Health seeking behavior of lung cancer patients receiving treatment at a tertiary cancer institute: a study from North India

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Abstract

Background: The morbidity and mortality of lung cancer is directly related to its stage at diagnosis. Only 15% of lung cancers are detected at a stage amenable to curative resection and the overall five-year survival rate is merely 16%. Early diagnosis of lung cancer results in lower stages, less intensive treatment and improved survival as well as it is less costly.

Objectives: The aim was to track treatment seeking behavior of lung cancer patients and to study the socio-demographic profile of these patients and their relationship with treatment seeking behavior.

Materials and Methods: All the newly registered lung cancer patients >18 years who came for treatment at our institute during the study period ie from 1st September 2011 through April 2012. Data was analyzed using descriptive and inferential statistics.

Results: Out of 91 patients included in the study, 73 (80.2 %) were males and 18 (19.8 %) were females. The mean age of the study population was 59.24 ± 10.53 years and the median age was 60 years. Commonest presenting symptoms were cough (72.5 %), dyspnoea (63.7%) and pain chest (61.5%). The mean duration of symptoms was 3.5 months. We found that 42.9% patients reported within one week of appearance of first symptoms, 19.7% between one week and one month and 37.4% after one month. As the age of patients increased the odds of seeking treatment before one month, decreased. On the other hand as the socio-economic status improved, the odds of seeking treatment earlier also decreased. A significant difference was found in married patients, who sought treatment earlier than those who were single/divorced or widowed (p=0.02). 50% patients thought it was a minor cough and cold which would get cured by itself or by minor treatment. 48% said that there was a delay in diagnosis and referral.

Conclusion: The findings indicate an urgent need for public health awareness that targets increasing awareness and recognizing symptoms suggestive of lung cancer. Further strengthening of health facilities with the provision of infrastructure with recent diagnostic modalities and manpower is needed which may help to decrease the delay in diagnosis and hence early referral.

KEY WORDS: Treatment seeking behavior, Lung cancer symptoms

Introduction

Lung cancer has been the most common cancer as well as leading cause of death worldwide, accounting for 13% (1.82 million) of all cancer cases and 19.4% of all cancer deaths in 2012.[1] Most cases occur in the sixth through eighth decades of life.[2] Currently, it is the fourth largest cause of cancer mortality in India, accounting for nearly 8% of all cancer related deaths in the country.[3]

The morbidity and mortality of lung cancer are directly related to its stage at diagnosis. Only 15% of lung cancers are detected at a stage amenable to curative resection and the overall five-year survival rate is merely 16%.[4,5] This leads not only to higher medical costs but also poorer outcomes and higher cancer death rates.[6] Early diagnosis of cancer results in lower stages of the cancer, less intensive treatment and improved survival as well as it is less costly.[7]

Although lung cancer has been portrayed as a "silent disease", the literature reports that symptoms are often present, but individuals may not recognize them as indicative of lung cancer. An important factor that can influence advanced stage lung cancer diagnosis is delayed help-seeking behavior in individuals with symptoms suggestive of lung cancer.[8,9]

There is little evidence on specific factors that influence the timing of health-seeking behavior in this subset of cancer patients. The purpose of this study was to explore the health-seeking behavior in individuals with symptoms suggestive of lung cancer. We studied the socio-demographic profile of these patients, where they sought treatment for the first time, the early symptoms with which they presented and the reasons for the delay in seeking treatment. We were also interested in the relationship of socio-demographic profile with treatment seeking behavior of these patients. Simultaneously we wanted to know about the gap between the onset of symptoms and reaching the Regional Cancer Centre.

Materials and Methods

This was an institution based descriptive cross-sectional study and consecutive sampling was done. All the newly registered lung cancer patients >18 years who came for treatment at the Department of Radiotherapy and Oncology, Regional Cancer Centre(RCC), Indira Gandhi Medical College Shimla, Himachal Pradesh during the study period ie from 1st August 2011 through April 2012. A daily list of new lung cancer patients was taken from the registration counter.

Those who consented to participate in the study were administered pretested self-designed questionnaires, both, for assessing the socio-demographic profile of the patients as well as their treatment seeking behavior. This was done while they were either waiting for chemotherapy or radiotherapy or were admitted in the indoor wards. Treatment seeking behavior from the onset of symptoms till they finally reached the hospital (including the expenditure, various delays, duration of treatment at each facility if they had gone through it before reaching the hospital) was elicited retrospectively.

Data collected was entered into a computer in MS Excel Spreadsheet 2007. Statistical Analysis was done using MS Excel 2007 and statistical tests were performed using the Epi Info version 7.1.3. Socio-demographic variables including Age, marital status, gender, smoking status, economic status, and education level were examined using univariate analysis to explore their impact on delay in seeking treatment. Prior approval was taken from the institution ethics committee.

Results

In all, 112 adult (≥ 18 years) patients were registered at the RCC during the study period. Out of these, 21 refused to participate in the study. So a total of 91 patients completed the questionnaire. 73 (80.2%) of the patients were males. The mean age of the study population was 59.24 ± 10.53 years (61.49 + 9.51 for males and 52.83 + 11.81 for females) and the median age was 60 years. A majority of the patients (34.1%) were in the age group of 60-69 years. (Table 1)

83 of patients were smokers. The mean duration of smoking was 30.49 years+12.04 years. Most of the patients had been smoking for 21-40 years (81%). The average Smoking Index was 50+29.35 years. Out of the 8 non-smokers, 6 were females and 2 were males. 2 husbands of the six females were smokers. There was no history of any occupational exposure to asbestos or air pollution.

Most of the males were High school pass (27.4%) or had been educated only up to Primary level (17.8%). Most females were illiterate (55.5%). As per occupation, majority of the male patients in the study population were in Government job (32.9%) or were agriculturist (31.5%). The females were mostly housewives (50%). Regarding the Socio-economic class of the study population, majority belonged to the Classes III and IV. (Table 2)

Commonest presenting symptoms were cough (72.5%), dyspnoea (63.7%) and pain chest (61.5%). The mean duration of symptoms was 3.5 months. 83 patients were smokers. The mean duration of smoking was 30.49 years + 12.04 years. Maximum number of patients had been smoking for 21-40 years (73.6%) with a smoking index of 50+29.35 years.

In terms of promptness of reporting to a health facility, the present study found that 42.9% patients reported within one week of appearance of first symptoms, 19.7% between one week and one month and 37.4% after one month.

Table 3 shows that as the age of patients increased the odds of seeking treatment before one month, decreased. On the other hand as the socio-economic status improved, the odds of seeking treatment earlier also decreased. But these differences were not found to be significant. Though, a significant difference was found in married patients, who sought

Table 1: Age & Sex Distribution of the Study Population (*n* = 91)

Age Group (in years)	No.	%	Males		Females	
			No.	%	No.	%
30-39	3	3.3	1	1.4	2	11.1
40-49	8	8.8	3	4.1	5	27.8
50-59	30	32.9	27	37	3	16.7
60-69	31	34.1	25	34.2	6	33.3
70-79	16	17.6	14	19.2	2	11.1
80-89	2	2.2	2	2.7	0	0
90-99	1	1.1	1	1.4	0	0
Total	91	100	73	100	18	100

Mean Age: 59.24 ± 10.53yrs; Median: 60 yrs; Range: 35-90 years

Table 2: Socio-demographic characteristics of the study population (*n*=91)

Characteristic/Variable	No.	%	Males(%)	Females(%)
Background				
Rural	79	86.8	63(86.3)	16(88.9)
Urban	12	13.2	10(13.7)	2(11.1)
Marital Status				
Married, living with spouse	75	82.4	65(89.0)	10(55.5)
Single/Divorced/Widowed	16	17.6	8(11.0)	8(44.5)
Smokers				
Yes	83	91.2	71(97.3)	12(66.6)
No	8	8.8	2(2.7)	6(33.4)
Education level				
Illiterate	22	24.2	12(16.4)	10(55.5)
Primary	17	18.7	13(17.8)	4(22.2)
Middle	8	8.8	7(9.6)	1(5.6)
Secondary	21	23.1	20(27.4)	1(5.6)
Higher Secondary	9	9.9	8(10.9)	1(5.6)
Graduate	13	14.2	12(16.5)	1(5.6)
Post Graduate	1	1.1	1(1.4)	0
Occupation				
Labourer	3	3.3	2(2.7)	1(5.5)
Agriculture	30	33.0	23(31.5)	7(39.0)
Business	9	9.9	9(12.3)	0
Professional	8	8.8	8(11.0)	0
Housewife	9	9.9	0	9(50.0)
Government Employee	25	27.4	24(32.9)	1(5.5)
Pensioner/Retired	7	7.7	7(9.6)	0
Socio-economic Status*				
Upper High	2	2.2	2(2.7)	0
High	11	2.1	9(12.3)	2(11.1)
Upper Middle	33	36.3	31(42.5)	2(11.1)
Lower Middle	27	29.6	20(27.4)	7(38.9)
Poor	14	15.4	8(10.6)	6(33.3)
Very Poor/BPL	4	4.4	3(4.1)	1(5.6)

* Modified BG Prasad Classification (August 2012)

treatment earlier than those who were single/divorced or widowed. (*P* = 0.02)

Maximum patients visited a government health facility for the first time (Figure 1). The reasons given for visiting the said facility was that it was nearest to their home (84.6%), easily accessible (67%), reliable (47.3%) and cheap (36.3%). When asked about the reasons for the delay in seeking treatment and reaching the Regional Cancer Centre, 50% patients said that they thought it was a minor cough and cold which would get cured by itself or by minor treatment. 48% said that there was a delay in diagnosis and referral. Only 11% of patients thought the symptoms could be of serious disease like cancer.

Distance of place where first treatment was taken was on an average 9.94 Kms. Money spent by each patient for his illness till the time of their first visit to the regional cancer centre was approximately Rs. 41,978. This was the amount spent before reaching the regional cancer centre i.e. before

the patient was diagnosed to be suffering from cancer. It included the expenses on medicines, stay, food and travel along with the expenses of an attendant accompanying the patient.

Discussion

The socio-demographic and clinical data of this sample are representative of lung cancer patients in our setting. Lung cancer generally affects the elderly age group.[2] A German study[10] also found the incidence to be highest between the ages of 60 and 70 years. A study by Kirmani et al[11] found it to be highest (33.6%) in 51-60 years age group and 28.9% between 61-70 years. In the present study also the majority of patients were in the age group of 60-69 years (34.1%). The overall mean age of the lung cancer patients was

Table 3: Comparision between patients who took <1 month or >1 month for seeking initial treatment (*n*=91) [univariate analysis]

Characteristic/Variable	<1 month	>1 month	Odds Ratio (95% Confidence Interval)	*p* value
Age group#				
30-44	4	1	3.20	
45-59	23	13	1.41	*p* = 0.49
60-74	25	16	1.25	
>75	5	4	1.00	
Gender				
Male	46	27	1.084	*p* = 0.88
Female	11	7	(CI= 0.375-3.12)	
Marital Status				
Married, living with spouse	51	24	3.54	*p* = 0.02*
Single/Divorced/Widowed	6	10	(CI= 1.15- 10.8)	
Smokers				
Yes	50	33	0.21	*p* = 0.12
No	7	1	(CI= .025-1.84)	
Education level#				
Primary	27	12	1.250	
Higher/Senior Secondary	25	13	1.068	*p* = 0.817
Graduate & above	9	5	1.000	
Socio-economic Status#				
Upper	7	6	1.000	
Middle	38	22	1.481	*p*= 0.388
Lower	13	5	2.229	

#Chi square for trend analysis
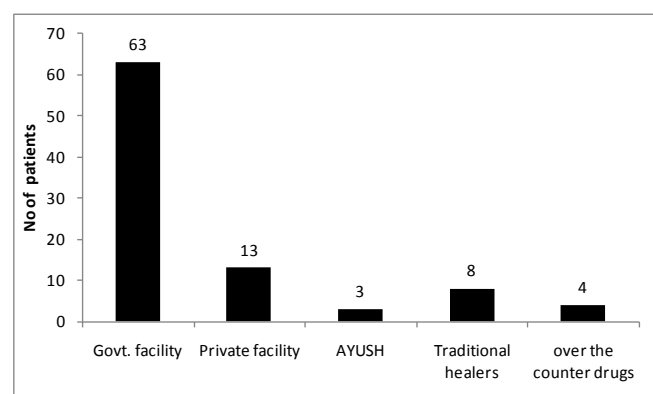
Figure 1: Type of health facility sought first time

59.24 ± 10.53 years (61.49 + 9.51 for males and 52.83 + 11.81 for females) and the median age was 60 years. Studies from India found the mean age of lung patients to be from 54.6 to 57.0 years.[3,11] But in a study in the UK[12] the overall mean age was found to be 71 + 9.8 years while Rocha et al[13] found it to be 70.1 ± 10.9 years. Lung cancer remains predominantly a disease of males in India, with a male to female ratio of 6.7:1.5 (from 1958-1985) and 5.7:1 (from 1986-2001).[3] In another study in Kashmir[14] it was found to be 6.1:1. In the

present study also males were predominant i.e. 80.2% of the total patients.

Of patients with a smoking history, 5 (6.0%) smoked 1-20 pack years, 39 (47.0%) had smoked 21-50 pack years, 35 (42.2%) smoked 51-100 pack years and 4 (4.8%) had smoked >100 pack-years. The average pack-years smoked was 50+29.35 years. Similar findings were seen in a study done in the USA,[13] of patients with a smoking history, 117 (18.7%) smoked 1-20 packs per year, 227 (33.0%) had smoked 21-50 pack years, and 131 (20.9%) had smoked 51-100 pack years. In another study, the average smoking index was found to be 20 pack years.[15] Various studies[16,17,18,19] have found that cough, dyspnea and chest pain were the most frequently reported symptoms. The present study also found that cough (72.5%) was the most common presenting symptom followed by dyspnoea (63.7%), pain chest (61.5%), haemoptysis (35.2%) and fever (14.3%).

In the present study the mean duration of symptoms of lung cancer patients before they saw a health care provider was 3.5 months. This was much less than the mean duration of symptoms found in a study by Were EO et al,[20] which found the mean duration of symptoms at 8.2 months and in another study by Kazaura et al[21] it was 6.4 months. Rawat et al also reported a delay of 4-6 months in seeking treatment.[22] Wai et al found the time from the first symptom to referral to a regional cancer center in British Columbia was approximately

3-4 months.[23] We found 48% patients saying there was delay in diagnosis and referral. It is probably due to non-availability of diagnostic facilities and specialists at the field level.

In terms of promptness of reporting at a health facility, the present study found that 18.7% patients reported immediately after the appearance of first symptoms, 24.2% reported within one week, 19.7% between one week and one month, and 37.4% after one month. In a study by Vincent et al[24] in the USA, it was found that one-fourth of the patients presented late by 3 months, after the onset of symptoms. Another study in Tanzania[21] found that 30.7% of the patients presented immediately after the onset of the symptoms. The present study also found that after the onset of symptoms, government health facility was preferred by a majority of the patients (69.2%). Similarly in a study in Kenya[20] saw that >90% patients sought health care for the first time at a facility manned by a trained health worker or a health centre. Contrary to this a study in Tanzania[21] found out that 30.7% of the patients sought health care for the first time from a traditional healer. Jensen et al reviewed the time elapsed from symptoms to medical attention reported in 16 studies and found a wide variation from 7 days to 6 months[25].This wide range of patient delay is likely to be multifactorial, including education level, socioeconomic, cultural and health care differences.

Regarding the reasons given for delay in seeking medical treatment, a majority (70%) thought it was a minor cough and cold which would get cured by itself or by minor treatment. Same findings were seen by various studies ranging from 38.7 to 81.5%.[21,26,27] According to Tijiong et al[28] the reasons for delay in seeking treatment was their belief in self-medication and traditional medicine system. Possibly here also some people prefer home remedies, traditional healers, over the counter drugs or AYUSH practitioners for symptoms which are mistaken for minor ailments. Goodson et al[29] found that fear or denial was the most common reason for the delay, followed by lack of primary care provider and lack of recognition of symptoms. Symptoms, even when severe, are not specific and so are not interpreted as indicative of cancer, failing to raise an alarm. Probably these are attributed to everyday causes and morbidities which are commonly present in the elderly. It has been shown that patient and primary care delays contributed to substantial parts of the total diagnostic delay among patients with different cancer types.[30,31] Quaife et al found, the tendency for people with more education to report greater delay.[32] Another study found that higher SES respondents were more likely to say that being too busy was a barrier to seeking medical help [33]. While another study found that respondents with higher education and younger age indicated more health-seeking behavior.[34] Strong correlations are noted between older individuals and patient delay.[35,36] In our study as the age increased and SES improved, the odds of seeking treatment before one month, decreased. Though, a significant difference was found in married patients, who sought treatment earlier than those who were single/divorced or widowed (P = 0.02). This might be because most patients are elderly suffering from other co-morbidities which required some attendant for help. Also, this generation of patients has a lower level of education and awareness which may have played a role in not knowing the symptoms. Patients with higher SES may be too busy in their work leading to delay in their treatment. Married patients might have got help from their spouse in seeking treatment earlier.

This was an institution based study. Though we studied patients from all over the state, but some patients from the border districts seek treatment at PGI Chandigarh, so patients from some areas may not be represented in the study. This could be the limitation of our study.

Interventions are needed to include education of patients, family members, and the society as a whole about the symptoms of common cancers like that of the lung. A list of symptoms of cancer can be circulated among the people to recognize early symptoms of cancer. On the basis of these symptoms, suspects can be asked to undergo all the relevant tests to confirm it. Identification of the needs with sensitization and training of medical officers, private practitioners and health workers regarding cancer control activities particularly at the Primary Health Centre and the sub-centre level is needed. By establishing strong referral mechanisms at the primary and secondary health care level, the patients may ultimately benefit by reaching the tertiary centre at an earlier stage when the disease is still curable. Early diagnosis may extend survival and decrease the morbidity and mortality from lung cancer.

People still have faith in government institutes in Himachal Pradesh, as majority visited government health facilities. So public health facilities preferably up to the level of civil hospital/referral hospital need to be equipped with latest diagnostic facilities and manpower including chest physicians, radiologists and pathologists. This study may help for future policy formulation and planning to decrease the burden of cancer care considering the three D's ie delay in seeking treatment, delay in diagnosis and delay in referral.

Conclusion

The findings indicate an urgent need for public health awareness that targets increasing awareness and recognizing symptoms suggestive of lung cancer. Further strengthening of health facilities with the provision of infrastructure with recent diagnostic modalities and manpower is needed which may help to decrease the delay in diagnosis and hence early referral.

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