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RESEARCH ARTICLE
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ASSESSMENT OF QUALITY OF LIFE IN PATIENTS TREATED WITH CHEMO-RADIATION THERAPY FOR OESOPHAGEAL CARCINOMA

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INTRODUCTION:

1.1CARCINOMA ESOPHAGUS EPIDEMIOLOGY

As per GLOBOCAN 2022 data, Esophageal cancer ranks eleventh in terms of incidence (5,11,054 new cases) and seventh in mortality overall (4,45,391 deaths), the latter signifying that esophageal cancer is responsible for one in every 18 cancer deaths in 2022, worldwide.[1]

The geographic variation in esophageal cancer incidence substantially differs between the 2 most common histological subtypes (squamous cell carcinoma [SCC] and adenocarcinoma [AC]).

The incidence of esophageal carcinoma in India, as evidenced by the surge of 70,637 new cases in 2022, marking 5% of the total cancer burden, underscores a pressing public health concern. Notably, males exhibit a disproportionately higher susceptibility, with 45,608 new cases reported, positioning esophageal carcinoma as the third most prevalent malignancy. Conversely, females manifest a comparatively lower incidence rate. This statistical revelation necessitates a multifaceted exploration into the etiological factors driving this epidemiological phenomenon, encompassing lifestyle determinants, environmental influences, and genetic predispositions. A comprehensive understanding of these contributing variables is pivotal in devising evidence-based interventions aimed at primary prevention and early detection strategies. Such initiatives are paramount for curtailing the escalating burden of esophageal carcinoma and ameliorating its deleterious impact on public health in India.

1.2CARCINOMA ESOPHAGUS ETIOLOGY

The incidence of esophageal SCC in certain high-risk areas in Asia (e.g. China) is broadly in decline and may have been preceded by economic gains and dietary improvements, whereas, in several high-income countries (e.g., the United States, Australia, France, and the United Kingdom), the

reductions are considered primarily due to declines in cigarette smoking. Heavy drinking and smoking and their synergistic effects are the major risk factors for SCC in western settings. However, in lower income countries, including parts of Asia and sub-Saharan Africa, the major risk factors for SCC—which usually comprises over 90% of all esophageal cancer cases—have yet to be elucidated, although dietary components (e.g., nutritional deficiencies, nitrosamines) have been suspected. Additional suspected risk factors for SCC include betel nut chewing in the Indian subcontinent and consumption of pickled vegetables (e.g., in China and Japan) and very hot food and beverages (e.g., in Uruguay, Iran, and Tanzania). AC represents roughly two-thirds of esophageal cancer cases in high-income countries, with excess body weight, gastroesophageal reflux disease, and Barrett's esophagus among the key risk factors. Across high-income countries, incidence rates of AC are thus rising rapidly in part because of increased excess body weight and increasing gastroesophageal reflux disease and possibly because of decreasing levels of chronic infection with H. pylori, which has been inversely associated with AC. Excess body weight is likely to be an increasingly important contributor to the future burden of esophageal cancer.[2][3]

1.3NEED OF THIS STUDY

Traditionally, carcinoma of the esophagus has been treated by surgery or radiation therapy, but overall, 5-year survival rates have been only 5-10%, mainly in advanced stages.[3] Only 30% esophageal cancers are resectable at the time of diagnosis and, 5-year survival is 70-90% in these patients, found in European studies. Most patients with locally advanced esophageal cancer are neither the candidates for surgical treatment, nor they prefer to undergo surgery. Such patients are often treated with chemotherapy and radiotherapy.[2] Primary radiotherapy is usually reserved for patients with extensive locally advanced disease, that is unresectable or, for patients who are not fit to undergo surgery. The combination of chemotherapy and radiation has further improved outcome for patients with locally advanced disease. However, along with the outcome after treatment, toxicity and quality of life must also be considered in the context of overall therapeutic gain.
Assessment of quality of life hence becomes important and thus the study is necessary.

2.MATERIALS AND METHODS

This observational study was conducted in the Department of radiation oncology of Govt. cancer hospital, M.G.M medical college and M.Y hospital Indore (M.P) during the period from September 2022 to September 2023. The study group consisted of 64 patients, registered in the government cancer hospital abiding by inclusion and exclusion criteria. Treatment was planned by the consultants of the institute. Each patient was included after receiving informed consent.

2.1INCLUSION CRITERIA

- Patients of both sexes and between ages 18 to 75 years
- All biopsy proven cases (squamous cell carcinoma)
- Patients with Karnofsky Performance Status of >50.
- Surgically inoperable disease.
- No prior malignancy.

2.2EXCLUSION CRITERIA

- Patient not willing to give consent.
- Pregnant and lactating women.
- Patient with associated medical condition like uncontrolled hypertension, ischemic heart disease, uncontrolled diabetes mellitus, pulmonary tuberculosis and others.

2.3SAMPLE SIZE

Minimum 60 biopsy-proven patients of carcinoma oesophagus being treated with chemo-radiation calculated from openepi software with

- Confidence level 95%.
- Error rate 7.5%

2.4DATA COLLECTION AND METHOD

- The source of study was routine out-patient and in-patient visiting Government Cancer Hospital, MGMMC, Indore.
- The required details of the patient like name, age, address, contact number, economic status and other relevant details were recorded.
- Informed consent was taken in vernacular language.
- Interviews were arranged and recorded.

2.5 QUALITY OF LIFE ASSESSEMENT

Assessment was based on the EORTC QLQ-C30 core questionnaire and EORTC QLQ-OES18. It incorporates five functional scales, a global health scale and three symptom scales, each containing between two and five items. Six single items assess additional symptoms commonly found in patients with cancer, as well as the perceived financial impact of the disease and treatment. For all questions, patients are asked to respond in terms of how they were feeling during the previous week. [7,8]

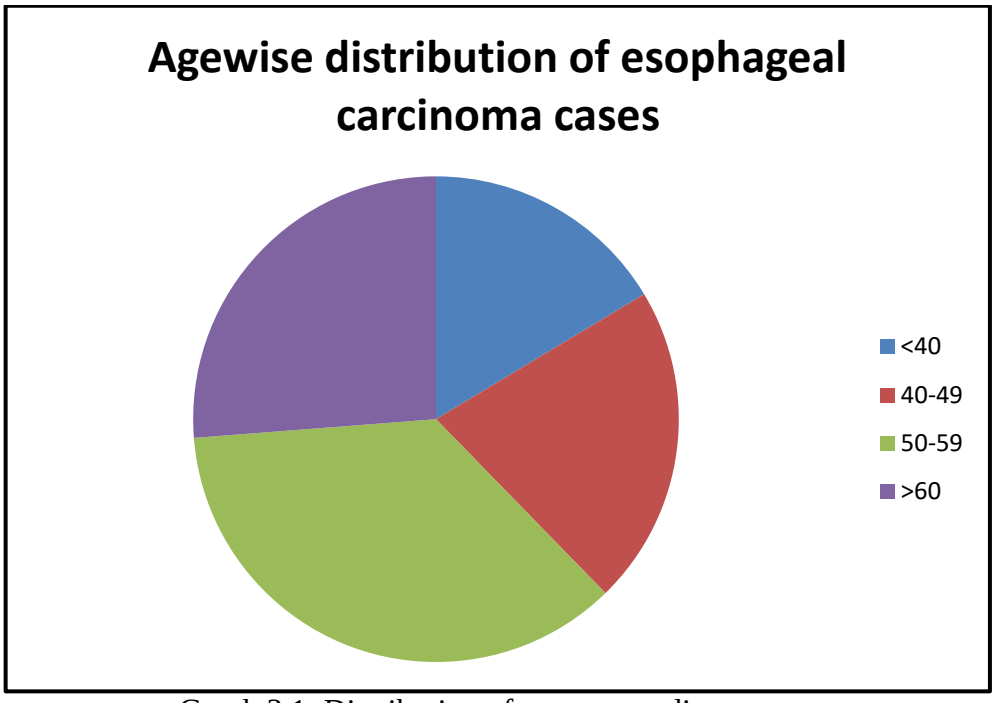
2.6 STATISTICAL ANALYSIS

The data were coded and analyzed on SPSS 25 version. Data was expressed in terms of mean , median , standard deviation and interquartile range. We calculated the relevant descriptive statistics for both the questionnaire items. Normality of the variables was checked by Wilk-Sharpio test.appropriate test of significancelike T-test/Mann whitney U test, Chi- square test applied, wherever found necessary. Patients were divided into two groups according to their scores; the patients who scored less than or equal to 33 for the functional scales and the global QoL were considered problematic, while the patients who scored more than or equal to 66 were considered in good condition. For symptom scales, the score is reversed, i.e., the patients who scored less than or equal to 33 were considered in good condition and the patients who scored more than or equal to 66 were considered problematic [11,12]. The scores obtained in each domain were the dependent variable in the study while the age and sex were the independent variables. The linear regression analysis was done to measure predictor's significance and to calculate the coefficient of determination. The dependent variables were global health, physical, emotional, cognitive and social functioning scores, while age, sex, and types of treatment were the independent variable, and were labeled into ―Yes and ―No groups and considered as the model's predictors. The value of R squared was calculated, and p value less than or equal to 0.05 was taken as significant where the comparison was conducted.

3 OBSERVATIONS AND RESULTS

3.1 Distribution of cases according to age

In this study 10 patients were in the age group ≤ 40 years,13 patients lied in the age group of 40 to 49, 22 patients aged between 50 to 59 and 19 patients were in the age group more than 60 years. Majority of the patients were in the age **group** 50-59 years. The mean age of the patients was 52.7years.



Graph 3.1: Distribution of cases according to age.

3.2 *Distribution of cases according to sex*

There were 28 female and 36 male patients. A ratio of male to female is 1.3:1. *More no. of male patients, clearly showing male predominance of disease.*

TABLE 3.2: Distribution of cases according to sex

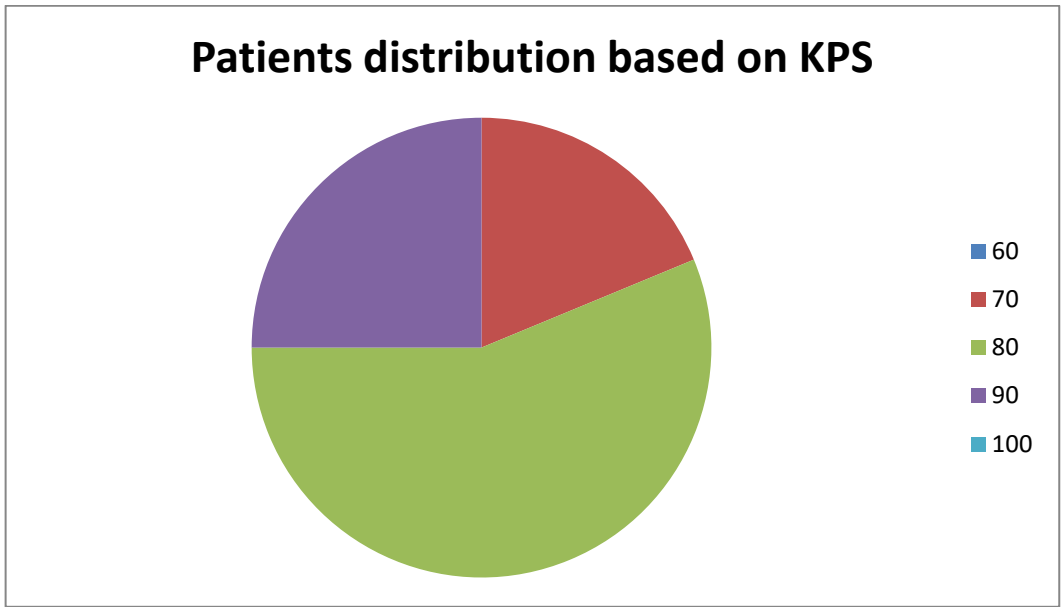
SEX	NO. OF CASES	PERCENTAGE
MALE	36	56.3
FEMALE	28	43.8
TOTAL	64	100.0

5.3: Distribution of patients according to karnofsky performance score.

Patients of KPS > 50 have been included in the study. The distribution of patients based on their KPS is as depicted in below given table 3.3 and graph 3.3. Mean KPS of patients was 80.63.

Table3.3: Distribution of patients according to karnofsky performance score.

KPS	NO. OF PATIENTS	Percentage
60	0	0
70	12	18.8
80	36	56.3
90	16	25.0
100	0	0
TOTAL	64	100.0
Mean KPS	80.63±6.64	



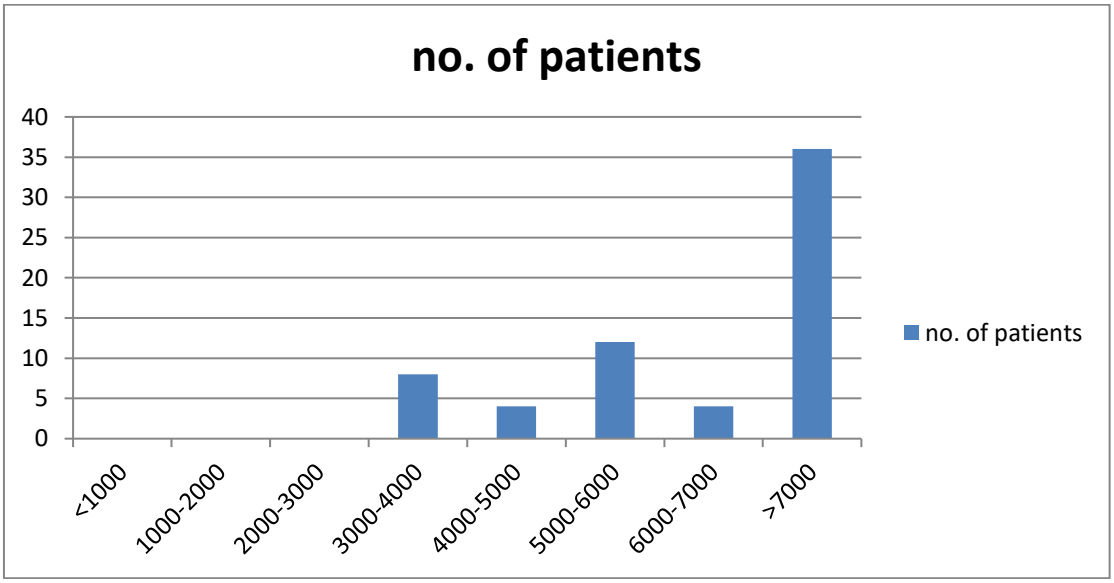
GRAPH 3.3: Distribution of patients according to karnofsky performance score.

3.4: Distribution of cases according to family income

Majority of the patient‘s (56.3%) family income were more than Rs 7000 per month.there were no patients with a family income below three thousand rupees.

Table 3.4: Distribution of cases according to family income

Average income	No. of cases	Percentage
<1000	0	0
1000-2000	0	0
2000-3000	0	0
3000-4000	8	12.5
4000-5000	4	6.3
5000-6000	12	18.8
6000-7000	4	6.3
>7000	36	56.3
Total	64	100.0



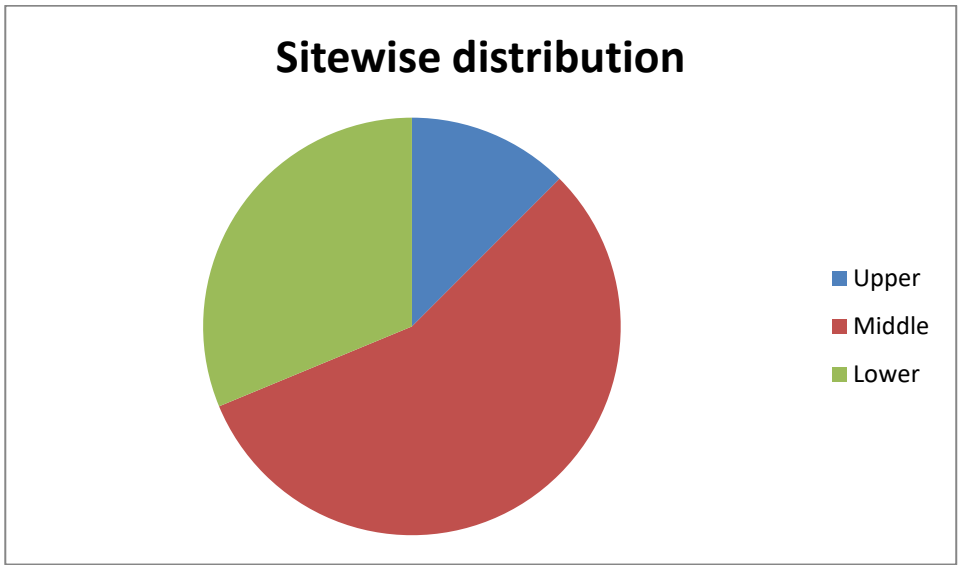
GRAPH 3.4: Distribution of cases according to family income.

3.5: Distribution of cases according to site

➢ 36 patients had disease in the middle third of esophagus. Upper esophagus was involved in 8 patients. Below given table 3.5 and graph 3.5 depict the distribution of cases based on site involved.

Table 3.5: Distribution of cases according to site

Site	No. of cases	Percentage
Upper	8	12.5
Mid	36	56.3
Lower	20	31.3
Total	64	100.0



GRAPH 3.5: Distribution of cases according to site

3.6: **Distribution of cases according residence**

➢ 44 patients resided in urban areas and 20 patients resided in rural areas .Majority of the patients resided in urban areas.

TABLE 3.6: Distribution of cases according urban or rural residence

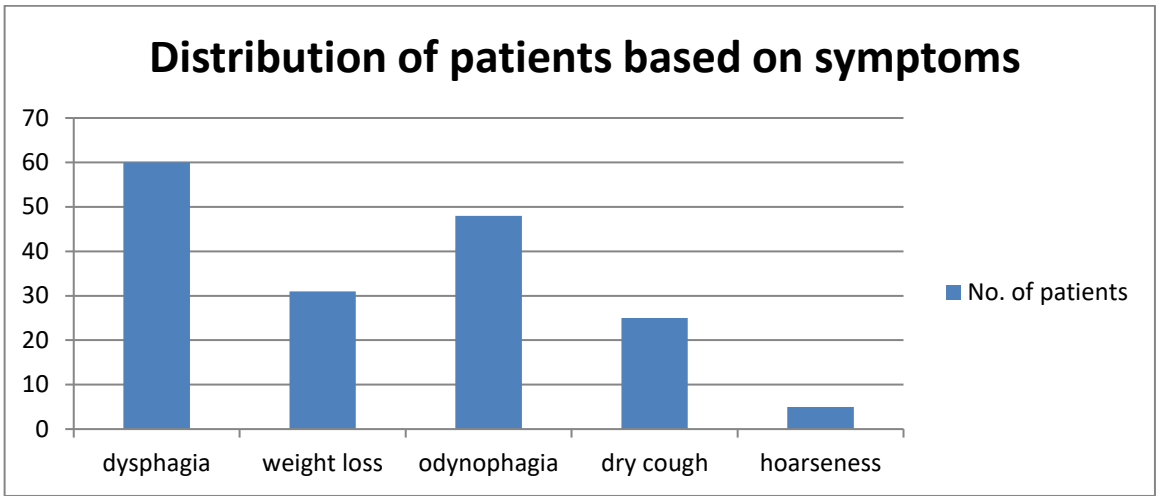
Residence	Number	Percentage
Urban	44	68.8
Rural	20	31.3
Total	64	100.0

3.7: Distribution of cases according to symptomatology

In the studied population, the most common symptom is dysphagia, nearly all patients had complaint of dysphagia at the time of hospital visit, followed by odynophagia. other symptoms have been been reported as follows.

TABLE 3.7: Distribution of cases according to symptomatology

Symptoms	No. of patients	percentage
Dysphagia	60	93.75
Weight loss	31	48.43
Odynophagia	48	75
Dry cough	25	39.06
Hoarseness	5	7.8



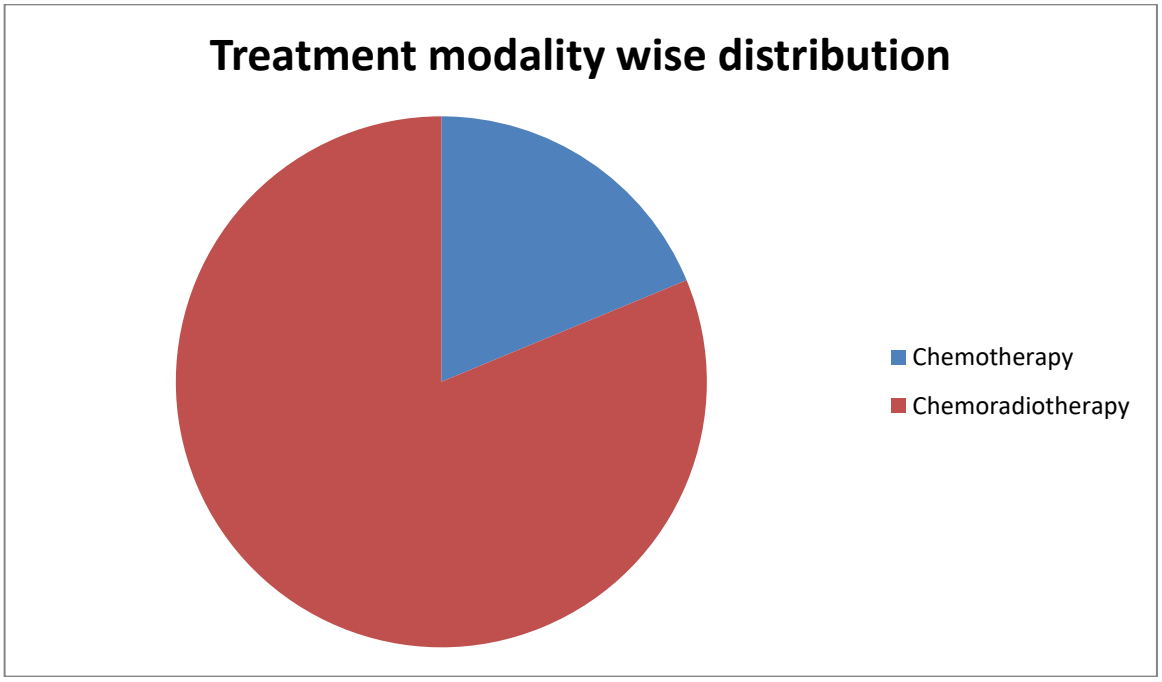
GRAPH 3.7: Distribution of cases according to symptomatology

3.8: Distribution of cases according to modality of Treatment

Only 12 patients ongoing treatment were on chemotherapy and 52 patients ongoing treatment were on chemoradiotherapy.

Table 3.8: Distribution of cases according to modality of Treatment

Treatment	No. of patients	Percentage
Chemotherapy	12	18.75
Chemoradiotherapy	52	81.25
Total	64	100



Graph 3.8: Distribution of cases according to modality of Treatment

3.9 Assessment of quality of life in esophageal cancer patients by using EORTC QLQ-C30 questionnaires

➢ Below given Table No.3.9 depict that, for the symptom scales, the highest mean scores were observed for appetite loss, financial difficulties, fatigue, pain and insomnia, proving them to be most problematic for the patients. On the other hand, the least troubling symptoms appeared to be diarrhea and constipation. Overall, participants had poor QoL based on their global health status.

Table 3.9: Assessment of quality of life in esophageal cancer patients by using EORTC QLQ-C30 questionnaires

Scale	No.	No. of items	Mean+/-SD	95% confidence interval		Median(IQR)
				Lower	Upper	
QLQ-C30questionnaires						
Global health status/QOL	64	2	60.90±13.84	57.44	64.35	62.45(72.9-50.0)
Functional Scales						
Physical Functioning	64	5	72.57±20.63	67.42	77.72	80.0(90.5-60.0)
Role Functioning	64	2	58.55±35.36	49.72	67.39	66.6(96.0-33.3)
Emotional Functioning	64	4	61.96±27.23	55.16	68.76	66.6(89.5-37.5)
Cognitive Functioning	64	2	75.12±17.88	70.66	79.59	66.7(96.0-66.6)
Social Functioning	64	2	82.36±20.13	77.33	79.58	92.0(100.0-66.6)
Symptom Scales						
Fatigue	64	3	45.80±27.10	39.03	52.56	43.3(74.1-20.0)
Nausea &vomiting	64	2	24.99±34.11	16.46	33.51	8.3(33.3-0)
Pain	64	2	32.28±28.15	25.24	39.38	24.9(50.0-16.6)
Dyspnea	64	1	18.74±29.01	11.49	25.98	0(33.3-0)
Insomnia	64	1	33.31±35.61	24.41	42.20	16.7(66.6-0)
Appetite Loss	64	1	60.38±80.68	40.22	80.52	49.9(91.7-0)
Constipation	64	1	29.14±28.76	21.95	36.32	33.3(66.6-0)
Diarrhea	64	1	4.17±16.27	.10	8.2	0(0-0)
FinancialDifficulties	64	1	47.89±37.50	38.52	57.26	33.3(91.7-8.3)

3.10 Assessment of quality of life in oesophagealcancer patients using EORTC QLQ OES 18

Below data depict the symptom scale of QLQ OES 18, trouble swallowing saliva, dry mouth, trouble with taste, trouble with cough, trouble talking, reflux and pain. Clearly, eating is most troublesome for the patients.

Table 3.10 depict the symptom scale of QLQ OES 18,

Scale	No.	No. of items	Median (IQR)	95% confidence interval		Mean+_SD
				Lower	Upper	
QLQ-OES18questionnaires						
Symptom Scales						
Dysphagia	64	3	22.15(30.78-10.00)	19.95	30.96	25.46±22.02
Trouble swallowing saliva	64	1	0(33.3-0)	11.99	29.66	20.83±35.38
Choked when swallowing	64	1	33.15(66.6-0)	23.66	38.74	31.20±30.18
Eating	64	4	50.0(72.9-35.4)	50.75	117.30	84.03±133.22
Dry mouth	64	1	0(33.3-0)	11.99	29.66	20.83±35.38
Trouble with taste	64	1	33.3(66.6-0)	29.15	45.80	37.46±33.32
Trouble with coughing	64	1	0(33.3-0)	12.3	24.64	18.73±23.64
Trouble talking	64	1	0(0-0)	0.05	4.11	2.08±8.12
Reflux	64	2	8.35(33.3-0)	14.19	25.37	19.78±22.38
Pain	64	3	11.1(40.8-0)	15.30	24.24	19.77±17.89

TABLE 3.10: Assessment of quality of life in patients of carcinoma esophagus by using QLQ-OES18 questionnaires

3.11 Global health status/ QoL according to different parameters in QLQ-C30.
Global health status/ QoL compared quality of life according to different parameters in QLQ-C30. Global health status were better in patients receiving chemoradiotherapy ($p<0.05$), parameters like age and sex were not significantly affecting the quality of life.

Table 3.11: Comparison of variables in global health status inQLQ-C30 questionnaire

Variables	Global health status/ QoL Mean+/-SD
Age	
30-39	62.47±8.09
40-49	58.96±14.61
50-59	58.66±14.42
>60	63.99±15.24
P value(KRUSKAL-WALLIS TEST)	0.598
SEX	
MALE	60.61±14.58
FEMALE	61.27±13.07
P value(MANN-WHITNEY U TEST)	0.97
Treatment Modality	
Chemotherapy	47.22±17.88
Chemoradiotherapy	64.05±10.64
P value (MANN-WHITNEY U TEST)	0.012

3.12: Comparison of variables in functional scales in QLQ-C30
Physical functioning, role functioning, emotional functioning, cognitive functioning and social functioning were independent of age and sex. However patients on chemoradiotherapy performed significantly better in physical, emotional and cognitive function.

Table 3.12: Comparison of variables in functional scales in QLQ-C30

VARIABLES	Physical Functioning Mean±SD	Role Functioning Mean±SD	Emotional Functioning Mean±SD	Cognitive Functioning Mean±SD	Social Functioning Mean±SD
AGE					
30-39	79.91±15.05	58.62±37.38	70.00±20.49	76.66±16.10	83.46±20.79
40-49	65.16±26.28	42.58±35.52	51.26±32.44	71.84±18.83	77.02±22.13
50-59	73.34±19.12	60.18±38.32	63.99±24.9	75.91±19.12	84.14±19.58
>60	72.88±20.47	67.57±29.14	62.70±28.94	75.65±17.99	83.39±20.04
P-value(KRUSKAL-WALLIS TEST)	0.573	0.268	0.523	0.810	0.754
SEX					
MALE	75.82±20.68	66.79±4.14	65.26±27.25	74.20±17.64	81.99±21.24
FEMALE	68.39±20.17	47.96±34.63	57.72±27.11	76.31±18.43	82.24±18.98
P value(MANN-WHITNEY UTEST)	0.090	0.033	0.287	0.468	1.000
ON GOING TREATMENT					
CHEMOTHERAPY	51.33±28.86	39.11±36.07	22.11±16.33	55.56±8.21	78.00±21.78
CHEMORADIO THERAPY	77.47±14.68	63.04±33.97	71.16±19.97.	79.64±16.42	83.37±19.82
P value(MANN-WHITNEY U TEST)	0.005	0.037	<0.0001	<0.0001	0.299

3.13a Comparison of variables in functional scales in QLQ-C30 symptom scale

➢ *Table 3.13a depicts that fatigue, nausea and vomiting, pain, dyspnea amd insomnia were independent of age and sex but fatigue and insomnia were significantly less problematic for patients on chemoradiotherapy compared to radiotherapy alone.*

Table 13a: Comparison of variables in functional scales in QLQ-C30 symptom scale

Variables	Fatigue Mean±SD	Nausea & Vomiting Mean±SD	Pain Mean±SD	Dyspnea Mean±SD	Insomnia Mean±SD
AGE					
30-39	37.42±23.48	23.32±35.30	29.97±13.16	16.65±23.55	36.64±36.67
40-49	50.12±26.31	35.88±45.85	35.88±27.08	28.19±38.11	46.12±34.78
50-59	46.39±26.40	27.26±35.83	31.04±30.12	16.65±26.71	30.27±35.47
>60	46.57±31.06	15.78±24.51	32.45±33.55	15.78±28.03	26.29±26.11
P value (KRUSKAL-WALLIS TEST)	0.768	0.674	0.850	0.786	0.422
SEX					
MALE	40.22±26.24	18.51±30.80	29.61±27.35	13.88±26.87	30.53±33.19
FEMALE	52.97±26.92	33.32±36.85	35.70±29.30	24.98±30.92	36.88±38.83
P value (MANN-WHITNEY U TEST)	0.058	0.045	0.310	0.073	0.531
ON GOING TREATMENT					
CHEMOTHERAPY	69.57±12.01	40.31±26.68	44.43±43.43	20.50±30.35	44.43±35.76
CHEMORADIO THERAPY	29.47±25.70	44.43±43.43	12.81±21.01	66.60±0.00	25.62±35.29
P value (MANN-WHITNEY U TEST)	<0.001	0.054	0.209	0.007	<0.001

13b: Comparison of variables in functional scales in QLQ-C30 symptom scale

Symptoms like appetite loss, constipation, diarrhea and financial difficulties were not significantly affected by age and gender but significantly less diarrhea was seen in patients on chemoradiotherapy than radiotherapy alone.

Table 13b: Comparison of variables in functional scales in QLQ-C30 symptom scale

Variables	**Appetite Loss Mean±SD**	**Constipation Mean±SD**	**Diarrhea Mean±SD**	**Financial Difficulties Mean±SD**
AGE				
30-39	43.31±41.71	26.64±26.27	0	49.97±35.99
40-49	66.12±90.19	25.62±27.71	10.26±25.04	56.38±39.40
50-59	52.99±72.43	28.76±29.60	3.03±14.21	46.95±38.02
>60	73.63±99.65	33.30±31.40	3.51±15.30	42.08±38.23
P value (KRUSKAL-WALLIS TEST)	0.929	0.905	0.455	0.758
SEX				
MALE	53.66±77.71	28.68±28.87	3.70±15.49	44.42±38.21
FEMALE	69.01±84.99	29.73±29.14	4.76±17.49	52.36±36.77
P value(MANN-	0.260	0.885	0.796	0.385

WHITNEY U TEST)				
ON GOING TREATMENT				
CHEMOTHERAPY	55.53±43.42	33.30±28.40	22.22±32.83	55.53±43.42
CHEMORADIO THERAPY	61.49±87.34	28.18±29.03	0.00±.00	46.13±36.25
P value(MANN-WHITNEY U TEST)	0.474	0.555	<0.001	0.476

Table 14a: Comparison of variables in functional scales in QLQ-OES 18

- Symptoms of dysphagia , eating problem, reflux symptoms, pain and trouble swallowing saliva were not affected by age and sex of patient.

Table 14a: Comparison of variables in functional scales in QLQ-OES 18

Variables	Dysphagia	Eating Problem	Reflux symptoms	Pain	Trouble swallowing saliva
AGE					
30-39	24.31±17.97	97.96±173.30	18.33±24.15	17.43±18.72	0.00±0.00
40-49	25.44±20.53	49.19±25.10	16.15±23.55	19.46±17.39	23.07±39.40
50-59	25.58±22.54	101.94±158.54	20.45±21.77	19.78±18.93	24.23±37.34
>60	25.93±25.71	79.78±126.32	21.92±22.92	21.19±17.90	26.31±37.80
P value (KRUSKAL-WALLIS TEST)	0.998	0.632	0.884	0.879	0.147
SEX					
MALE	26.05±20.28	93.34±152.86	22.21±22.88	20.04±17.99	23.14±37.21
FEMALE	24.69±29.45	72.04±104.19	16.65±21.74	19.42±18.08	17.85±33.31
P value(MANN-WHITNEY U TEST)	0.658	0.785	0.279	0.845	0.620
ON GOING TREATMENT					
CHEMOTHERAPY	14.43±14.57	69.40±17.86	22.20±16.40	25.90±10.93	55.53±43.42
CHEMORADIO THERAPY	28.00±22.76	87.40±147.62	19.22±23.65	18.35±18.94	12.82v28.12
P value(MANN-WHITNEY U TEST)	0.035	0.008	0.552	0.157	0.001

Variables	Choked when swallowing	Dry mouth	Trouble with taste	Trouble with coughing	Trouble talking
AGE					
30-39	36.63±33.11	10.00±31.62	33.32±41.57	19.98±23.29	0.00±0.00
40-49	28.18±32.87	20.51±39.73	35.88±35.59	12.81±21.66	2.56±9.24
50-59	31.76±29.92	21.20±33.39	39.37±35.08	24.22±25.55	3.03±9.80
>60	29.76±29.14	26.31±37.80	38.56±27.79	15.77±23.20	1.75±7.64
P value (KRUSKAL-WALLIS TEST)	0.915	0.434	0.881	0.482	0.794
SEX					
MALE	38.83±30.32	18.51±32.30	29.61±32.62	22.20±25.17	2.78±9.33
FEMALE	21.40±27.51	23.80±39.39	47.59±31.98	14.27±21.12	1.19±6.29
P value(MANN-WHITNEY U TEST)	0.029	0.741	0.023	0.201	0.439
ON GOING TREATMENT					
CHEMOTHERAPY	22.20±32.79	55.53±43.42	22.20±16.40	22.20±32.79	11.10±16.40

CHEMORADIO THERAPY	33.28±29.49	12.82±28.12	41.00±35.30	17.93±21.33	0.00±0.00
P value (MANN-WHITNEY U TEST)	0.36	0.001	0.112	1.000	<0.001

4.DISCUSSION

Esophageal cancer is often aggressive, leading to a poor prognosis due to regional failure and distant metastasis. While surgery was traditionally used to alleviate dysphagia, studies have shown similar relief with radiotherapy. Radiotherapy, being noninvasive with minimal risks and effectively controlling disease progression, is preferred for not just palliation in esophageal cancer but, at present, definitive chemoradiotherapy is accepted as the standard treatment for locally advanced carcinoma esophagus. In resource-limited settings like India, where various palliative methods are employed, radiotherapy, particularly external beam radiotherapy stands out for its efficacy and cost-effectiveness. Quality of life is a primary concern for many patients, is often being considered as end point of treatment, goal being to maintain swallowing ability with minimal morbidity in the patients.QOL assessments in patients with esophageal cancer should provide clinically meaningful data that can assist management decision making. In this study, the same was done using QLQ c-30 and QLQ OES -18 questionnaires.

The QLQ-C30 (version3.0) was used which is composed of both multi-item scale and single-item measures. This questionnaire includes a global health status/QOL, five functional scale (physical functioning, role functioning, emotional functioning cognitive functioning and social functioning), three symptom scales (fatigue, nausea/vomiting and pain) and different single-item scales. The QLQ-OES 18 contains symptom scales like dysphagia, eating trouble, reflux symptoms and pain. Each of the multi-item scales includes a different set of item. No item occurs in more than one scale. All of the scales and single items range in score from 0 to 100. A high scale score represents a higher response level. The high score of functional scale represents high/healthy level of functioning, a high sores for global health status represents a high QOL but high score for symptom scale represent high level of symptomatology or problems.

In my experiences, the questionnaire was well accepted and compliance rates were high among patients of carcinoma esophagus. In this study:

1. 10 patients were in the age group ≤ 40 years,13 patients lied in the age group of 40 to 49, 22 patients aged between 50 to 59 and 19 patients were in the age group more than 60 years. Majority of the patients were in the age group 50-59 years. The mean age of the patients was 52.7years.
2. There were 28 female and 36 male patients. A ratio of male to female is 1.3:1.
3. Patients of KPS > 50 have been included. The distribution of patients based on their KPS . Mean KPS of patients was 80.63. All the patients lied in the range of KPS 70-90.
4. Majority of the patient‘s family income were more than Rs 7000 per month. No patients had a family income <3000 rupees.
5. 36 patients had disease in the middle third of esophagus. Upperesophagus was involved in 8 patients. Rest 20 patients were oflower esophagus.
6. 44 patients resided in urban areas and 20 patients resided in rural areas .Majority of the patients resided in urban areas.
7. The most common symptom is dysphagia, nearly all patients had complaint of dysphagia at the time of hospital visit, followed by odynophagia.
8. Only 12 patients ongoing treatment were on chemotherapy and 52 patients ongoing treatment were on chemoradiotherapy
9. For the symptom scales, the highest mean scores were observed for appetite loss, financial difficulties, fatigue, pain and insomnia. On the other hand, the least troubling symptoms appeared to be diarrhea and constipation. Overall, participants had poor QoL based on their global health status.
10. The symptom scale of QLQ OES 18 , trouble swallowing saliva, dry mouth, trouble with taste, trouble with cough, trouble talking, reflux and pain. Clearly , eating is most troublesome for the patients. However patients hardly had trouble speaking.

11. There was a significant superiority in quality of life of patients receiving chemoradiotherapy over chemotherapy alone.

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