 DOI: 10.18231/2581-4222.2019.0008

Incidence of lung malignancy in a tertiary care centre – A one year study

Lakshmi Kumari S[1], Ramaswamy T[2,*], Sivaram P.V[3], Bhusan Rao Chrn[4], Krishna Bharati S[5]

[1,2]Associate Professor, [3,5]Post Graduate, [4]Professor, [1-4]Dept. of Pulmonary Medicine, [5]Dept. of Radiodiagnosis, [1,3,4]Guntur Medical College, Guntur, Andhra Pradesh, [2]Government General Hospital, Anantapur, Andhra Pradesh, [5]Regional Institute of Medical Sciences, Imphal, Manipur, India

***Corresponding Author: Ramaswamy T**
Email: laxmikumarisomishetty@gmail.com

Abstract

Background: Lung cancer is the most common type of cancer in males and the leading cause of death in both sexes. It accounts for 11.3% of all new cancers in India and also associated with a mortality rate of 13.7%. This desolate mortality necessitates for the early diagnosis of lung cancer. The study was conducted to evaluate incidence, gender and age wise distribution of lung cancer and its association with smoking.

Methodology: This study was done in the department of pulmonary medicine in Guntur Medical College from September 2016 to august 2017. The study includes 52 patients having clinical and radiological suspicion of lung cancer. All the cases were subjected to USG guided transthoracic needle aspiration was sent for cytology. Inconclusive and malignant cases were further subjected to histopathological examination for confirmation.

Results: Out of the 52 patients suspicious of malignancy, 32 patients were finally diagnosed as malignant, 5 patients had benign/inflammatory lesions, 6 cases had no evidence of malignancy/non-specific inflammation, 8 had no opinion possible. Most common type is adenocarcinoma followed by squamous cell carcinoma with an incidence rate of 71.8% & 15.7% respectively. The highest incidence of lung malignancies is seen in 5th decade in both sexes.

Conclusions: There is increase in the incidence of lung malignancies in females, throwing light on the causes other than smoking like bio-mass fuel exposure and second-hand smoking. Adenocarcinoma is the most common type. Further, USG guided transthoracic needle aspiration has a good sensitivity in detecting lung malignancies.

Keywords: Adenocarcinoma; Transthoracic fine needle aspiration; Lung malignancy.

Introduction

Lung cancer is the major oncological problem with increasing incidence and cancer related mortality in the world. It is more common in men in India which accounts for 11.3% of all new cancers and has a mortality rate of 13.7% [1]. In contrast to a decline trend in men in developed countries with a plateau for females, in India, the incidence continues to rise for both males and females [1]. This desolate mortality necessitates for early diagnosis of lung cancer. Cytology has an important role in initial evaluation and diagnosis of lung cancer with less complications. Advances in minimally invasive and radiographically guided sampling procedures have made cytology an important tool in the diagnosis of lung cancer [2]. Usually the minimum size of the lesion required is 20 mm for USG and 15 mm for CT guided needle aspirations, some studies show that under USG guidance, lesions of 10 mm size can be approached safely with solid intervening tissue. Using 18G needle for percutaneous fine needle aspiration is adequate for most lesions, especially for carcinomas [3]. The study was conducted in our institute to evaluate incidence, gender and age wise distribution of lung cancer and its association with smoking.

Materials and Methods

The study was done in the department of pulmonary medicine, Guntur Medical College, Guntur after ethical committee approval and consent of the study subjects. A total of 52 cases were selected from September 2016 to august 2017. All clinically suspected patients of lung carcinoma after routine investigations like chest X–ray, haemogram, urine analysis, microbiological examination of sputum and computed tomography of chest were included. Sputum microscopy positive tuberculosis cases, Bleeding disorder and uraemia were excluded. (As there is a risk of spontaneous bleeding in uraemia and bleeding diathesis which could complicate the procedure of FNAC and biopsy they were excluded from the study, sputum microscopy negative cases with radiological opacities were considered for FNAC as a positive sputum microscopy case was started on anti-tuberculosis treatment under RNTCP). Samples were obtained through USG guided transthoracic fine needle aspiration cytology using 20-gauge needle. Cytological specimens which are inconclusive and suggestive of malignancy were further subjected to histopathological examination using Bard Gun biopsy needle (16-guaze). (In the present study, non-smokers were defined as a person who has smoked less than 100 cigarettes over his/her life time. Rest all are taken as smokers. We recorded his/her smoking habits in terms of, the number of pack years of smoking irrespective of the type of nicotine smoking habit).

Results

Table 1: Age and gender wise distribution

Age (in years)	Males	Females
< 40	0	0
41 – 50	2	3
51 – 60	10	9
61 – 70	2	2
>70	1	3
Total	15	17

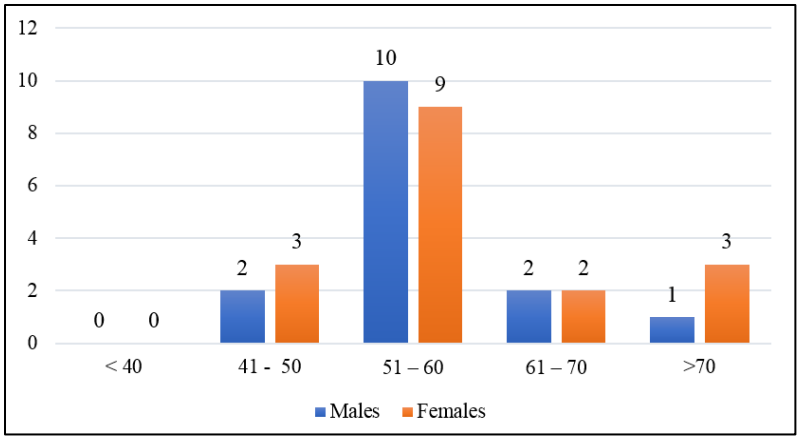

Fig. 1: Age and gender distribution

Lung carcinoma incidence is more in females than in males, as observed at our institute, male to female ratio being 0.8:1. The most common age of presentation was in the 5th decade in both sexes, further it was observed that there is no incidence of cases below 40 years at our institute.

Table 2: Gender distribution of different types of cancer

Type	Males	Females	Total
Adenocarcinoma	10	13	23
Squamous cell carcinoma	3	2	5
Metastatic	1	2	3
Small cell carcinoma	1	0	1
Total	15	17	32

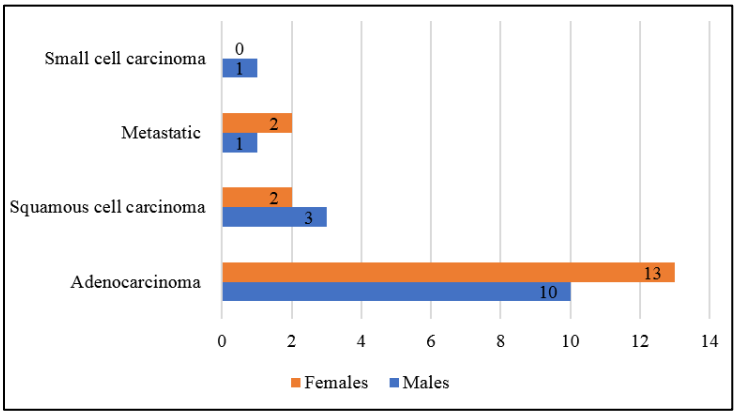

Fig. 2: Gender distribution of malignancy

Most frequent type observed is adenocarcinoma in 23 (71.8%) patients, of which 13 were females and 10 were males, followed by squamous cell carcinoma in 5 (15.7%) patients, of which 2 were females and 3 were males. Finally, metastatic adenocarcinoma was diagnosed in 3 patients (9.3%), small cell neuroendocrine tumour in one case which were confirmed by typing.

Table 3: Typing of lung cancer basing on smoking habit

Type	Smoker	Non-smoker	Total
Adenocarcinoma	9	14	23
Squamous cell carcinoma	5	0	5
Metastasis	2	1	3
Small cell carcinoma	1	0	1
Total	17	15	32

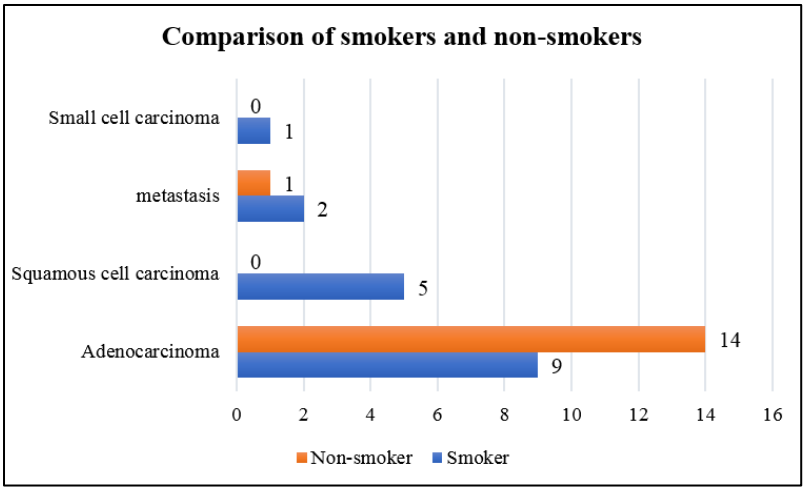

Fig. 3: Comparison of smokers and non-smokers with type of lung malignancy

It was observed in the study that almost all the cases diagnosed as squamous cell carcinoma (n=5) were smokers and only 9 out of 23 cases diagnosed as adenocarcinoma were smokers.

Discussion

In the present study a total of 76.9% lung malignancy cases were diagnosed using ultrasound guided procedures. Most common type of carcinoma is adenocarcinoma followed by squamous cell carcinoma, having incidence of about 71.8% & 15.7% respectively. Highest incidence of malignancy is seen in the 5th decade of life.

Most of the patients in our study had adenocarcinoma (71.8%), similar to most of the Asian and western countries. This shift in trend from squamous cell carcinoma to adenocarcinoma, is attributable partly to the smoking practices and the increase in use of filtered cigarettes. Most of the Indian studies previously have shown squamous cell carcinoma as the common type, but recent studies show, the change in trend from squamous to adenocarcinoma [4].

Tobacco smoking is a well-established risk factor for lung cancer [5]. The number of lung cancer cases reported in our study are slightly on a higher side in females than in males. This increase in trend of lung cancer in females, across the world as well as in India, is due to the biomass fuel exposure and increase in the number of female smokers [1]. To make an impact on mortality resulting from lung cancer in India needs strong public health measures to control tobacco use. Fortunately, this is now being increasingly recognized by the government [6].

The mean age of onset in Mehta M et al study is 5th decade in males and 6th decade in females, male to female ratio is 5.1:1, whereas in our study we had a mean age of onset of 5th decade in both sexes; further the male to female ratio is 0.8:1, suggesting there is more number of female cases diagnosed with lung malignancy at our institute, which had non-resolving pneumonia radiologically. It further alarms us to keep an eye over the increasing trends in the onset of lung malignancies in females and also about the causes of lung cancer other than smoking particularly in countries like India where there is still use of biomass fuel in most of the places.

Most of the cases in India are misdiagnosed as tuberculosis and empirical treatment with anti-tubercular drugs prior to referral to higher centre is one of the important causes for delayed diagnosis of lung cancer in India [1]. The huge burden of TB in India hinders differentiation by the primary care physicians of lung cancer. This can be minimised by high index of suspicion and early diagnosis of lung cancer.

Conclusions

Lung cancer is a common cause of cancer related mortality in India. There is a rise in the number of female cases detected, alarming us for the search of causes like bio-mass fuel exposure. Simple USG guided transthoracic fine needle aspiration cytology comes handy in early diagnosis of lung cancer; as it needs less technical expertise and usually available in minimal care centres also.

Conflict of Interest: None declared

Acknowledgements: Nil

References

1. Behra D. Lung cancer in India: challenges and perspectives. *J Thorac Oncol* 2017;12:114-115.
2. Mehta M, Gupta N, Odhwani J, Desai N, Santwani PM. Lung cancer: one year experience at tertiary care centre with reference to cytodiagnostic approach. *Int J Adv Med* 2017;4(1):133-136.
3. Meena N, Thaddeus B. Ultrasound -guided percutaneous needle aspiration by Pulmonologists: A study of factors with impact on procedural yield and complications. *J Bronchol Interv Pulmonol* 2015;22(3):204-208.
4. Malik PS, Raina V. Lung cancer: Prevalent trends & emerging concepts. *Indian J Med Res* 2015:141;5-7.
5. Li H, Kern AJ. Genetic and molecular changes in lung cancer: prospects for a personalized pharmacological approach to treatment. In Grippi MA, Elias JA, Fishman JA, Kotloff RM, Pack AI, Senior RM, editors. Fishman's Pulmonary Diseases and Disorders, 5th ed, United States, McGraw-Hill education, 2015.

6. Murali AN, Radhakrishnan V, Ganesan TS, Rajendranath R, Ganesan P, Selvaluxmy G et al. Outcomes in Lung Cancer: 9-Year Experience From a Tertiary Cancer Center in India. *J Glob Oncol (Am Soc Clin Oncol)* 2017;3(5):459-468.

How to cite this article: Kumari LS, Ramaswamy T, Sivaram PV, Chrn BR, Bharati KS. Incidence of lung malignancy in a tertiary care centre – A one year study. *Indian J Immunol Respir Med* 2019;4(1):32.35.