CLINICAL PROGNOSTIC FACTORS IN OROPHARYNEAL CARCINOMA PATIENTS TREATED WITH CONCURRENT CHEMORADIATION.

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INTRODUCTION

Worldwide, oropharyngealcancer accounts for 1.6% of all the new cases and 1.5% deaths in 2020. Overall42176, is the incidence of oropharyngeal cancers occuring in Asia, and account for approximately 30% of all the cancers in India. Oropharyngeal carcinoma is eleventh most common cancer worldwide and accounts for approximately 10 per cent of the annual worldwide incidence of head and neck squamous cell carcinoma. In India, head and neck cancers contribute up to 7.8% of the global cancer burden and 8.33% of the global cancer deaths.In 2020, the incidence of oropharynx cancer worldwide is 98,412 [1]. In India incidence rate is 6794 [2]. Incidence rates are more than twice as high in men as in women[3].The tonsil is the most frequent subsite of oropharyngeal cancer followed by the base of tongue.

Tumor extension has traditionally been assessed through TNM staging, and it has been used as the main variable for dividing patients into prognostic groups. Besides tumor extension, other clinical variables, not included in the TNM system, have been identified as prognostic predictor variables. More recently, clinical factors such as the patient's age, gender, nutrition status, site of tumor origin, socio-economic status have been described as significant prognostic factors in functional staging. Identifying these prognostic factors is important for the evaluation of cancer recurrence risk and treatment planning. The objective of this study was to assess, in patients with OPSCC subjected to radiotherapy in combination with chemotherapy the factors associated with treatment response and prognosis.

The prognostic factors so far recognized have been clustered into three, namely patient-related, tumor related and the treatment related. The most extensively studied are patient characteristics such as gender, age, TNM staging, socio-economic status, nutrition status. The goal of our study was to identify some of these tumor related, and patient-related prognostic factors in our population.We discuss and merge existing and new information on clinical as

well as prognostic biomarkers for head and neck squamous cell carcinoma, with the potential to improve clinical management of patients in the near future.

MATERIAL AND METHOD: This study was undertaken in the Department of Radiation Oncology at Guru Gobind Singh Medical College Hospital, Faridkot from Feburary 2018 to September 2019. This was a one and half year prospective study. All the patients were histologically biopsy-proven squamous cell carcinoma oropharynx. First 50 patients fulfilling the inclusion criteria were enrolled in the study after getting informed written consent. All patients received 60-66 Gy/30-33 #/ 6.5 weeks of EBRT to the primary site of tumor along with concurrent weekly cisplatin. The baseline clinical profile of the patients was taken and the role in the treatment outcome was observed.

RESULTS: 50 patients with oropharyngeal carcinoma were studied in a prospective manner to obtain the following observations. In the present study , maximum number of patients were in age group between 50-60 years(56 %). Table 1, also shows, a male preponderance with 40 patients being male and 10 patients female thus making a comparable gender distribution. Statistical analysis of age wise distribution and gender of patient for the treatment outcome flawed due to non-significant p- value.

Most commonly involved site was base of tongue i.e. in 32 patients (64%) of the sampled patients followed by tonsillar fossa i.e. in 23 patients (46%), wherein the tumor was measuring of size <2cm in most of the cases. Table 2,depicts disease response evaluation using RECIST criteria at 6 months showed residual disease with significant p- value 0.022 in patients having disease in base of tongue.

Out of 50 patients, 39 patients presented with lymph node association accounting for 78% as seen in Fig.1. Among them majority of patient presented with cervical level II lymph node approx. (70%) followed by cervical level III lymph involvement (18%), with majority of patients having the size of lymph node < 2 cm. Table 3 shows disease response evaluation using RECIST criteria, analysed that significant p value 0.045 using chi- square test was seen in association with the size of lymph node involvement i.e. size less than 2 cm had less incidence of residual disease after evaluating at 6 months post treatment. Mobility of lymph node also have a relationship with the prognosis of oropharyngeal carcinoma as shown in table 5 where a significant p value 0.067 is obtained.

Trismus, nutritional status both were non significantly associated with the prognosis of oropharyngeal carcinoma in this study.

DISCUSSION: This study presents the current understanding of the relationshipbetween various clinical factors affecting oropharyngeal carcinoma.

In our study, we observed that the male population accounted for the majority of the cases. Out of the 50 patients enrolled 40(80%) patients were males and only 10(20%) patients were females. The male pre-dominance was found to be comparable with the trial by Adelstein et al[4] who reported in their study, a male population of 87.4% and the female population of 12.6%.

MACH-NC [5] trials also have shown that HNSCC predominantly affects the males probably attributed to the higher prevalence of risk factors associated with HNC like smoking, alcohol, tobacco chewing in males.

The distribution of cases of oropharyngeal carcinomas among different sites was found to be comparable with each other. Out of 50 patients, 32(64%) patients had carcinoma of the base of the tongue. 23(46%) patients had carcinoma of the tonsil. Among oropharyngeal carcinomas, the base of the tongue was found to be the most commonly involved site. The distribution pattern observed in our study was found to be comparable with previous trials by Garden AS et al [6], who reported base of the tongue as the most commonly involved site among oropharyngeal cancers followed by carcinoma of tonsil.

In our study we found the most commonly involved age group 50 – 60 years i.e. out of total 50 patients 28 patients which is comparable with Bahl Ankur et al [7], who reported 57 years to be median age group in Indiafor oropharyngeal carcinoma.

According to JG Vartanian et al[8] , it was found that most commonly lymph node station involved were Level II and level III which can be compared to this present study where also most common lymph node station involved is level II lymph node.Lymph nodes involvement plays an important prognostic role in oropharyngeal carcinoma. Lymph nodes size, number, laterality, depth of invasion are important as studied by S Wenzelet al [9] , whereas in our present study it was also observed that high association is seen with level II lymph nodes and size >6cms.

According to Teymoortash A. et al [10], thestatus of the cervical lymph nodes is the most important prognostic factor for head and neck cancer. The size, the number, and the location of lymph node metastases play an important role. Lymph node metastases of the levels IV and V are generally associated with a poorer prognosis. In our study, the presence of lymph nodes on CECT scan post-treatment gives the poor prognosis.

CONCLUSION:

Under the light of obtained results, we would like to conclude that certain risk factors have a clinical impact on the prognosis of patients with OPSCC. Incidence rates are more than twice as high in men as in women, mainly involving age group of 50-60 years. Theupper middle class are commonly associated with OPSCC. Tumour related risk factors such as location and size of lymph nodes are major factors .Patients with level II cervical lymph node were mostly associated with residual disease after treatment completion. Among all subsites of oropharyngeal cancer, base of tongue is mostly associated with residual disease following chemoradiation on follow ups. There isa need of conducting more clinical studies with larger sample sizes and longer follow up for further validation of clinical factors association to improve the treatment option.

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TABLE 1: Patient characteristics:

AGE (YEARS)	Number of cases	Percentage (%)
40-50	7	14%
50-60	28	56%
>60	15	30%
GENDER		
Male	40	80%
Female	10	20%
TUMOR SITE		
Base of Tongue	32	64%
Tonsillar Fossa	23	46%
Anterior Pillar	17	34%
Posterior Pillar	13	26%

TABLE 2: Response evaluation after 6 months of treatment completion

BASE OF TONGUE		NORMAL	NORMAL	RESIDUAL	RESIDUAL	Total	Chi-square value	p-value
	LEFT	8	25.8%	10	71.4%	18		
	NO	14	45.2%	3	21.4%	17	9.600	0.022
	RIGHT	9	29.0%	1	7.1%	10		
	TOTAL	31	100.0%	14	100.0%	45		

TABLE 3: Response evaluation after 6 months of treatment completion

		CECT (Face and Neck)				Total	Chi-square value	p-value
		NORMAL		RESIDUAL				
Size of Lymph Node (<2 cm or> 6 cm	1	16	72.7%	5	38.5%	21	3.997	0.045
	2	6	27.3%	8	61.5%	14		
Total		22	100.0%	13	100.0%	35		

TABLE 4: Response evaluation after 6 months w.r.t. lymph node involvement

		CECT (Face and Neck)				Total	Chi-square value	p-value
		NORMAL		RESIDUAL				
Mobility-(Mobile/Fixed)	1	11	50.0%	3	23.1%	14	3.353	0.067
	2	10	45.5%	11	84.6%	21		
Total		22	100.0%	13	100.0%	35		

Fig.1: Distribution of patients according to Lymph node involvement..