



Prognostic Factors for Oesophageal Cancer

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Abstract

A prospective study detecting Prognostic Factors for Oesophageal Cancer was conducted with the sample size of 51 patients with the aim to identify specific prognostic indicators for oesophageal cancer with a view to improve the final outcome and better survival rates. The patients were followed up for one year and observations in the form of complete clinical examination and investigations were done. All risk factors were compared with outcome indices in the study i.e. 1 year survival rate and quality of life.

Carcinoma esophagus is a disease with poor survival rate, quality of life, functional capacity and performance and it deteriorates with advanced age. Cigarette smoking and alcohol are major risk factors deciding outcome of the disease in terms of survival and quality of life.

Young age and no addictions are good prognostic indicators of carcinoma esophagus.

Keywords – *Quality of life, performance capacity, survival.*

Introduction

Oesophageal cancer is one of the ten most common malignancies worldwide. The five-year survival rate of people with this cancer is 3 to 10 %⁽¹⁾. It is one of the most virulent tumours with a dismal prognosis, despite the recent advances in early diagnosis and treatment⁽²⁾. Over the past decade, there have been many significant changes in the management of oesophageal cancer. There have been remarkable changes in epidemiology with a concentration of tumours adjacent to the oesophagogastric junction. The factors predicting the outcome of longstanding morbidity and mortality, defined by characteristics of individual patients, needs to be assessed. There is currently no consensus about independent factors, except for clinical staging⁽³⁾.

Aim

To identify specific prognostic indicators for oesophageal cancer with a view to improve the final outcome and better survival rates.

Objectives

1. To study the various prognostic factors affecting the outcome of treatment in patients with Oesophageal cancer.
2. To evaluate the Quality of Life scores during treatment for Oesophageal cancer.

Methodology

A prospective study was conducted on 51 patients of carcinoma esophagus at Dr. D.Y.Patil Medical College, Hospital and Research Centre, Pune. All cases of carcinoma esophagus proved histopathologically were included in the study. The patients were classified with reference to their functional impairment using Karnofsky Performance Scale Index. The quality of life (QoL) was assessed in all cases included in the study. It was done using European Organization for Research and Treatment of Cancer core QL questionnaire (EORTC QLQ- C30, version 3.0) and the Dysphagia Scale from the Oesophageal Cancer Module (EORTC QLQ-OES 18). The QOL was

assessed on admission and immediately after completion of initial treatment using the EORTC modules and Karnofsky performance scale. All risk factors were compared with outcome indices – 1 year survival rate and QOL criteria.

Results

Age

Majority of the cases in our study were in the age group more than 60 years i.e. 25 (49%), followed by 16 (31.4%) cases with 51 to 60 years and 10 (19.6%) cases were in age group <50 years (Fig 1a). Pun CB et al⁽⁴⁾ studied histological pattern of esophageal cancer in one of the largest cancer centers in Nepal. Total of 106 cases of esophageal cancer were received out of which 51 cases were in the age group of more than 60 yrs.

16 patients in the age group >60 years died in 1 year suggesting low one year survival rate in this group. However, age was not significantly associated with outcome among the cases with oesophageal cancer in our study (Fig 1b). Similar finding was observed in a study conducted by Hamouda A et al⁽⁵⁾ which reviewed the presentation and survival of young patients with esophageal cancer. 365 esophagectomies were performed for cancer, of which 76 patients were younger than 55 years (20.8%) and 289 were older than 55 years. Age was not significant for age group of older than 55 yrs for outcome of oesophageal cancer.

In our study, it was observed that there is poor quality of life and functional impairment associated with advanced age (Fig 1c,d). In a study carried out by Shen HC et al⁽⁶⁾, they observed that patients >60 years of age exhibited an increased risk of poor quality of life.

Sex

The number of males with esophageal cancer was higher cancer as compared to females in our study. 31(60.8%) were males and 20 (39.2%) cases were females.(Fig 2a). In a study carried out by Bohanes et al⁽⁷⁾ who depicted the influence of sex on the survival of patients with esophageal cancer, it was found out that out of the 26,848

patients included in the study 19,957 patients were male.

Sex was not significantly associated with outcome among the cases with oesophageal cancer in our study group (Fig 2b) Similar finding was seen in a study conducted by Ali Delpisheh et al⁽⁸⁾ which aimed to investigate the influence of histological factors on survival of patients with esophageal cancer. Gender was not significantly associated with survival (Log rank =0.480).

Comparison of quality of life and performance index with sex did not show any significance in the study group (Fig2c,d) . In a study carried out by Shen C et al⁽⁶⁾ it was observed that gender was not significantly associated with functional aspect of QOL scores.

Addictions

In our study, majority of the cases i.e. 22(43.1%) were smokers, 8 cases alcoholic & smokers both, 6 cases tobacco chewers, 4 cases alcoholic and 11 (21.6%) cases did not have any addiction. In our study, 78.5% of the cases with oesophageal cancer had some form of addiction and the remaining did not have any addictions. We found that smoking (43.1%) was most common addiction among the

cases with oesophageal cancer. Alcohol (7.8%) and tobacco chewing (11.8%) were other addictions among the cases with oesophageal cancer. 15.7% of cases consumed both alcohol and cigarettes (Fig 3a).

In our study, it was observed that addiction, more commonly smoking cigarettes and alcohol consumption adversely affected one year survival rate. (Fig 3b). It was also observed that addiction, particularly smoking led to a poor quality of life and functional impairment among patients in the study group.(Fig 3c,d) This could be attributed to other lifestyle diseases in these patients. Jesus Vioqueet al⁽⁹⁾ estimated the independent effect of different alcoholic beverages and type of tobacco smoking on the risk of esophageal cancer. Cases with histologically confirmed esophageal cancer (n = 202) and controls were frequency-matched to cases by age, sex and province (n = 455). Alcohol drinking and tobacco smoking were strong and independent risk factors for esophageal cancer. Alcohol was a potent risk factor with a clear dose-response relationship, particularly for esophageal squamous-cell cancer.

Table 1: Age wise distribution of cases in study group

Age (Yrs)	No of cases	Percentage
<50	10	19.6
51 – 60	16	31.4
>60	25	49
Total	51	100

Table 1b: Association between age and outcome in study group

Age (Years)	Survived	Death	Total	% Survival
<50	7	3	10	70
51 – 60	8	8	16	50
>60	9	16	25	36
Total	24	27	51	47.06

Chi-square = 3.39, P=0.18

16 patients in the age group >60 years died in 1 year suggesting low 1 year survival in this age group. However, since $p > 0.05$, there is no

significant association between age and outcome i.e. one year survival.

Table 1c: Association between EORTC score and age in study group

Age (Years)	EORTC score		Total
	Average (34 – 67%)	Poor (68 – 100%)	
<50	8	2	10
51 – 60	8	8	16
>60	8	17	25
Total	24	27	51

Chi-square = 6.69, P=0.035

There is significant association between age and EORTC score as $p < 0.05$. This signifies that there

is poor quality of life associated with advanced age.

Table 1d: Association between Karnofsky Performance Scale score and age in study group

Age (Years)	KPS score			Total
	0 – 40	50 – 70	80 – 100	
<50	2	2	6	10
51 – 60	5	8	3	16
>60	12	10	3	25
Total	19	20	12	51

Chi-square = 10.37, P=0.035

There is significant association between age and KPS score as $p < 0.05$. This signifies poor

functional capacity / performance with higher age group.

Table 2a: Association between sex and outcome in study group

Sex	Survived	Death	Total	% Survival
Male	13	18	31	41.94
Female	11	9	20	55
Total	24	27	51	47.06

Chi-square = 0.83, P=0.36

There is no significant association between sex and outcome as $p > 0.05$, suggesting similar 1 year survival in both sex.

Table 2a: Association between EORTC score and sex in study group

Sex	EORTC score		Total
	Average (34 – 67)	Poor (68 – 100)	
Male	12	19	31
Female	12	8	20
Total	24	27	51

Chi-square = 2.21, P=0.14

There is no significant association between sex and EORTC score as $p > 0.05$, suggesting no difference in quality of life in either sex.

Table 2c: Association between KPS score and sex in study group

Sex	KPS score			Total
	0 – 40	50 – 70	80 – 100	
Male	14	11	6	31
Female	5	9	6	20
Total	19	20	12	51

Chi-square = 2.19, P=0.33

There is no significant association between sex and KPS score as $p > 0.05$, which suggests no

difference in performance scale in either sex.

Table 3a: Distribution based on addictions of patients in the study group

Addiction	No of cases	Percentage
Alcohol	4	7.8
Smoking	22	43.1
Tobacco chewing	6	11.8
Alcohol and smoking	8	15.7
No	11	21.6
Total	51	100.0

Table 3b: Association between addiction and outcome in study group

Addiction	Survived	Death	Total	% Survival
Alcohol	1	3	4	25
Smoking	7	15	22	31.8
Tobacco chewing	3	3	6	50
Alcohol and smoking	5	3	8	62.50
No	8	3	11	72.7
Total	24	27	51	47.06

Chi-square = 3.71, $P = 0.048$ (By applying test addiction: Yes Vs addiction: No)

There is significant association between addiction and outcome as $p < 0.05$.

Table 3c: Association between EORTC score and addiction in study group

Addiction	EORTC score		Total
	Average (34 – 67)	Poor (68 – 100)	
Alcohol	1	3	4
Smoking	7	15	22
Tobacco chewing	2	4	6
Alcohol and smoking	5	3	8
No	9	2	11
Total	24	27	51

Chi-square = 6.80, $P = 0.009$ (By applying test addiction: Yes Vs addiction: No)

There is significant association between addiction and EORTC score as $p < 0.05$. This may be

attributed to the associated lifestyle diseases along with oesophageal cancer.

Table 3d: Association between KPS score and addiction in study group

Addiction	KPS score			Total
	0 – 40	50 – 70	80 – 100	
Alcohol	3	1	0	4
Smoking	11	8	3	22
Tobacco chewing	3	2	1	6
Alcohol and smoking	2	3	3	8
No	0	6	5	11
Total	19	20	12	51

Chi-square = 8.93, $P = 0.012$ (By applying test addiction: Yes Vs addiction: No)

There is significant association between addiction and KPS score as $p < 0.05$.

Conclusion

Carcinoma esophagus is a disease with poor survival rate, quality of life, functional capacity and performance and it deteriorates with advanced age. However, sex of the individual does not seem

to affect the outcome of the disease. Cigarette smoking and alcohol are major risk factors deciding outcome of the disease in terms of survival and quality of life.

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