

Original Research Article

A study to assess prevalence of treatment default among lung cancer patients registered at a tertiary care hospital

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ABSTRACT

Background: Lung cancer is among the five main types of cancer leading to overall cancer mortality contributing about 1.3 million deaths/year globally. Completion of treatment among lung cancer patients is one of key factor for the survival and longevity of patients. So, we have tried to find out prevalence of treatment default through this study.

Methods: This is a cross-sectional descriptive study (including retrospective secondary and prospective primary data) using data base of patients of primary lung cancer diagnosed between 1st January 2006 to 31st December 2012 in indoor and outdoor of department of Respiratory Medicine, J.L.N. Medical College, Ajmer, a tertiary level hospital and teaching center.

Results: Incidence of lung cancer is significantly higher among young female (10.23%) as compared to young male (8.74 %). Whereas in older group number of male suffering from lung cancer than female. Total 269 (20.7%) patients defaulted from planned treatment and most of them ultimately drop-out from chemotherapy cycles. Intercycle delay of 2 weeks-1m commonly seen.

Conclusions: It provides future implication to researchers to explore reasons of these defaults and drop outs so that more evidences can be generated in this direction for the ultimate betterment of lung cancer patients.

Keywords: Lung cancer, Treatment default

INTRODUCTION

Lung cancer is among the five main types of cancer leading to overall cancer mortality contributing about 1.3 million deaths/year globally, and it is estimated to rise to more than three million per year by the year 2015.¹ The incidence is increasing globally at a rate of 0.5% per year.² Bronchogenic carcinoma is the most common malignancy in males over 50 years of age but is infrequent under the age of 40 years.³ Several genetic

changes are required for a normal progenitor cell to acquire a neoplastic nature; most human cancers tend to occur after the fourth decade of life. Therefore, lung cancer in patients aged 40 years or less is uncommon and has characteristics that distinguish it from cancer in older patients, including a higher incidence of adenocarcinoma and a lower male-to-female ratio in young patients.⁴

There are only few Indian studies on bronchogenic carcinoma in patients below 40 years, describing its

pattern and epidemiology. Simultaneously there were only fewer studies ever published on defaulter rate among patients with cancer namely colorectal and breast cancer, which reported that the defaulter rate ranged from 15 to 21%.⁵⁻⁷ Completion of treatment among lung cancer patients is one of key factor for the survival and longevity of patients. So, we have tried to find out prevalence of treatment default through this study with following objectives:

- To study profile of lung cancer in Ajmer among various age groups.
- To assess treatment response (clinical and radiological), and patient compliance towards treatment.

METHODS

This is a cross-sectional descriptive study (including retrospective secondary and prospective primary data) using data base of patients of primary lung cancer diagnosed between 1st January 2006 to 31st December 2012 in indoor and outdoor of department of Respiratory Medicine, J.L.N. Medical College, Ajmer, a tertiary level hospital and teaching center.

All patients with confirmed histological and cytological diagnosis of bronchogenic carcinoma who attended this department were included in this study. The cases with secondary lung cancer, lymphoproliferative disease, malignant pleural effusion of unknown primary, or nonpulmonary site, sarcomatoid tumors and other rare varieties were excluded from this study. All bed head tickets were retrieved from record section of J.L.N. Hospital to fill the designated proforma of this study.

All cases of bronchogenic carcinoma registered at our institute over last 6 yrs, were scanned in the light of distinctive clinico-radiological features, histological types, evolving trends in the clinical, radiological, histological behavior, response to therapy, patient

adherence to treatment and to evaluate their distribution among different age groups.

This study also provides an overview of aspects of the burden of lung cancer in the elderly in India highlighting certain demographic and epidemiological data. In India the normal retirement age is 60 years and also according to various census figures the definition of the elderly, in India is considered above the age of 60 years. Government of India adopted ‘National Policy on Older Persons’ in January, 1999. The policy defines ‘senior citizen’ or ‘elderly’ as a person who is of age 60 years or above.⁸ Hence we have taken more than 60 yrs old patients as elderly and above 80 yrs as very elderly.

Chemotherapy and or supportive and symptomatic treatment carried out in the department were noted and response of the treatment were observed and documented. All the documents were compiled with patients database accordingly, and informed written consent was taken from each patient. All the data were analyzed statistically by applying Chi-square test (epicalc software).

RESULTS

In the present study there were 1418 male and 352 female patients with male: female ratio of 4.03 suggesting that the disease was more common in males. The maximum number of cases (46.89%) were from the 41-60-year age group followed by (39.21%) in 61-80 years. 9.03% patient were below the age of 40 year. Incidence of lung cancer is significantly higher among young female (10.23 %) as compared to young male (8.74 %). Whereas in older group number of male suffering from lung cancer than female.

There were 1418 male patients with mean age of 58.5 years. Of the 352 female patients, means age was 54.5 years. The mean age at diagnosis in young and old age respectively 34.3 and 60.8. (Statistically not significant) (Table 1).

Table 1: Primary lung cancer patients age and sex distribution.

Age group	Male (%)	Female (%)	M:F	Total (%)
≤40	124 (8.7)	36 (10.2)	3.44	160 (9.03)
41-60	663 (46.7)	167 (47.4)	3.97	830 (46.89)
61-80	560 (39.4)	134 (38)	4.18	694 (39.21)
>80	71 (5)	15 (4.26)	4.73	86 (4.86)
Total	1418 (80.11)	352 (19.88)	4.03	1770

Chi-square-1.18, P-value-0.757165 (Non-significant)

Table 2: Primary lung cancer patients total duration of illness.

Duration (months)	≤40 yrs (%)	41-60 yrs (%)	61-80 yrs (%)	>80 yrs (%)	Total (%)
<3	70 (44)	315 (37.9)	222 (32)	19 (22)	626 (35.3)
3-6	56 (35)	298 (35.9)	249 (36)	31 (37)	634 (35.8)
>6	34 (21)	217 (26.1)	223 (32)	36 (43)	510 (28.8)

Chi-square-6.40, P-value-0.093517 (Non-significant)

Table 3: Primary lung cancer patients defaulters from planned treatment.

Time duration	Once (%)	Twice (%)	More than twice (%)
>2 weeks-1month	54 (20)	49 (18.2)	24 (8.9)
>1m-2m	43 (15.9)	27 (10)	13 (4.8)
>2m	35 (13)	19 (7)	5 (1.8)
Total	132 (47.3)	95 (35.1)	42 (15.6)

Chi-square-6.03, P-value-0.196757 (Non-significant)

Younger patients (44%) and most of the 41-60 yrs age group patients (40%) presented with <3 months average duration of symptoms at the time of diagnosis.

61-80 yrs age group patients (36%) mostly presented 3-6 months average duration of symptoms and most of the >80yrs age group patients (43%) were presented >6 months average duration of symptoms at the time of diagnosis. (Statistically not significant) (Table 2). Patients who delayed next cycle by more than 2 weeks were defined as defaulter.

Total 269 (20.7%) patients defaulted from planned treatment and most of them ultimately drop-out from chemotherapy cycles. Intercycle delay of 2 weeks-1m commonly seen (Table 3).

Maximum no. of patients dropped-out after I and V cycle, and least drop-out rate seen after III cycle. 453 (34.8%) patients completed IV cycle of chemotherapy. 221 (17 %) patients completed all 6 cycle. Around 100 patients were telephonically interviewed and asked for reasons for dropped-out registered over last 1 year at our institute. Seriousness of illness, financial constraints, Traditional treatment, symptoms relief and Poor excess to transport were the common reasons. Around 12 % patients were died before next appointment and some sort of patients with good socioeconomic status took treatment from higher center (Table 4).

Table 4: Primary lung cancer patients drop-out from chemotherapy between different cycles.

Cycle	No. of dropout patients (%)	No. of patients received next cycle (n=1298 for I cycle) (%)
I-II	495 (38)	803 (61.8)
II-III	260 (32.3)	543 (41.8)
III-IV	90 (16.5)	453 (34.8)
IV-V	105 (23)	348 (26.8)
V-VI	127 (36.5)	221 (17)

DISCUSSION

The present cross-sectional descriptive study (including retrospective secondary and prospective primary data) of one thousand seven hundred seventy (1770) cases of bronchogenic carcinoma, carried out in the department of

respiratory medicine, J.L.N. Medical Collage and Associated Groups of Hospitals at Ajmer.

All cases of bronchogenic carcinoma registered at our institute over last 6 years extending from January 2007 to December 2012, were scanned in the light of distinctive clinico-radiological features, histological types, evolving trends in the clinical, radiological, histological behavior, response to therapy and to evaluate their distribution among different age groups. From our extensive search and literature review, we did not find any similar study looking at distribution among different age groups including >80 yrs age group patients, among lung cancer patients.

In the present study, 160 out of 1770 patients (9.03%) with bronchogenic carcinoma seen at our tertiary care center were 40 years old or younger at diagnosis. Other Indian studies on bronchogenic carcinoma have also found a similar proportion of young (≤ 40 years) patients, the figures reported ranging from 9 to 14%.⁹⁻¹² The proportion of young patients of bronchogenic carcinoma as per the Indian cancer registry ranges from 4.1 to 10%.¹³ The problem when comparing earlier studies on lung cancer with the Indian cancer registry is the difference in the definition of 'young'. In the present study, we took 40 years as the cutoff age, so as to make sure that there were an acceptable number of younger patients.

There were only fewer studies ever published on defaulter rate among patients with cancer namely colorectal and breast cancer, which reported that the defaulter rate ranged from 15 to 21%.⁵⁻⁷ In our study, the defaulter rate among lung cancer patients was 20.7%. On extensive literature search and review, we could find only few studies addressing defaulters among lung cancer patients. In our study Patients who delayed next cycle by more than 2 weeks were considered as defaulter. Total 269 (20.7%) patients defaulted from planned treatment and most of them ultimately drop-out from chemotherapy cycles. Intercycle delay of 2 weeks to 1month was commonly seen. This is comparable with the study from Malaysia by T. H. Ng et al, who reported 21.2 % default rate but did not mentioned any drop-out.¹⁴

A study conducted in Singapore by Lee et al, on predictor of failed attendance in a multi-specialty outpatient centre in which 22864 patients were recruited. Their defaulter rate was 39%.¹⁵ Elderly people are under-represented in clinical trials and also may not receive appropriate and complete treatment, possibly due to the pessimism of the doctors, patients and their relatives regarding treatment relevance and toxicity in elderly patients.¹⁶ In the recently published SEER database, only 25.8% of the 21,285 patients aged >65 years diagnosed with NSCLC between 1997 and 2002 received first-line chemotherapy.¹⁷

Patients who defaulted most commonly gave reasons of work commitment, debilitating health and forgotten

appointment. Poor access to transport, no relative available, side effect of therapy and relief from symptoms are the other reasons. Vernon et al.¹⁸ and Wong et al have reported that younger age group of below 40 years had higher rate of default.¹⁹

In present study, maximum no. of patients dropped-out after I and V cycle, and least drop-out rate seen after III cycle. 453 (34.8%) patients completed IV cycle of chemotherapy. 221 (17%) patients completed all 6 cycle. This higher absentee rate was probably a result of patient's negative perception toward the survival benefit of chemotherapy in advanced lung cancer. Parveen Shahida Akhtar et al, from Bangladesh also noted about one-third of male and 45% of female patients drop out after first and second visit due to advanced stage, poor performance status and poor socioeconomic condition.²⁰

CONCLUSION

This study just tried to find out prevalence of treatment default among lung cancer patients. Nevertheless it provides future implication to researchers to explore reasons of these defaults and drop outs so that more evidences can be generated in this direction for the ultimate betterment of lung cancer patients.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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