Major Sites of Cancer Occurrence among Men in Amritsar District, India: Findings from a Tertiary Care

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ABSTRACT

Introduction: Cancer is a corrosive threat to the society which has caused millions of deaths and continues to nab people in its vicious cycle each year. As per Indian population census data, cancer is the second most common disease in India responsible for maximum mortality with about 0.3 million deaths per year.

Material and methods: To study the types of cancer and the age groups involved amongst males in Amritsar district.: A Cross-sectional study was conducted at Govt. Medical College and associated hospitals, Amritsar for the period of one year (1st January 2012- 31st December 2012). Males with confirmed diagnosis of cancer were interviewed followed by compilation and statistical analysis of the data collected. Patients who refused to participate were excluded.

Results: A total of 231 male patients were interviewed during the study period out which 164 patients were in the age group of 40-69 years. Majority (96%) of study subjects belonged to the State of Punjab and were educated upto high school. 61% subjects belonged to upper lower socio economic class and worked in non-organized sector. Leading sites of cancer were mouth (19.9%), tongue (10.8%), larynx (10.4%) and esophagus (9.1%).

Conclusions: The study helped to find out the possible pattern of occurrence of cancer among males in Amritsar district of Punjab. It was found that majority of cancer patients (35%) were having CA Oral Cavity, Pharynx, Lip. The study also showed age group 40-69 years to be most affected thus in turn forming our priority age group i.e. > 35 years for targeted awareness and screening programmes.

Keywords: Cancer, Male patient, Occurrence sites.

INTRODUCTION

Non-communicable diseases are emerging as a major public health problem globally. Cancer is originating as the pandemic of this century. It is not only the disease of developed countries but also affecting the developing countries. These diseases are lifestyle related, have a long latent period and need specialized infrastructure and human resources for treatment.[1]

In 2012, the worldwide burden of cancer rose to an estimated 14 million new cases per year. It is expected to rise to 22 million annually within next two decades.[2]

As per Indian population census data, cancer is the second most common disease responsible for maximum mortality with about 0.3 million deaths per year.[3] In India, the International Agency for Research on Cancer estimated indirectly that about 635,000 people died from cancer in 2008 representing about 8% of all estimated global cancer deaths and about 6% of all deaths in India.[4]

The estimates of cancer cases for all sites for Indian males are 462408; 497081 and 534353 for the years 2010, 2015 and 2020 respectively. The corresponding estimates of cancer cases for females are 517,378, 563,808 and 614,404. Further, the total cancer cases are likely to go up from 979,786 cases in the year 2010 to 1,148,757 cases in the year 2020.[5]

There are at least 90 cancer patients for every 100,000 population in Punjab. A survey done by Govt. of Punjab revealed that the incidence of cancer in the state is higher than the national average of 80 per 100,000 population.[6]

The common sites for cancer among males in India are oral cavity, lungs, oesophagus and stomach. Over 70% of the cases report for diagnostic and treatment services in advanced stages of the disease, resulting in poor survival and high mortality rates. The disease is associated with a lot of fear and stigma in the country.[7] For public health intervention, baseline data regarding frequency distribution of cancer in the population is necessary. National Cancer Control Program of India focuses on primary prevention by promoting tobacco control and genital hygiene and secondary prevention by screening for cervical cancer, breast cancer, and oropharyngeal cancer. It is also known to provide palliative care.[8]

The epidemiologic literature regarding cancer in Punjab region is extensive but with relatively little emphasis on the types of cancer in male patients. Therefore, the present study was planned to find out major cancer sites among males reporting to the tertiary care hospital in Amritsar, Punjab.

MATERIAL AND METHODS

Study design: A hospital based cross-sectional study was conducted at Govt. Medical College and associated hospitals, Amritsar for the period of one year. Male patients coming to the out patient and in patient departments with the diagnosis of cancer were enrolled in the study and later interviewed after taking their written informed consent. Utmost care was taken to maintain their privacy and confidentiality. Patients who refused to participate were excluded from the study. The

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patients who were admitted more than once during the study period were counted only once, thus multiple admissions were also excluded from the study.

Methodology

Male patients coming to the out patient and in patient departments with the diagnosis of cancer during the period of one year (1st January 2012- 31st December 2012) were enrolled in the study and later interviewed.

A structured and pretested questionnaire was used to collect the data. The questionnaire was translated to local language (Punjabi) with the help from Department of Punjabi Language, Guru Nanak Dev University, Amritsar which was validated by doing pilot study on 30 male cancer patients.

The proforma had two divisions, first division being their demographic profile, socio-economic status, education and occupation whereas second division pertained to the disease i.e. type of cancer, when, where and how it was diagnosed etc. All cancer cases were collected from the record files maintained by various departments of each hospital such as pathology, hematology and radiology as well assurgical and medical wards. The details obtained from record files were cross-checked by interviewing the patients. The type of cancers were classified according to the ICD-10 Classification.[9]

STATISTICAL ANALYSIS

Analysis was performed by using Microsoft excel and epi info version 7. Descriptive statistics were presented in percentages and mean ± standard deviation. Student's t test and one way ANOVA were used to determine the difference between the means of two and more than two independent groups respectively. All the tests were two-tailed and $p<0.05$ was considered to be statistically significant.

RESULTS

During the study period of one yearfrom 1st Jan 2012 to 31st Dec 2012, a total of 231 male cancer patients were registered in the hospitals associated with Govt. Medical College, Amritsar. Majority of study subjects (96%) belonged to the Punjab state and were educated upto high school. 61% subjects belonged to upper lower socio economic class and worked in non-organized sector (Table 1). Out of 231 male cancer patients the most common sites of cancer came out to be CA Oral cavity (35.06%), pharynx and lip (14.72%), CA Respiratory system (13.85%), CA Gastro-intestinal tract (8.66%) and CA Urinary System (6.49%) (Table 2). On further analysis Ca oropharynx (33), followed by Ca tongue (25), Ca larynx (24) and Ca oesophagus (21) (figure in numbers) came out to be the four major types of cancers. Most of the participants (117/231were in the age group of 40-59 years whereas 47(20.35%) were in the age group of 60-69 years (Table 2). In the age group of <40 years most common sites were Ca of oral cavity, pharynx and lip followed by Ca Brain andCa GIT. For the age group 40-59 years the common sites were Ca oral cavity, pharynx and lip followed by Ca Respiratory system, Ca GIT and Ca Urinary system. Similar trends were followed in age group of >60

Variables	Number (n=231)	Percentage (%)
Age		
10-39 Years	37	16
40-59 Years	117	50.65
60-69 Years	47	20.35
>70Years	30	13
Marital status		
Married	203	87.88
Widow/widower	17	7.36
Unmarried	11	4.76
Type of family		
Joint	103	44.59
Nuclear	128	55.41
Religion		
Sikh	126	54.55
Hindu	87	37.66
Christian	8	3.46
Muslim	2	0.87
Any other	8	3.46
Education		
Graduate and Above	7	3
Intermediate or Diploma	20	8.66
High School	43	18.61
Middle	59	25.54
Primary	61	26.41
Illiterate	41	17.75
Socioeconomic status		
>26 Upper	2	0.87
16-25 Upper Middle	34	14.72
11-15 Lower Middle	55	23.81
5-10 Upper Lower	140	60.61
Tobacco and Alcohol use		
Tobacco+ Alcohol	93	40.26
Tobacco	38	16.46
Alcohol	50	21.64
No	50	21.64
Extent of Cancer		
Localized	79	34.20
Metastasized	152	65.80

Table-1: Socio-demographic profile and risk factors of the study subjects.

years (Table 2). The mean age of occurrence of cancer of any site came out to be between 40- 58 years (Table 3).

More than half of the subjects were diagnosed at a public sector hospital and rest were diagnosed at a private sector hospital. More than 80% of the subjects reporting to public sector were diagnosed in a medical college (Table 4). Two third (65.80%) were having cancer spread to the lymph nodes or other organs whereas in 34.20% patients disease was localized at the time of diagnosis (Table 1). Almost 56.71% patients were tobacco users. Among the tobacco users, 53.43% used smokeless/chewing, 48.09% used bidi and 12.98% used tobacco in the form of cigarette. Nearly two-third of the patients (62%) consumed alcohol alone and 41% patients were taking tobacco as well asalcohol, thus both having synergistic effect (Table 1). Majority of the tobacco users (75.52%) among the study subjects

Type of Cancer	Age groups				
	10-39 Years	40-59 Years	60-69 Years	>70 Years	Total
CA Oral Cavity, Pharynx, Lip	11	47	14	9	81
CA Respiratory Systems	1	21	7	5	34
CA GIT	6	11	9	6	32
CA Urinary system	1	10	6	3	20
CA Genital	1	6	5	3	15
CA Brain	7	5	0	0	12
CA Skin	2	4	2	2	10
CA Lymphoid and Haemopoietic	3	4	2	1	10
CA Mesothelial and Soft tissue	3	3	2	0	8
CA Bone and Articular Cartilage	2	4	0	0	6
Secondaries Neck	0	2	0	1	3
Total	37	117	47	30	231

Table-2: Type of cancer in relation to age of the study subjects.

Type of Cancer	Mean Age	Std Dev
CA Bone and Articular Cartilage	36.50	15.31
CA Brain	41.08	8.35
CA Mesothelial and Soft tissue	46.50	12.82
CA Lymphoid and Haemopoietic	48.00	19.77
CA Oral Cavity, Pharynx, Lip	52.19	13.61
CA GIT	53.81	17.45
CA Skin	54.00	17.71
CA Urinary system	55.65	12.26
CA Respiratory Systems	56.79	9.45
CA Genital	58.27	13.28
Secondaries Neck	61.00	7.94
ANOVA, p-value = 0.003 (significant)		

Table-3: Distribution of study subjects according to the mean age in relation to the type of cancer

Place of Diagnosis			Frequency	Percentage (%)
Public	118 (51.08%)	Civil Hospital	20	8.65
		Medical College	98	42.43
Private	113 (48.92%)	Medical College	33	14.28
		Multi specialty Hospital	63	27.28
		Nursing Home	17	7.36
Total			231	100.00

Table-4: Distribution of study subjects according to the place of diagnosis.

were from 20-59 years age group. Majority of the patients consumedtobacco in any form for >20 years (24 ± 11.9years) that could be related to the occurrence and spread of various types of cancers.

DISCUSSION

Over the period of one year (Jan 2012- Dec 2012), there were 231 cancer cases among males. Almost 71 percent were in the age group of 40-64 years as per the study. 61% subjects belong to upper lower socio economic class and were working in non-organized sector. In a Study conducted by Khandekar S P et al (1998-2000), most of the subjects belonged to lower middle and upper lower socio-economic status according to modified Kuppuswamy's socio-economic scale.[10] On the contrary Kapoor A et al found that 66.15% of the patients were illiterate which could be due to the literacy rate of Rajasthan and 48.6% belonged to the low socioeconomic status.[11]

In the present study 51% of study subjects were in age group of 40-59 years, followed by 33.34% subjects in age group > 60 years and 16% in less than 40 years of age. Similar results were found in a study conducted by Jivarajani PJ et al which showed 66.19% in the truncated age group of 35-64 years.[12] Kapoor A et al found 51% cases in the 40-59 years age group, 41% cases were of >60 years of age while 3.4% of the patients were of ≤30 years.[11]

According to ICMR report 2004, age specific incidence rates increase with increase in age in all registries. Further, after 45 years of age, the average annual age specific incidence rates increased in males.[13]

In present study Ca Oral cavity, pharynx and lip is most common in all the age groups with highest prevalence in 40-59 years age group. Similar results were found by Manoharan N et al, in his study. He found that cases of Ca oral cavity, pharynx and larynx were most common in 45-64 years age group males. Same was the case with Ca GIT and Ca urinary

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system was common in the 55-65+ years age group. Similar trend was seen in cases of Ca genitals.[14]

In the present study most common site of cancer was oropharynx (33), followed by tongue (25), larynx (24) followed by oesophagus (21). The results were similar to the study conducted by Manoharan N et al. They found that the leading site of cancer among Rural males in Delhi was oral cavity followed by lung, larynx and bladder.[14] Similarly Dikshit R et al, observed that in 30-69 years of age group, the three most common fatal cancers were oral (including lip and pharynx, 45,800 [22·9%]), stomach (25,200 [12·6%]), and lungs (including trachea and larynx, 22,900 [11·4%]) in men.[15]

Oral cancer is a major problem in the Indian subcontinent as it ranks among the top three types of cancer in the country.[16] According to ICMR report, the leading sites of cancer are lung (10.5%), larynx (5.9%), tongue (5.4%), prostate (5.3%) and NHL (5.1%) in Cancer registry Delhi.[13]

As in the present study smoking and alcohol consumption were identified as risk factors similarly Kapoor A et al, found smoking and alcohol consumption as risk factors in 48% and 25.6% of the patients as risk factors, respectively.[11] Dikshit,R et al, found 42% of all male cancer deaths at these ages were from tobacco-related cancers.[14] Similarly, Bhurgri Y et al, in Larkana, Pakistan found that tobacco-associated cancers accounted for approximately 35.0% of the tumors in males.[17] Tobacco related cancers (TRC) account for nearly 48.2% of all cancers in Indian men (Gajalakshmi and Shanta, 1996) as depicted in the present study.[18]

Overall, about one-third of cancers in India pertain to tobacco-related sites.[19] This study also represents the same pattern.

Nearly 65.8% subjects at the time of diagnosis were having spread to the Lymph Nodes or other organs, 34.20% was localized. Mostly patients with cancer present to a cancer treatment centre in late stages of the disease (80% are advanced).[20] According to a study conducted by Bhurgri Y et al, in Larkana, Pakistan 63.8% presenting in grade II or I where as 59.4% presented as stage III or IV. Information on grade and stage of malignancy was available in 60% of the cases.[16]

CONCLUSION

According to the present study major sites of cancer among males were oral cavity, pharynx, lip; followed by larynx and gastrointestinal tract (Ca oesophagus). Almost 71% cases fall in the age group of 40-69 years. Nearly half of the cases pertaining to the site are attributable to tobacco use and majority amongst them had metastasized before the diagnosis was made. Tobacco is by far the single most important risk factor for cancer. It has caused 22% of cancer deaths worldwide.[21]

To summarize, targeted screening for various cancers should start by the age of 35 years. There is need to strengthen primordial and primary prevention to reduce the burden of cancer. It can be done through school education programmes for awareness regarding harmful effects of tobacco and alcohol and early signs and symptoms of cancer.

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