

Incidence of Lung Cancer in Smokers Vs Non-Smokers

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Abstract

BACKGROUND

Depending on the location, the epidemiology of lung cancer varies. Based on histology, incidence in non-smokers and trends among men and women have all seen significant changes globally. There are few lung cancer epidemiological data from India. The third most frequent disease after breast and prostate cancer, lung cancer is the primary reason for cancer-related deaths globally. Tobacco smoke is the main cause of lung cancer, as would be predicted, and as smoking rates have decreased, so too have the rates of lung cancer. Despite an overall decline in lung cancer rates, it has been shown that the prevalence of the disease among non-smokers is rising.

AIMS AND OBJECTIVE-

To know the clinical profile of lung carcinoma in smokers vs non smokers

MATERIAL AND METHODS

For a total of 18 months, this observational cross-sectional study was carried out at DGH, SBKS MI & RC, Vadodara. Lung cancer patients totaling 50 were enrolled in the research. To the greatest extent possible, every patient underwent a clinical examination, a radiological examination, a CT-guided FNAC or fiberoptic bronchoscopy, or both.

RESULTS:

In this study, the most common incidence of Lung carcinoma is in smokers (64%). The mean age in smokers is 51-60 (22%) and in non smokers is 41-50 (18%). In this study the males were most common in smokers (62%), and females (20%) were most

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common in non smokers. The incidence of lung cancer in smokers with previous history of TB is (10%) and in non smokers is (20%). The most common carcinoma is Adenocarcinoma in both smokers (50%) and non smokers (18%).

1. Introduction

Since 1985, lung cancer has been the malignancy with the highest annual diagnoses. Lung cancer is the biggest cause of cancer-related mortality, with 1.61 million new cases and 1.38 million deaths each year worldwide [1]. Each year, India reports about 63,000 new cases of lung cancer [2]. Tobacco usage is the main risk factor for lung cancer, which is frequently only seen as a smoker's disease. Worldwide, lung cancer in never-smokers exhibits a clear gender bias, with women being more likely to get the disease. Most Asian women with lung cancer diagnoses are never smokers, in particular. All of the primary kinds of lung cancer are caused by smoking-related carcinogens, however tumors that develop in people who have never smoked focus on the distal airways and favor adenocarcinoma histology [3]. There is minimal evidence to suggest that smokeless tobacco plays a part in producing lung cancer in never-smokers because it is a relatively mild carcinogen [4]. Significant differences in gender, clinicopathological characteristics, and molecular characteristics of lung cancers emerging in never-smokers strongly suggest a syndrome distinct from the more common tobacco-associated types of lung cancer.

2. Material and Methods

This study is for diagnosing the cases of carcinoma lung presenting to respiratory medicine department of Dhiraj general hospital, by using X ray, CT scan, CT Guided FNAC/Biopsy and Fibre Optic Bronchoscopy so as to achieve aims and objectives outlined.

Inclusion Criteria

1. Patients presenting at respiratory medicine department with the suspected symptoms of Ca lung will be included in this study.

2. Sample size is 50 patients.

3. Only those patients who are willing to participate and give consent to the study were included.

Exclusion Criteria

1. Patients presenting to respiratory medicine department having Ca lung lesion in past and who are diagnosed already and undergoing treatment will be excluded from the study.

2. Patients who are not willing to give consent.

3. Patient who are HIV and HbsAg positive

METHODOLOGY

- 1) Clinically suspected patients of CA Lung were taken.

- 2) After taking consent, patients were enrolled and all demographic data was collected.

- 3) All routine investigations and radiological evaluation was done.

- 4) All patients underwent clinical examination, radiological examination, CT guided FNAC or Fiber optic Bronchoscopy or both whatever possible.

- 5) Histopathological examination of the FNAC samples were done

- 6) All data was collected and statistically analysed

STATISTICAL ANALYSIS

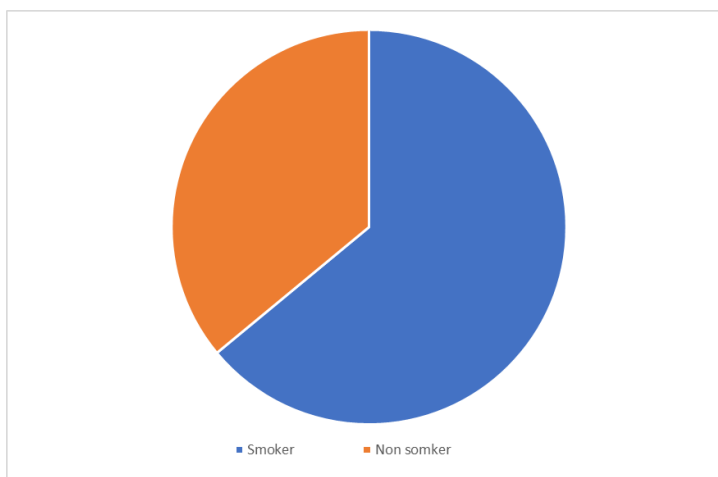
Data was collected from case record form and entered into MS excel 2016. Data analysis was done in SPSS Software version 26.

3. Results

TABLE-1 DISTRIBUTION OF PATIENTS ACCORDING TO SMOKING AND NON SMOKING

	Present	%
Smokers	32	64
Non smokers	18	36
TOTAL	50	100

FIGURE-1 Pie Chart Showing the Distribution of Patients on Smoking and Non-Smoking



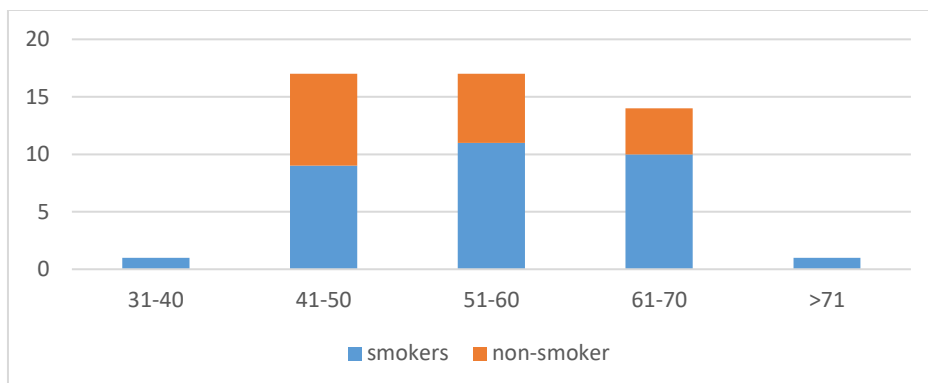
In total number of 50 patients the incidence of lung carcinoma in somkers is (64%) and in non smokers is (36%).

TABLE-2 Distribution according to age

Age categories	Smokers	Valid Percent(%)	Non-smokers	Valid Percent(%)
31-40	1	2	0	0
41-50	9	18	8	16
51-60	11	22	6	12
61-70	10	20	4	8
>71	1	2	0	0
Total	32		18	100

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FIGURE-2 Bar Chart Showing The Distribution Of Patients Of Various Age Groups

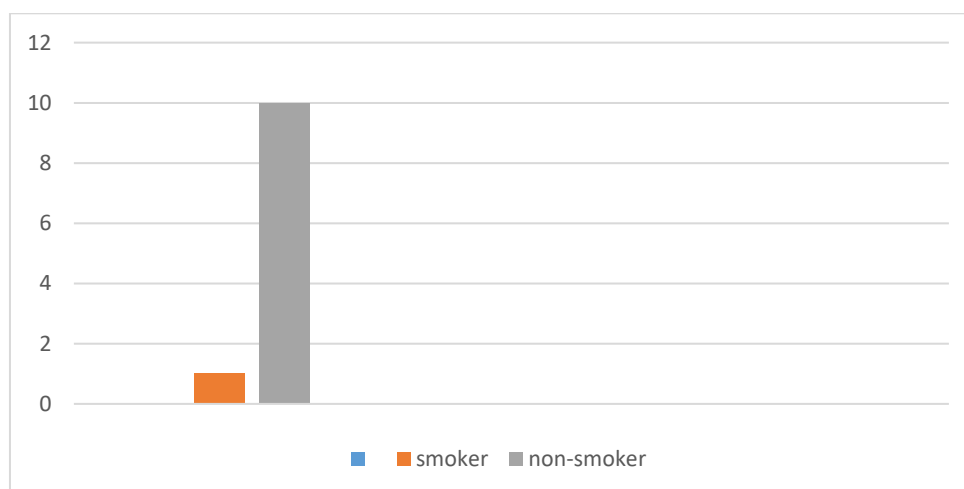


In total number of 50 patients, the incidence of lung carcinoma in smokers is most common in the age group of 51-60 (22%), followed by 61-70 (20%), followed by 41-50 (18%), followed by >71 (2%), followed by 31-40 (2%). Where as in non smokers, the most common age group of incidence of lung cancer is 41-50 (16%) , followed by 51-60 (12%), followed by 61-70 (8%).

TABLE-3 Distribution according to Gender

	Smokers	Valid Percent(%)	Non-smoker	Valid Percent(%)
MALE	31	62	8	16
FEMALE	1	2	10	20
TOTAL	32	64	18	36

FIGURE-3 Bar Chart Showing the Distribution of Patients Based on Gender in Smokers and Non Smokers



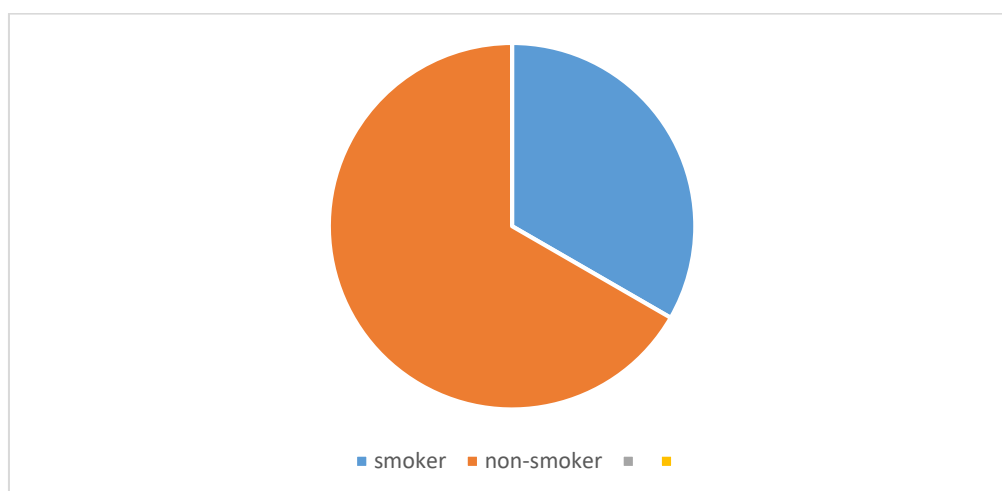
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In our study, the incidence of lung carcinoma in smokers is most common in males (62%) followed by females (2%). Whereas in non smokers, it's females (20%) followed by males (16%).

TABLE-4 Patients with past h/o of Tuberculosis

	Total	Past h/o of TB	Valid percentage(%)
Smoker	32	5	10
Non-smoker	18	4	8
TOTAL	50	9	18

FIGURE-4 Pie Chart Showing the Distribution of Patients with Past H/O Of Tb



In total number of 50 patients, the incidence of lung carcinoma in smokers with past history of tuberculosis is 10%. Whereas in non smokers, it is 8%.

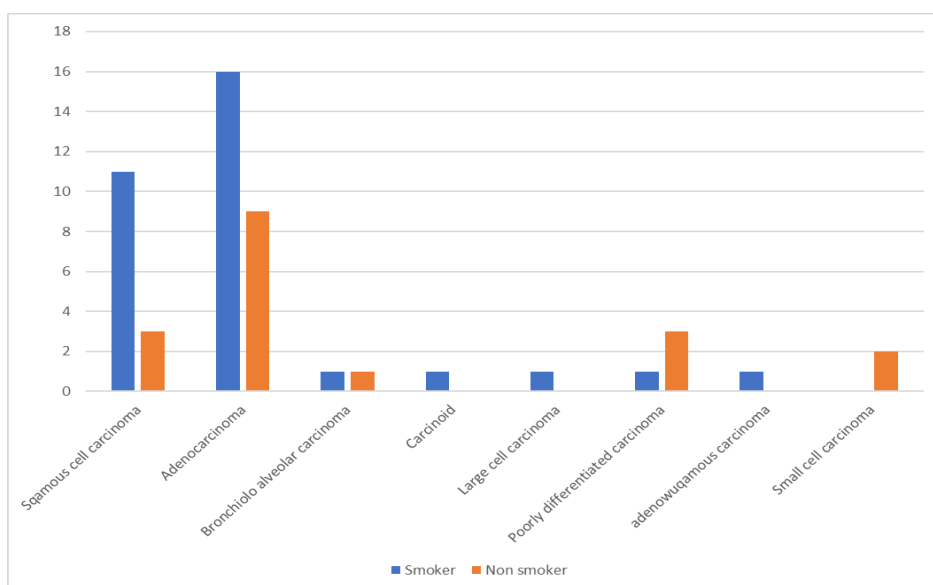
TABLE-5 Distribution of Histopathological Subtypes of Carcinoma with Respect to Smokers and Non Smokers

	SMOKERS	%	NON SMOKERS	%
Squamous cell carcinoma	11	34.5	3	16.7
Adenocarcinoma	16	50	9	18
Bronchiolo alveolar carcinoma	1	3.1	1	5.5
Carcinoid	1	3.1	--	--
Large cell carcinoma	1	3.1	--	---

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Poorly differentiated carcinoma	1	3.1	3	16.7
Adenosquamous carcinoma	1	3.1	-	--
Small cell carcinoma	--	--	2	11.1
Total	32	100	18	100

FIGURE-5 Bar Chart Showing The Distribution Based On Histopathological Subtype In Smokers And Non Smokers.



In total number of 50 patients, the most common histopathological subtype in smokers is Adenocarcinoma (50%), followed by Sqamous cell carcinoma (34.5%), then Bronchiolo alveolar carcinoma (3.1%), followed by Carcinoid (3.1%), followed by Large cell carcinoma (3.1%), followed by Poorly differentiated carcinoma (3.1%), followed by

Adenosquamous carcinoma (3.1%). Where as in non smokers, the most common histopathological subtype is Adenocarcinoma (18%), followed by Sqamous cell carcinoma (16.7%), followed by Poorly differentiated carcinoma (16.7%), followed by Small cell carcinoma(11.1%) , followed by Bronchiolo alveolar carcinoma (5.5%).

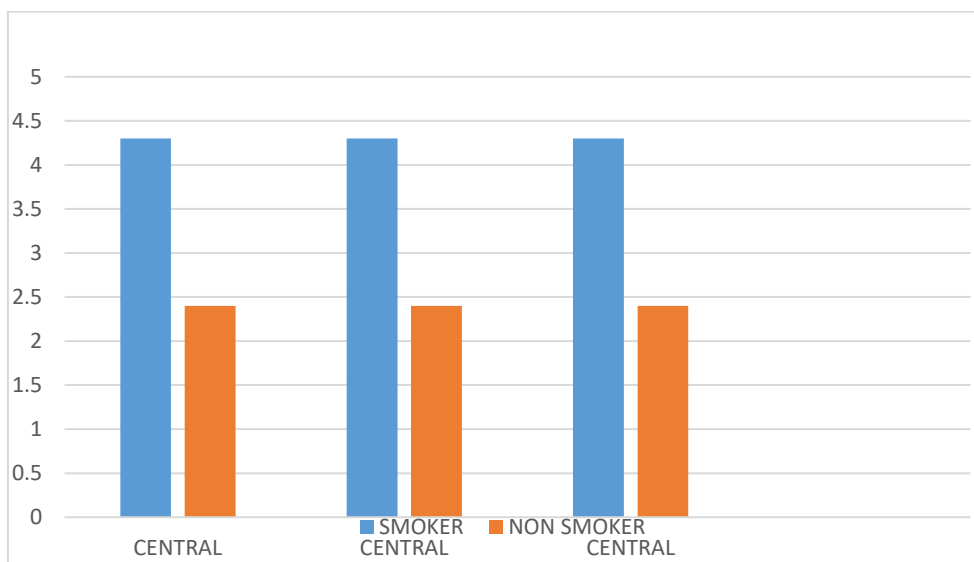
TABLE-6 Distribution Based on Location on Ct Scan

	SMOKERS	VALID PERCENT(%)	NON SMOKERS	VALID PERCENT(%)
CENTRAL	14	28	13	26
PERIPHERAL	10	20	2	4

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CENTRAL+PERIPHERAL	7	14	3	6
TOTAL	32	100	18	100

Figure-6 Bar Chart Showing the Distribution Based on Location on Ct Scan



In total number of 50 patients the most common location on ct scan in smokers is central (28%), followed by peripheral (20%), followed by central plus peripheral (14%). Whereas in non-smokers the most common location is central (26%), followed by central plus peripheral (6%), followed by peripheral (4%).

TABLE-7 Distribution Based on Ct Guided Biopsy and Fiber Optic Bronchoscopy

	SMOKERS	VALID PERCENT(%)	NON SMOKERS	VALID PERCENT(%)
CT GUIDED BIOPSY	18	36	5	10
FIBER OPTIC BRONCHOSCOPY	4	8	6	12
NO BIOPSY TAKEN	10	20	7	14
TOTAL	32	100	18	100

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In smokers CT guided biopsy was the most commonly done (36%), followed by Fiberoptic bronchoscopy (8%) . Whereas in non smokers it is Fiberoptic bronchoscopy (12%) followed by CT guided biopsy (10%)

4. Discussion

In this study, the majority of carcinomas occurs in smokers (64%) followed by non-smokers (36%). The majority of the patients in non-smokers were in the age group 41-50 years (16%), followed by 51-60 years (12%), then 61-70 years (8%). Similarly, in the study conducted by Waklee et al^[5] majority are in the age group of 41-70 accounting for 95%. Another similar study conducted by Brownson et al^[6] majority are in the age group of 40-59 accounting to 95%. In this study the incidence of lung cancer in non-smokers is more in females (20%) as compared to males (16%). Similarly in the study Waklee et al^[5] where females are 15.2% followed by males 11.2%. In our study, the incidence of lung carcinoma with the past history of tuberculosis in non-smokers accounts to 8% (4) out of 18 patients. Similarly in the study conducted by Bhowmik et al^[7] in which there is 2 times greater risk for developing lung carcinoma in patients with past history of tuberculosis. In our study the most common histopathological sub type in non-smoker is Adenocarcinoma (18%) , followed by Squamous cell carcinoma (16.7%) , followed by Poorly differentiated carcinoma (16.7%) , followed by Small cell carcinoma (11.1%), and the Bronchiolo alveolar carcinoma (5.5%) , similarly in the study conducted by Noronha et al^[8] 76% patients in non-smokers are diagnosed with adenocarcinoma. Another study conducted by Brownson et al^[6] total of 328 patients 66.8 % are of Adenocarcinoma .

Strength and Limitations

Our dataset consisted of total of 50 subjects. They were presented to department of respiratory medicine. All the patients were thoroughly examined by trained physicians at a tertiary center. Since the study is hospital based study it might not be the correct representation of the general population as compared to other studies.

5. Conclusion

It is concluded from this study that incidence of Lung carcinoma in non-smokers are mostly in females, between 41-50 years of age . There is a higher risk of incidence of lung carcinoma in non-smokers with past history of tuberculosis. The most common histopathological sub type in non-smokers is adenocarcinoma followed by Squamous cell carcinoma, followed by Poorly differentiated carcinoma, followed by Small cell carcinoma, and the Bronchiolo alveolar carcinoma

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