

Study of socio-demographic determinants of esophageal cancer at a tertiary care teaching hospital of Western Maharashtra, India

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Abstract

Background: Esophageal cancer has a peculiar geographical distribution and shows marked differences in incidence within a particular geographical region. Presently, as there seems little prospect of early detection of this cancer, an understanding of the etiological factors may suggest opportunities for its primary prevention. **Objectives:** The present study was carried out to find out the socio-demographic determinants of esophageal cancer in a tertiary care teaching hospital of western Maharashtra, India. **Materials and Methods:** A retrospective hospital record-based study was carried out for the period of five years (2007-2011) in the department of Radiotherapy of Pravara Rural Hospital, Loni, western Maharashtra, India. A total of 5879 patients were diagnosed with cancer, of them, 207 (3.52%) patients had esophageal cancer. Data was collected on the basis of the patients' record in the hospital and analyzed in the form of percentage and proportions whenever appropriate. **Results:** Out of total 5879 patients who were diagnosed with cancer during the five studied years, 207 (3.52%) patients had esophageal cancer, of which 121 (58.46%) were males and 86 (41.54%) were females, which show predominance of males over females. Most of the patients (28.50%) belonged to lower class, while only 9.66% were from upper class. Majority of the patients (54.14%) had a history of tobacco chewing, followed by smoking (cigarette, bidi, or both) in 36.94% and alcohol in 21.65%. **Conclusion:** The present study shows that esophageal cancer constitutes 3.52% of cancer cases. There is a need to screen the high-risk group of people, improve socio-economic status, and efforts must be made to introduce a set of preventive measures that have the potential to significantly reduce the burden of disease and to help bridge the gap between research and public awareness.

Key words: Esophageal cancer, rural area, socio-demographic determinants, tertiary care teaching hospital

Introduction

Cancer is a major concern in all nations of the world, and it has become one of the ten leading causes of death in India. It is the third leading cause of death in males and fourth in females.^[1] The leading sites of cancer vary from country to country. About 10 million people are diagnosed with cancer, and more than 60% die of this disease every year.^[2] Despite recent advances in cancer therapy, esophageal cancer remains one of the least treatment-responsive malignancies. Even in developed countries, more than 85% of patients die within two years of diagnosis, making it the sixth most common cause of cancer-related deaths in the world.^[3] In India, esophageal cancer is the most common malignancy involving the gastrointestinal tract in Karnataka, Tamil Nadu, Kerala, and Assam.^[4] Since the

prognosis in esophageal carcinoma is extremely poor and as there seems to be little prospect for early detection or treatment, a better understanding of the etiology/risk factors may suggest opportunity for its primary prevention.^[5] Hence, the objective of the present study was to find out the socio-demographic determinants of patients with esophageal cancer who visited the department of radiotherapy in a tertiary care teaching hospital of western Maharashtra.

Materials and Methods

A retrospective hospital record-based study was carried out in the department of Radiotherapy of Pravara Rural Hospital (PRH), Loni in western Maharashtra, India. The ethics committee of the institute approved the study. Pravara Rural Hospital is a tertiary level health care center attached as a teaching hospital of Rural Medical College, Loni, which caters to the needs of the Ahmednagar district and comes under the aegis of Pravara Medical Trust. The majority of the patients at PRH come from rural areas. Data were collected for the year January 2007 to December 2011 (i.e., 5 years) on the basis of the patients' records maintained by the department of Radiotherapy. A total of 5879 patients of various malignancies were registered in the department of Radiotherapy, among these, 207 patients who had cancer of the esophagus were reviewed. Data collected from patients' records included patients' socio-demographic profile and habits like alcohol, tobacco, and smoking etc., Socio-economic status was assessed by the modified BG Prasad classification.^[6]

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Statistical analysis

All recorded data for studied years were entered in MS Excel and analyzed in the form of percentage and proportions whenever appropriate.

Results

A total of 5879 patients of various malignancies were registered during the studied years 2007 to 2011 in the department of Radiotherapy, among these, 207 (3.52%) patients had esophageal cancer, of which 121 (58.46%) were males and 86 (41.54%) were females, which shows predominance of males over females.

The socio-demographic determinants of the study population were depicted in Table 1. Out of the 207 esophageal cancer patients, 41.54% were in the age group of >60 years, followed by 30.43% in the age group of 50-60 years, with the lowest 9.17% in the age group of <40 years. As per the modified BG Prasad classification, 28.5% of the patients belonged to lower class, followed by 24.15% lower middle class while only 9.66% were from upper class. Education level of the study population indicated that 30.91% were illiterates and 21.26%, 19.32%, and 16.42% had education levels of secondary, primary, and higher secondary, respectively. Only 12.07% were graduates. Occupation of the study population of esophageal cancer showed that 28.01% were farmers, followed by 19.81% were laborers and housewives and 13.53% were shopkeepers.

As detailed in Table 2, out of the 207 esophageal cancer patients, majority 157 (75.85%) had either one or more tobacco/alcohol habits. Most of the patients (54.14%) gave a history of tobacco chewing followed by 36.94% smoking (either cigarette, bidi, or both) and 21.65% alcohol, while 19.76% had a history of betel nut chewing.

Discussion

Esophageal cancer is an upper digestive tract cancer, mainly prevalent in developing and underdeveloped countries. Though it is more common in males, the rate is increasing in females also.^[7] In the present study, we observed a male preponderance with a male to female ratio of 1.4:1 with 71.98% cases in the age group of >50 years. Similarly, a study done by Sankaranarayanan R *et al.*^[8] found that the proportions of males was higher than females with ratio of 2:1. Another study done by Sehgal S *et al.*^[10] also showed higher proportions of males than females with ratio of 2.1:1. Similar sex distribution has been also reported by other authors.^[4,9]

Education level in the present study population indicated that 30.91% were illiterates, 73.91% patients belonged to lower socio-economic status, and 53.14% were Hindus. Similar findings were observed by Chitra S *et al.*^[4] in their study; majority 78% were illiterate, 93% patients belonged to lower socio-economic status, and over 80% were Hindus. A study by Sehgal S *et al.*^[10] also revealed that the majority (63%) cases were illiterate and 59.5% were from lower socio-economic status.

Table 1: Socio-demographic determinants of study population

Socio-demographic determinants	Number (n=207)	Percentage
Age (in years)		
<40	19	9.17
40-50	39	18.84
50-60	63	30.43
>60	86	41.54
Sex		
Male	121	58.46
Female	86	41.54
Socio-economic status [#]		
Upper	20	9.66
Upper middle	34	16.42
Lower middle	50	24.15
Upper lower	44	21.26
Lower	59	28.50
Religion		
Hindu	110	53.14
Muslim	45	21.74
Christian	08	3.86
Others	44	21.26
Education		
Illiterate	64	30.91
Primary	40	19.32
Secondary	44	21.26
Higher secondary	34	16.42
Graduate	25	12.07
Occupation		
Housewife	41	19.81
Farmer	58	28.01
Shopkeeper	28	13.53
Labourer	41	19.81
Service	25	12.08
Driver	13	6.28

[#]As per the modified BG Prasad classification

Table 2: Distribution of study population according to habits

Risk factor	Number	Percentage
Habit	157*	75.85
Smoking	58	36.94
Cigarette	17	10.82
Bidi	31	19.75
Combination of both	10	6.37
Alcohol	34	21.65
Tobacco chewing	85	54.14
Betel nut chewing	31	19.75
No habit	50	24.15

*Multiple response

In the present study, majority of (28.01%) cases are belonging to farmer category as this hospital is in rural area and main occupation in this area is farming. In addition, alcohol and smoking (either cigarette, bidi, or both) is quite prevalent in our region, particularly among farmers and low socio-economic status.

Smoking is an established risk factor for esophageal cancer.

According to epidemiological studies, 80-90% of all cancers are due to environmental factors, of which, lifestyle-related factors are the most important and preventable.^[11] The major risk factors for all cancers are tobacco, alcohol consumption, infections, dietary habits, and behavioral factors. Consumption of tobacco was observed to be highest in various forms like cigarettes, hukkas, bidis or snuff. Indians have been known to smoke, chew, and snuff tobacco, as early as the 1400s.^[12] The results are consistent with the earlier findings where various habits like smoking and consuming alcohol predispose the subjects to carcinoma.^[13] The present study also revealed the same.

Esophagus cancer incidence has been rising rapidly in many countries. Our study showed that esophageal cancer is more in males above 50 years, especially belonging to low socio-economic status and with habits like smoking and alcohol. In India, the most important lifestyle risk factors responsible for cancer of the esophagus are the use of tobacco and alcohol. Each of these factors alone increases the risk of esophageal cancer many times, and the risk is even greater if they are combined.^[9] Avoiding tobacco and alcohol is one of the best ways of limiting the risk of esophageal cancer.

Limitations

A limitation of the study is the lack of availability of the dietary data of the patients, which could have helped in better understanding the role of the identified risk factors as this is a hospital records-based study. So, findings might not be applicable to the general population.

Conclusion

The incidence of esophageal cancer in India is rising, but very limited data is available. This study may provide the impetus for further research, may help to identify cancers that are more common in rural area, and may help to suggest cancer-preventive measures and screening programs in early detection of cancer. The most feasible method to reduce esophageal cancer burden is to identify and target etiological factors, improve socio-economic status, and screen the high-risk group of people as well as generating awareness regarding modification of lifestyle.

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