

Compliance to Multimodality Management in Locally Advanced Head and Neck Malignancies

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Published on 20th June 2024

Doi: <https://doi.org/10.52314/kjent.2024.v3i1.43>

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ABSTRACT

Background: Head and Neck cancer is the 8th most common cancer globally and the 3rd most common in India. It includes cancers of the oral cavity, oropharynx, nasopharynx, larynx, hypopharynx, paranasal sinuses, salivary glands and the ear.

Most cases are managed by more than one approach like surgery radiotherapy or chemotherapy. The particularly long regimen of multimodality management may present many factors that affect patient compliance. Attempts at studying such factors can go a long way in ensuring completion of the treatment plan for curative or palliative intent, reducing recurrence and improving quality of life of the patients.

Objectives: To study compliance to multimodality management in locally advanced head & neck malignancies and to determine the association with various factors

Methodology: This is a cross-sectional study to determine the compliance to multimodality management of locally advanced head and neck malignancies. The study subjects were persons diagnosed with locally advanced head and neck malignancies, who have been receiving more than one modality of cancer management which may include surgery, chemotherapy or radiotherapy from our institution between January 2022 to December 2022. The subjects who satisfied the inclusion criteria based on the cancer-patient records were interviewed with a semi structured format via telephone. The significance of all variables was calculated using chi-square analysis

Results: This study determined the overall noncompliance among patients of locally advanced head and neck malignancies to be 20%. The only factor that was found to have a significant association with noncompliance was lack of confidence in the treatment regimen. {P=0.0279}

Conclusion: A statistically significant association was observed between noncompliance and lack of confidence in treatment regimen.

Keywords: Otorhinolaryngology, Head and Neck cancer, Multimodal management, Radiotherapy, Chemotherapy

*See End Note for complete author details

Cite this article as: Vadakkan RF, Varghese R, George S, Thomas BT. Compliance to Multimodality Management in Locally Advanced Head and Neck Malignancies. Kerala Journal of ENT and Head & Neck Surgery. 2024 Aug 11;3(1):16–20.

INTRODUCTION

Most head and neck malignancies are managed by multiple treatment modalities which may include combination of surgery, chemotherapy or radiotherapy in different permutations. The very intricate anatomy and prime functions of the organs involved make it cumbersome to manage Head & Neck malignancy with a single treatment modality.

Radiotherapy: It refers to the use of various types of ionising radiations like from a beam of X rays or subatomic particles. Essentially, Radiotherapy is of two types; teletherapy and brachytherapy. Teletherapy or external beam therapy utilises an external source of radiation. In brachytherapy a naturally occurring radioactive substance placed inside the body.¹ Radiotherapy works by disrupting the process of cell division resulting in what is called a mitotic

Table 1. Population attributes of study subjects			
CHARACTERISTICS	n (%)	CHARACTERISTICS	n (%)
AGE		Surgical Management	
</ = 40	5(5.88)	YES	53(62.3)
41-59	39(45.88)	NO	32(37.64)
>/ = 60	41(48.23)		
CCRT			
SEX		YES	
MALE	72(84.70)	NO	15(17.64)
FEMALE	13(15.29)		
		Ration Card	
MARITAL STATUS		APL	
MARRIED	79(92.94)	BPL	55(64.7)
UNMARRIED	3(3.52)		
WIDOWED	3(3.52)	Financial Assistance	
		YES	
OCCUPATION		NO	
TEMPORARY	64(75.29)		39(45.88)
PERMANENT	5(5.88)	Confidence in treatment regimen	
UNEMPLOYED	16(18.82)	YES	64(75.29)
		NO	
		21(24.7)	
ADDRESS			
< / =50km		Support	
>50km		YES	
		NO	
		73(85.88)	
		12(14.11)	
PRIMARY TUMOUR SITE			
Carcinoma Larynx		Side Effects	
Carcinoma Hypopharynx	9(10.5)	YES	64(75.29)
Carcinoma Oropharynx	13(15.29)	NO	21(24.70)
Carcinoma Nasopharynx	1(1.17)		
Carcinoma Oral cavity	21(24.7)		
Carcinoma Salivary gland	5(5.9)		
Carcinoma Oesophagus	2(2.3)		
Carcinoma Thyroid	5(5.9)		
Carcinoma Maxillary sinus	2(2.3)		
Carcinoma Maxilla	1(1.17)		
Carcinoma External auditory canal	1(1.17)		
Non-Hodgkins Lymphoma	2(2.3)		
Hodgkins Lymphoma	1(1.17)		
AJCC STAGING			
1	10(11.76)		
2	24(28.23)		
3	19(22.35)		
4	22(25.88)		
NOT AVAILABLE	10(11.76)		

catastrophe.² Radiotherapy is especially deleterious to cancer cell lines which divide at a much-accelerated rate as compared to normal cells. It is usually administered in multiple sittings spanning a number of weeks. This is called fractionation.

Fractionation is based on the 4 R's of radiobiology, Repair, Repopulation, Redistribution and Reoxygenation.³ Fractionation allows time for the normal cells to recover from the effects of radiotherapy while cancer cells are permanently damaged. The most commonly prescribed fractionation is about 1.8-2.2 Gy per fraction and five fractions in a week.⁴ Radiotoxicity refers to the adverse effects that occur following radiotherapy due to damage of normal cells.⁵

Chemotherapy: It uses drugs to destroy the rapidly proliferating cancer cells. Traditional chemotherapeutic agents may induce delayed results and a hence a combination of agents is often used to produce an adequate response. Chemotherapy may be the primary treatment, administered before surgery (Neoadjuvant), following the surgery (Adjuvant), or concurrent.⁶ Induction chemotherapy prior to concurrent chemoradiation has shown significant results in early eradication of micro metastasis.⁷

Surgery: This modality often has a definite curative intent as compared to the often-palliative intent of the other two modalities. However, the complicated anatomy of the head and neck make it a difficult area to manoeuvre. Loss of functionality due to removal of a part or whole of the prime structures is another drawback, Surgical risks prevent it from being adopted in frail and surgically unfit individuals.

METHODOLOGY

A retrospective study was done based on cancer patient records of Government Medical College Kottayam, between January 2022 to December 2022. The study

Table 2. Treatment compliance and association with various factors							
Characteristics	Compliant n (%)	Non-compliant n (%)	p value	Characteristics	Compliant n (%)	Non Compliant n (%)	P value
Age			0.914	AJCC Staging			0.99
</=40	5(100)	0(0)		1	9(90)	1(10)	
41-59	30(76.92)	9(23.07)		2	20(83.33)	4(16.67)	
>/ =	33(80.48)	8(19.52)		3	15(78.9)	4(21.05)	
				4	18(81.8)	4(18.2)	
Sex			0.992	unavailable		10	
Male	58(80.5)	14(19.5)					
Female	10(76.9)	3(23.1)		Surgical management			0.893
				Yes	41(77.3)	12(22.7)	
Marital status			0.955	No	27(84.3)	5(15.7)	
Married	63(79.7)	16(20.3)					
Unmarried	3(100)	0(0)		CCRT			0.207
Widowed	2(66.6)	1(33.4)		Yes	53(75.7)	17(24.3)	
				No	15(100)	0(0)	
Occupation			0.529				
Temporary	48(74)	16(26)		Ration card			0.955
Permanent	5(100)	0(0)		APL	25(83.3)	5(16.7)	
Unemployed	15(93.75)	1(6.25)		BPL	43(78.1)	12(21.9)	
Address			0.856	Financial assistance			0.077
<or=50km	40(83.33)	8(16.67)		Yes	36(92.3)	3(7.7)	
>50km	28(75.6)	9(24.4)		No	32(69.5)	14(30.5)	
Primary tumour site			0.94	Confidence in Rx			0.027
Carcinoma Larynx	18(81.81)	4(18.18)		Yes	56(87.5)	8(12.5)	
Carcinoma Hypopharynx	7(77.77)	2(22.22)		No	12(57.1)	9(42.9)	
Carcinoma Oropharynx	9(69.23)	4(13.760)					
Carcinoma Nasopharynx	1(100)	0(0)		Support			0.501
Carcinoma Oral cavity	19(90.47)	2(9.52)		Yes	63(86.3)	10(13.7)	
Carcinoma Salivary gland	4(80)	1(20)		No	5(41.6)	7(58.4)	
Carcinoma Oesophagus	1(50)	1(50)					
Carcinoma Thyroid	5(100)	0(0)		Side effects			0.99
Carcinoma Maxillary sinus	2(100)	0(0)			51(79.6)	13(20.4)	
Carcinoma Maxilla	0(0)	1(100)		Yes	17(80.9)	4(19.1)	
Carcinoma External auditory canal	0(0)	1(100)		No			
Non-Hodgkins Lymphoma	1(50)	1(50)					
Hodgkins Lymphoma	1(100)	0(0)					

Table 3. Results in similar studies	
STUDY	RESULTS
Gupta S, Rastogi K, Bhatnagar AR, Singh D, Gupta K, Choudhary AS. Compliance to radiotherapy: A tertiary care centre experience. Indian J Cancer. 2018 Apr-Jun;55(2):166-169. doi: 10.4103/ijc.IJC_517_17. PMID: 30604730.	Overall non-compliance of 12.8%
Peters LJ, O'Sullivan B, Giralt J, Fitzgerald TJ, Trotti A, Bernier J, Bourhis J, Yuen K, Fisher R, Rischin D. Critical impact of radiotherapy protocol compliance and quality in the treatment of advanced head and neck cancer: results from TROG 02.02. J Clin Oncol. 2010 Jun 20;28(18):2996-3001. doi: 10.1200/JCO.2009.27.4498. Epub 2010 May 17. PMID: 20479390.	Overall non-compliance of 25.4%
R Khanna N, Ghosh Laskar S, Gupta T, Agarwal JP. Compliance With Radiotherapy Treatment in an Apex Cancer Center of India. JCO Glob Oncol. 2022 Jan;8:e2100201. doi: 10.1200/GO.21.00201. PMID: 34985910; PMCID: PMC8769151.	Overall non-compliance of 14%

subjects were patients diagnosed with head & neck malignancy in whom a regimen involving any 2 of surgery, chemotherapy or radiotherapy were initiated during this period (irrespective of whether treatment was completed during or after the period). Patients who met their end during the course of treatment were excluded. A sample size of 85 was obtained based on the inclusion & exclusion criteria.

Non-compliance was defined as lack of completion of regimen or a delay of “more than” or “equal to” 1 week in the set appointment dates.

The various factors that were analysed were age, sex, marital status, occupation, address, type of malignancy, AJCC staging, modalities adopted, ration card, financial assistance, confidence, support of family & friends and side effects following treatment.

The subjects were interviewed over telephone and data collected for analysis on a semi-structured proforma.

RESULTS & DISCUSSION

Observations and results of the study are represented in **Table 1 and 2**.

Out of the 85 subjects an overall compliance of 80% was found. A statistically significant association was found between non-compliance and lack of confidence in treatment regimen (p=0.0279).

We also reviewed the results in similar studies **Table 3**.

CONCLUSIONS

Noncompliance rates are similar to other studies cited in literature.

A statistically significant association was found between non-compliance and lack of confidence in treatment regimen.

RECOMENDATIONS

Psychological counselling may be offered to everyone undergoing multimodality management with follow-up sessions.

The treatment regimen and how it can help the person should be thoroughly explained.

Longer time slots may be allotted to such patients for the doctor to create a better doctor patient relationship and empathize and understand the challenges faced by the patient.

LIMITATIONS OF THE STUDY

The limitations of the study are small sample size, recall bias, non-response bias and the telephonic nature of interview.

END NOTE

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Financial support: Nil

Conflict of Interest: None Declared

Editor’s notes: Treatment compliance is crucial in the management of malignancy. This study sheds light to

an unexplored aspect of cancer treatment. The effort and interest shown by the main authors who are medical students under the able guidance of their faculty are well appreciated.

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