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**Original Research Article**

# A socio-demographic study of esophagus carcinoma at a tertiary care hospital of Maharashtra, India

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## ABSTRACT

**Background:** Esophageal cancer incidence rates vary internationally from region to region. Esophageal cancer is usually 3 to 4 times more common among men than women. The present study was carried out to find out the socio-demographic determinants of esophageal cancer in a tertiary care teaching hospital of central part of India. A retrospective study was carried at tertiary care center in rural part of central India for a period of 6years (2007-2013).
**Methods:** A total of 703 patients suffering with different kind of carcinoma were reported at the hospital of which 255 were retrieved as patients having esophageal carcinoma and reviewed. Patient history and profile like habits and socio-demographic records were collected and assessed. Majority of patients was on mixed diet. Out of 703 patients suffering with carcinoma in a specified period of six years, 255 patients had esophageal cancer.
**Results:** Data reveals predominance of males (51.76) over females (48.24). Majority of peoples belongs to remote areas with a history of chewing tobacco, smoking and consumption of alcohols. The present study shows that esophageal cancer constitutes 32.27% of GIT cancer cases reported in research hospital. Dysphagia and loss of weight were very commonly observed symptoms. Ulceration, lumen narrowing, and wall thickening were also assessed in some patients. Mostly lower and middle esophagus was found to have cell growth.
**Conclusions:** It was concluded from the data, that government must take efforts to improve socio-economic status of peoples standing in remote areas so as to potentially reduce the risk factors causing the disease and increase a public awareness among the peoples.

**Keywords:** Central India, Esophageal carcinoma, Remote areas, Tertiary care hospital

## INTRODUCTION

Carcinoma is a rising disease and one of the major causes among ten leading cause of death in India.[1] Utmost more than 2/3 population dies of this disease. The burden is expected to grow worldwide due to the growth and aging of the population, particularly in less developed countries in which about 82% of the world's population resides. The adoption of lifestyle behaviors that are known to increase cancer risk such as smoking, poor diet, physical inactivity and reproductive changes (including lower parity and later age at first birth) have further increased the cancer burden in less economically developed countries. An estimated 14.1 million new cancer cases and 8.2 million cancer deaths occurred in 2012 worldwide.[2] It acquired six positions in respect of cancer related death in the universe. Generally male to female ration is high.[1] Appearances of symptoms are very rare at initial face of cell growth.[3] Among various kind of cancer, esophageal carcinoma is a life-threatening disease due to lack of potential treatment. This malignancy extremely found in south India and also in Assam.[4] Study

and understanding of etiology, risk factors and knowledge of symptoms will support to control and reduce the cases of esophageal malignancy.[5] Therefore, the chief objective of the present study was to find out the sociodemographic determinants of patients with esophageal cancer who visited in a tertiary care teaching hospital of in central India.

## METHODS

Retrospective study was carried at tertiary care centre in rural part of central India. The central India comprise of eleven districts of Vidharbha along with neighboring districts of Andhra Pradesh and Madhya Pradesh. This particular region is specified as rural area. Study was conducted for a period of 6years from 1st January 2007 to 31st December 2013.

A total of 703 patients suffering with different kind of carcinoma were reported at the hospital of which 255 were retrieved as patients having esophageal carcinoma and reviewed. Patient history and profile like habits and socio-demographic records were collected and assessed. All recorded data for studied years were entered in MS Excel and analyzed in the form of percentage and proportions whenever appropriate.

## RESULTS

Socio demographic determinants of study were depicted in Table 1. Study reveals 255 cases of esophagus carcinoma out of 703 patients visited to hospital. The peak incidence was observed in the age group of 61-70 with a total of 70 (27.45%) diagnosed followed by patients in their 4th and 5th decades. The youngest patient was aged 20years while the oldest was recorded at 86years. The age range was 20 to 86years with a mean age of presentation 56.11years with a standard deviation of 12.98. Out of 255 patients 132 (51.76) were male and 123(48.24%) were females. This suggests a male predilection in carcinoma esophagus. The male: female ratio was 1.07:1.

**Table 1: Age distribution of patients.**

| Age group (yrs) | Gender | | | | Total | |
|---|---|---|---|---|---|---|
| | Male | | Female | | | |
| | N | % | N | % | n | % |
| Upto 10 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 |
| 11-20 | 1 | 0.39 | 0 | 0.00 | 1 | 0.39 |
| 21-30 | 2 | 0.78 | 6 | 2.35 | 8 | 3.14 |
| 31-40 | 10 | 3.92 | 16 | 6.27 | 26 | 10.20 |
| 41-50 | 27 | 10.59 | 33 | 12.94 | 60 | 23.53 |
| 51-60 | 28 | 10.98 | 32 | 12.55 | 60 | 23.53 |
| 61-70 | 40 | 15.69 | 30 | 11.76 | 70 | 27.45 |
| 71-80 | 19 | 7.45 | 6 | 2.35 | 25 | 9.80 |
| 81-90 | 5 | 1.96 | 0 | 0.00 | 5 | 1.96 |
| Total | 132 | 51.76 | 123 | 48.24 | 255 | 100 |
| Mean±SD | 58.55±13.21 | | 53.49±12.25 | | 56.11±12.98 | |

Table 2 shows the association of possible high-risk factors with various GIT malignancies. In carcinoma of the esophagus 30 patients were smokers (11.76%) while 44 patients were alcoholic (17.25%). A total of 22 patients were obese (8.63%) and one patient had family history of carcinoma esophagus (0.39%). History of acid peptic disease was elicited from 16 patients (6.27%).

**Table 2: Distribution of study population according to habits.**

| Risk factors | No. of patients | % |
|---|---|---|
| Smoking | 30 | 11.76 |
| Alcohol | 44 | 17.25 |
| Vegetarian diet | 83 | 32.55 |
| Mixed diet | 172 | 67.45 |
| Obesity | 22 | 8.63 |
| Family history | 1 | 0.39 |
| History of peptic ulcer disease | 16 | 6.27 |

Table 3 represents the various presenting symptoms in the patients diagnosed with carcinoma esophagus. The most common symptom was dysphagia which was experienced by 230 (90.20%) patients. This was followed by vomiting which was recorded in 204 patients (80.00%).

History of loss of weight and appetite was obtained from 147 patients (57.65%) and 43 patients (16.86%) respectively. Upon reviewing the complete blood counts of patients with carcinoma esophagus it was found that 51 patients (19.4%) were anemic out of which 2(0.78%) had mild anemia. Moderate anemia and severe anemia were found in 41 (16.08%) patients had 8 (3.14%) patients respectively.

**Table 3: Symptomatology of patients of esophagus carcinoma.**

| Presenting Symptoms | No of patients (n) | % |
|---|---|---|
| Pain | 24 | 9.41 |
| Lump in abdomen | 1 | 0.39 |
| Vomiting | 204 | 80.00 |
| Nausea | 27 | 10.59 |
| Jaundice | 8 | 3.14 |
| Loss of appetite | 43 | 16.86 |
| Dysphagia | 230 | 90.20 |
| Loss of weight | 147 | 57.65 |

**Table 4: Upper GI endoscopy findings in esophagus carcinoma.**

| Findings | No of patients (n) | (%) |
|---|---|---|
| Growth | 190 | 75.69 |
| Ulceration | 18 | 7.17 |
| Lumen narrowing | 47 | 18.73 |
| Total | 255 | 100.00 |

Table 4 represents the findings of upper GI endoscopy in 255 of carcinoma esophagus. One hundred and ninety patients (75.69%) had growth in the esophagus. Ulceration was reported in eighteen patients (7.17%) whereas lumen narrowing was observed in forty-seven patients (18.73%). A total of 143 USG Abdomen were performed on patients with carcinoma esophagus. Seventy-one patients (49.65) were found to have liver secondaries. Ascites was found in 6 patients (4.20%) while fungating mass, only in one patient (0.70%) and esophageal wall thickening was seen in two (1.40%) patients. Ninety-nine patients were subjected to computer tomography (CT). Abdomen of five patients was found normal. Wall thickening of esophageal was found in four (1.57%) patients while thickening with liver secondaries were examined in fifty-two patients (20.39%). Accumulation of mass on abdomen had been observed in eleven patients (1.96) whereas mass with lymphadenopathy seen in five (1.96%) while seven (2.75%) were found to have mass with liver secondaries. Ascites and liver secondaries were found in five (1.96%) and four (1.57%) patients respectively. Cancer in different anatomical sites of esophagus of all patients had been performed and recorded in Table 5.

**Table 5: Anatomical site of distribution in carcinoma esophagus.**

| Anatomical sites | No. of patients (n) | % |
|---|---|---|
| Upper | 15 | 5.9 |
| Middle | 102 | 40.0 |
| Lower | 138 | 54.1 |
| Total | 255 | 100.0 |

Fifteen patients (5.9%) had carcinoma of the upper esophagus, hundred and two patients (40.0%) had carcinoma of the middle 1/3 and one hundred thirty-eight patients had carcinoma of the lower 1/3 of the esophagus. Histopathological Examination (HPE) of the patients suffering with carcinoma of esophagus have been examined and reported in Table 6.

**Table 6: Distribution of histopathological examination (HPE) in carcinoma esophagus.**

| HPE | No. of patients (n) | % |
|---|---|---|
| Adenocarcinoma | 31 | 12.15 |
| Squamous cell carcinoma | 220 | 86.27 |
| Adeno-squamous carcinoma | 1 | 0.39 |
| GIST | 1 | 0.39 |
| Anaplastic small cell carcinoma | 1 | 0.39 |
| Sarcoma | 1 | 0.39 |
| Total | 255 | 100.00 |

Squamous cell carcinoma and adenocarcinoma were reported in two hundred twenty (86.27%) and thirteen one patients (12.15%) among the total number of patents of esophageal carcinoma. Simultaneously one patient was found to belong to adeno-squamous, GIST, anaplastic small cell carcinoma and sarcoma.

## DISCUSSION

Esophageal cancer is mostly prevalent in developing and underdeveloped countries. Carcinoma of esophageal affects upper digestive tract. Prevalence in females is increasing slowly but mostly common to males.[6] In the present study, author observed a male preponderance with a male to female ratio of 1.07:1 with 27.45% cases in the age group of 61-70years. This indicates a male predilection for the disease. Symptomatic studies showed dysphagia as a common symptom and experienced by 230 (90.20%) patients. This was followed by vomiting which was recorded in two hundred four patients (80.00%).

Various studies done in the past have found the lower one third of esophagus to be the most common site for malignant tumors. In the present study of the total cases 54.1% of malignant tumors were found in the lower 1/3$^{rd}$ of the esophagus. Cherian JV et al, in his study reported that the most common histological subtype of esophageal cancer in Tamil Nadu, India was squamous cell carcinoma with 92% patients diagnosed with it. Esophageal adenocarcinoma was reported in only 8% patients in his study. He also observed that esophageal squamous cell carcinoma (SCC) was the commonest in the lower 1/3. The recent increase in esophageal adenocarcinoma was attributed to increase in erosive reflux diseases.[7]

Literature reveals esophageal SCC was predominant worldwide whereas there has been an increase in esophageal adenocarcinoma in UK, USA, and countries of western Europe.[8] Present study was consistent with the studies reported by the above-mentioned authors. Author found esophageal SCC as the most common type of histological subtype present in 86.27% patients while adenocarcinoma was reported in only in 12.15% patients.

Uncommon histological sub types reported where adeno-squamous carcinoma, GIST, sarcoma and anaplastic small cell carcinoma in 0.39% patients each. This research hospital, tertiary care centre is in rural area, majority of patients belongs to remote areas. Patients from this area are habitat of smoking, chewing tobacco, and generally used to ingest alcohol on regular basis. Smoking is a general causative factor for abnormal cell growth. Epidemiological studies confined that environmental factors and lifestyle played an important role in prevalence of cancer and more than 90% of cases were caused due to lifestyle and regular diet.[9] General habits like tobacco, alcohol consumption, and dietary habits were found to be major risk factor. Indians have been known to smoke, chew, and snuff tobacco from long decades ago.[10] The present study reveals that peoples specially belonging to remote areas are not cautious due to lack of education and low income.

## CONCLUSION

The risk of esophageal carcinoma is increasing in India, as per the data collected in hospital but enough data is not available. Data studied in this article like, study of symptoms, involvement of part of esophagus, and histological examinations will help in specific treatment to control the growth and relieve symptoms. The subjected research may provide drive to precede next step in research planning. This may help in understanding early detection of disease and to take necessary measure in advance. Data regarding etiological findings may help to identify the possible target and to increase public awareness in order to reduce burden of incidence of disease.

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