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AN EPIDEMIOLOGICAL PROFILE OF NON SMALL CELL LUNG CARCINOMA AT TERTIARY CARE HOSPITAL, JAIPUR

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Abstract

Background: Lung cancer is one of the most common cancer and leading cause of cancer mortality worldwide. We study an epidemiological profile of non small cell lung carcinoma at tertiary care hospital, Jaipur.

Methods: This was a hospital based prospective and observational study carried out on Cases detected as non small cell carcinoma on histopathological examination of lung tissue biopsy of lung carcinoma patients attending OPD or hospitalized at Department of Respiratory Medicine during the year 2018-2019. Institute of Respiratory Diseases is a tertiary care center for tuberculosis and Respiratory diseases in Rajasthan.

Results: Maximum numbers of cases were seen in male gender with age group 60-69 years accounting for 21 cases while number of females of this age group was also maximum comprising of 9 cases. Maximum male cases were smokers for more than 10 years and their number was 36 out of 95 cases while maximum number of female smokers was 8 with a history of smoking less than 10 years. Males with negative history of smoking were 14 while females were 5.

Conclusion: Maximum male cases with lung carcinoma had history of smoking exposure more than 10 years as compared to females.

Keywords: Lung carcinoma, Smoking, Male

Introduction

Lung cancer is one of the most common cancer and leading cause of cancer mortality worldwide. It accounts for 12.9% of all new cancers and one out of five cancer deaths are due to lung cancer. Of the estimated 1.8 million new cases in 2012 (12.9% of the total), 58% occurred in less developed regions [1]. Lung cancer remains the commonest cancer among males worldwide. In India, lung cancer constitutes 9.3% of all cancers. [2] Lung cancer incidence and mortality is rising in females and declining in males in developed nations. The observed variations in lung cancer rates and trends across countries or between males and females within each country largely reflect differences in the stage and degree of the tobacco epidemic. [3] Tobacco smoking is the leading cause of lung cancer accounting for about 90% of cases. Adenocarcinoma, squamous cell carcinoma, large cell carcinoma and small cell undifferentiated carcinoma are the common histological types accounting for more than 90% of all lung cancers [4] The advent of personalized chemotherapy based on histology and molecular expression and relative increase in adenocarcinoma worldwide has generated a renewed interest in epidemiology of lung cancer. [5] Therefore, understanding the burden of lung cancer according to histological type is not only of epidemiological interest but also crucial for treatment decision. Developed nations have witnessed a shift in lung cancer histology and adenocarcinoma has surpassed the squamous cell type to become the most common type of lung cancer.

Material and Method

This was a hospital based prospective and observational study carried out on Cases detected as non small cell carcinoma on histopathological examination of lung tissue biopsy of lung carcinoma patients attending OPD or hospitalized at Department of Respiratory Medicine during the year 2018-2019. Institute of Respiratory Diseases is a tertiary care center for tuberculosis and Respiratory diseases in Rajasthan.

Bronchoscopy or CT guided biopsy from lung was taken and put in a sterile container containing 10% Neutral buffered formalin in 10:1 ratio which was sent to histopathology department of S.M.S. Medical college for histopathological and immunohistochemistry studies.

Past history of antitubercular treatment, associated comorbidity, history of medication, current use of oral or inhaled corticosteroid therapy, congenital or acquired heart diseases, history of allergy and surgery in past was recorded.

Personnel history had been taken for smoking , alcohol intake ,any other exposure to smoke and dust and any other addiction.

History of diabetes, systemic hypertension and heart disease was noted. General physical examination included height, weight, pulse, blood pressure, oedema, pallor, icterus, peripheral lymphadenopathy ,cyanosis and clubbing. Respiratory, abdomen, central nervous and cardiovascular examination also had been done.

Statistical analysis was performed with the SPSS, version 21 for Windows statistical software package (SPSS inc., Chicago, IL, USA). The Categorical data was presented as numbers (percent) and were compared among groups using Chi square test. The quantitative data was presented as mean and standard deviation and were compared by students t-test. Probability was considered to be significant if less than 0.05.

Results

Table 1: Age and Gender distribution of study subjects

Age group (years)	Female		Male		Total	
	Number of patients	%	Number of patients	%	Number of patients	%
<40	4	21.0	4	5.2	8	8.4
40-49	1	5.2	13	17.1	14	14.7
50-59	4	21.0	22	28.9	26	27.4
60-69	9	47.3	21	27.6	30	31.6
70-79	0	0	11	14.4	11	11.6
80-89	1	5.2	5	6.5	6	6.3
Total	**19**	**100**	**76**	**100**	**95**	100

Chi-square = 10.534 with 5 degrees of freedom; P = 0.065 (NS)

Age and Gender distribution of study subjects was tabulated and it was observed that maximum numbers of cases were seen in male gender with age group 60-69 years accounting for 21 cases while number of females of this age group was also maximum comprising of 9 cases.

Table 2: Distribution of study subjects in relation to their smoking status

Smoking (pack year)	Number of patients	Percentage
Nil	19	20.0
≤10 years	34	25.7
>10 years	42	43.1
Total	95	100

Lung carcinoma cases were also studied on the basis of duration of smoking and it was found that maximum incidence of lung carcinoma was seen in patients with duration of smoking more than 10 years which is 42 cases as compared to non smokers whose incidence rate was 19 cases out of total 95 cases.

Table 3: Smoking status in relation to Gender of study subjects

Smoking (pack year)	Female		Male		Total	
	Number of patients	%	Number of patients	%	Number of patients	%
Nil	5	26.3	14	18.4	19	20.0
≤10 years	8	42.1	26	34.2	34	35.7
>10 years	6	31.5	36	47.3	41	43.1
Total	**19**	**100**	**76**	**100**	**95**	100

Prevalence of smoking was also studied on the basis of gender along with the duration of smoking and it was found that maximum male cases were smokers for more than 10 years and their number was 36 out of 95 cases while maximum number of female smokers was 8 with a history of smoking less than 10 years. Males with negative history of smoking were 14 while females were 5.

Discussion

Lung cancer is one of the commonest cancer and cause of cancer related deaths all over the world. It accounts for 13 percent of all new cancer cases and 19 percent of cancer related deaths worldwide. There were 1.8 million new lung cancer cases estimated to occur in 2012.

In our study it was calculated that the age range of the lung carcinoma incidence was falling in between 40 to 90 years, out of which maximum carcinoma incidence was noted in the age range of 60-69 years followed by the age range of 50-59 years. Least incidence rate was seen in the age group 80-89 year.

Mean age of study population was 58.7 ± 13.5 (25 – 88). This is comparable to study conducted by Danny R. Youlden et al, which concluded that 5% of lung cancer cases were diagnosed among people aged 0 to 44 years, 14% in the 45 to 54 age group, 25% in the 55 to 64 age group, and 55% among those aged 65 years and over.[6]

Study conducted by Jindal SK et al also observed the average age of NSCLC to be 54.3 years which is comparable to our study.[7] and Singh .N et al found mean age to be 58.1.[8]

Incidence rate of lung carcinoma in higher age group primarily reflects the higher life expectancy and duration of exposure to carcinogen.

In the study conducted, the distribution of cases on the basis of gender showed increasing trend of lung carcinoma in males accounting for 76(80%) cases out of 95 cases while female patients with lung carcinoma were 19 (20%).

Singh. N et al found out that out of 654 cases total number of males affected were 545(83.3) and females was 109 (16.7%) which is comparable to our study results[8]

Jindal SK et al studied that out of 1010 cases, there were 825 (81.8%) male and 185 (18.2%) females which is comparable to our study results.[7]

Calculation of age and gender distribution of study subjects was done and it was observed that maximum numbers of cases were seen in male gender with age group 60-69 years accounting for 21 cases while number of females of this age group was also maximum comprising of 9 cases.

Study conducted by Jindal et al observed that the mean age of incidence of non small cell lung carcinoma in male patients was 54.6 years while that for females was 52.8.[7]

Non small cell lung carcinoma cases were also studied on the basis of duration of smoking and it was found that maximum incidence of lung carcinoma was seen in patients with more than 10 years of duration of smoking which is 42 cases as compared to non smokers whose incidence rate was 19 cases out of total 95 cases. Smoker to non smoker ratio was 4:1

Jindal et al also concluded that overall smoker to non smoker ratio was 2.68:1 which is approximate to our study[7]

Conclusion

Maximum male cases with lung carcinoma had history of smoking exposure more than 10 years as compared to females.

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