20 Gy in 5 fractions for advanced and incurable head and neck cancer:AIIMS study Radiother Oncol 2004;71(3):275-280 2004.03.00 [PubMed] [CrossRef]
20. Ghoshal S, Chakraborty S, Moudgil N, Kaur M, Patel FD. Quad shot: a short but effective schedule for palliative radiation for head and neck carcinoma. Indian J Palliat Care. 2009;15(2):137–140. doi: 10.4103/0973-1075.58460. [PMC free article] [PubMed] [CrossRef]