

Trends in the incidence and survival of patients with oesophageal cancer over 5 year - An institutional study

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Abstract

Esophageal cancer is the sixth leading cause of cancer-related deaths and the eighth most common cancer worldwide with a 5-year survival rate of less than 25%. According to Globocan 2020, it comprised of 3.1% of the new cases registered and 5.5 % of the total no. of deaths in 2020. We did a retrospective study on 2856 cases, which involved 5 years data of Esophageal cancer incidence from Hospital-Based Cancer Registry (HBCR) of Regional Cancer Center (RCC), Bikaner, Raj., India, from January 2018 to December 2022. Squamous cell carcinoma (93%) was the predominant histology seen in our study with adenocarcinoma accounting for 7 % cases. The M.C. site of malignancy was M/3 (52%), the lower oesophagus was involved in 25%, and upper in 23% cases.

Keywords: Esophageal cancer, Squamous Cell Carcinoma, Adenocarcinoma.

Introduction

Esophageal cancer is a type of malignancy characterized by its high mortality rate, poor prognosis at the time of diagnosis and significant variations in incidence, mortality, and histopathology based on geographic region. It is the sixth leading cause of cancer-related deaths and the eighth most common cancer worldwide with a 5-year survival rate of less than 25%. It shows marked geographical variation, with inceptively high rate ranging from 3 per 1,00,000 per year reported in western countries to 140 per 1,00,000 reported in central Asia. Squamous cell carcinoma and adenocarcinoma represent the vast majority of esophageal cancers. The most common type of esophageal cancer is squamous cell carcinoma, but esophageal carcinoma is in epidemiological transition, with a dramatic increase in the incidence of esophageal adenocarcinoma (EAC) during the last 40 years, worldwide.

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in 2020. In India, according to Globocan 2020, no. of new cases of Esophageal Cancer registered were 63,180 (4.81%) of total 13,24, 413 cases. It constitutes 58,342 deaths (6.9%) of the total 8,51,678 cancer related deaths.

Regarding gender and racial distribution, historically, it is more common in males when compared to females (7:1 ratio), and its incidence rate is higher in whites when compared to blacks.

Materials and Methods

It was a single-center, retrospective study which involved 5 years data of Esophageal cancer incidence from Hospital-Based Cancer Registry (HBCR) of Regional Cancer Center (RCC), Bikaner, Raj., India, from January 2018 to December 2022. Being a retrospective study, no ethical approval was required for the study as all patients were treated with the standard departmental protocol. Patients included in the study were those who were diagnosed with Esophageal carcinoma above the age of 18 years irrespective of the stage and histology. Patients from outside the state of Rajasthan or patients with second malignancies were excluded from the study. A total of 2,856 cases were collected. The district-wise distribution of Esophageal carcinoma was also mapped. Specifically, we extracted data from the years 2018 - 2022.

Data was analyzed using chi-square, mean, percentage and p-value.

Discussion

Around the world, the incidence of esophageal ca is 4 times higher in men than in women of all age group. A study by Thomas et al, showed that the Incidence rate of Esophageal cancer in India increased in the last two decades. Smoking increases the risk of developing squamous cell carcinoma of esophagus by 5-10 folds and of developing adeno carcinoma by 2 folds. Alcohol has an addition and perhaps synergistic effect. Tobacco use

seen in 35% patients, is also a major risk factor for esophageal carcinoma. Risk factors for Oesophageal Adenocarcinoma (EAC) may be divided into genetic and non-genetic components. In recent literature clustering of EAC within several families has suggested the presence of a genetic component in EAC. The identification of this subset of patients has given rise to the term “familial EAC”, which is also referred to as “familial Barrett’s esophagus (BE)”. Familial EAC is defined as the presence of two or more family members diagnosed with BE, EAC or gastroesophageal junction EAC (EJEAC). Studies have shown that familial cases of EAC tend to develop at a younger age and are less strongly associated with other risk factors for EAC. In 2016, further supporting the theory of a genetic component, Fecteau et al were able to identify a germline mutation associated with a subset of patients with EAC. Non-genetic risk factors are better established in the development of EAC and include BE, gastroesophageal reflux disease (GERD), obesity, and tobacco smoking. Similar to EAC, cases of Esophageal SCC are more commonly seen in males when compared to females with a ratio of 2.7. Risk factors for ESCC include low socioeconomic status, tobacco smoking and alcohol consumption (which when combined, exert a synergistic effect on increasing risk). Diet also plays a significant role in developing ESCC. Namely, consumption of hot beverages, nitrosamine (seen in processed meats), red meat, and micronutrient deficiencies (beta-carotene, folate, vitamin C, vitamin E and riboflavin) have all been linked with a higher risk of ESCC. Achalasia, a motility disorder of the esophagus also confers an increased risk. Squamous cell carcinoma (93%) was the predominant histology seen in our study with adenocarcinoma accounting for 7 % cases. The M.C. site of malignancy was M/3 (52%), the lower oesophagus was involved in 25%, and upper in 23% cases. Despite

that the lower esophagus is commonly involved, the common histology observed was squamous cell carcinoma.

Conclusion

Squamous cell carcinoma (93%) was the predominant histology seen in our study with adenocarcinoma accounting for 7 % cases. The M.C. site of malignancy was M/3 (52%), the lower oesphagus was involved in 25%, and upper in 23% cases. Despite that the lower esophagus is commonly involved, the common histology observed was squamous cell carcinoma.

Esophageal cancer, in present day continues to be a prevalent pathology and cause of mortality across all genders and demographic populations. Robust measures should be implemented to reduce exposure to risk factors. Further, initiatives targeting early screening in selected high-risk populations should be strongly considered.

Our study was hindered by multiple limitations as it is a retrospective study, which carries with its inherent weaknesses in design when compared to prospective studies.

Results

Oesophageal cancer accounts for 6.9% of the total cancer patients registered at RCC, Bikaner, from Jan. 2018 to Dec. 2022. Squamous cell carcinoma was noted in 93% patients, whereas Adeno Ca was the second most common. At the time of diagnosis, early stage was found in 15% of cases, locally advanced in 41% cases and metastatic in 44% cases. Mean age at diagnosis was 56 yrs with 59.2% males and 40.7% females. Median age was 60 yrs (Range 22-85 yrs.) with a median survival of 7 months. Median survival is 14 months for early disease, 9 months for locally advanced and 3 months for metastatic disease.

In are study, the highest incidence was found in the 5th and 6th decade. Most common histology was Squamous

cell carcinoma, followed by Adeno Carcinoma. The area wise distribution showed a high incidence rate in the district of Bikaner followed by Nokha.

Survival data

The overall median survival was 7 months. It is 14 months in case of early disease, 9months for locally advanced disease, and 3 months in case of metastatic disease.

Table 1: Year and gender wise distribution of esophageal cancer in patients

Year	Male	Female	Total n= patients
2018	317	255	572 (20.02%)
2019	302	253	555 (19.43%)
2020	299	245	544 (19.04%)
2021	310	290	600 (21%)
2022	464	121	585 (20.4%)
Total	1692	1164	2856

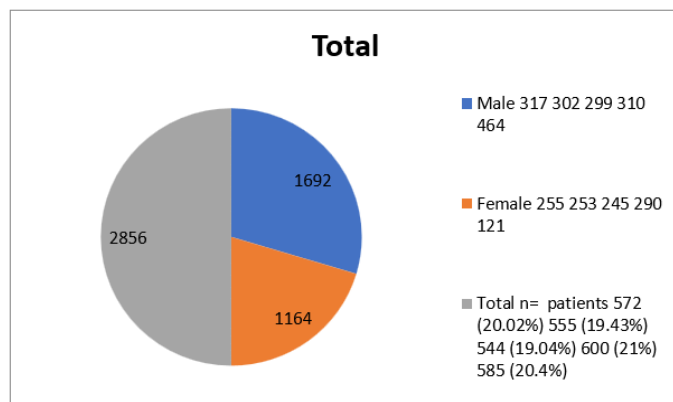


Table 2: Histology wise distribution of Eesophageal Carcinoma

Histology	No of oeso patients
Adeno	192
Squamous	2520
Other-Aden squamous, small	40
Not specified	106

Table 3:Age wise distribution of esophageal cancer Patients.

Age group	Male	Female	Total
<30 yrs.	85	58	143
31-40	169	116	285
41-50	283	175	458
51-60	560	384	944
61-70	436	314	750
71-80	125	93	218
>81	34	24	58
Total	1692	1164	2856

Table 4:Tehsil-wise distribution of Esophageal Ca patients in Bikaner district

Tehsil	No of patients observed (n= 150)
Bikaner	124
Nokha	15
Poogal	1
Sridungargrh	3
Kolayat	5
Loonkaransar	0
Khajuwala	2

Data availability

The authors declare that data supporting the findings of this study are available within the article.

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