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SOCIO DEMOGRAPHIC CHARACTERISTICS OF LUNG CANCER PATIENTS IN NORTH MALABAR REGION OF KERALA, SOUTH INDIA

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ABSTRACT: Background: Lung cancer is the most common malignant neoplasm worldwide, accounting for greater mortality than due to any other cancer. It accounts for about 13% of all new cancer cases and 19% of cancer-related deaths worldwide. In India, lung cancer comprises 6.9% of all new cases of cancer and 9.3% of all cancer-related mortality in both sexes. This study aimed to find out the socio-demographic characteristics of lung cancer patients in the North Malabar region of Kerala. **Methods:** This is a prospective observational analysis of 238 lung cancer patients in the North Malabar region of Kerala during the period of 2017 and 2018. **Results:** A total of 238 lung cancer patients were included in this study, among which 195 were males (82.0%), and 43 (18.0%) were females. The male-female ratio was found to be 4.5:1. In the case of male subjects, most of the patients present in the age group of 60-69 (40%) followed by ≥ 70 (36.9%), and only 4.1% of subjects represents below 40 age group. In the case of female patients, 33.6% of patients presented in the 60-69 age group and followed by 50-59 and 40-49 age group. Of the 238 patients, the majority of patients were manual laborers/farmers (56.7%). The percentage of government/office employees involved in this study was 11.8%. In the study population, 44 patients (18.5%) had a history of chewing habits, and 99% of these patients using tobacco for chewing. Of the 238 patients, 166 patients (69.7%) had a history of smoking in their lifetime, and 72 patients (30.2%) were non-smokers. **Conclusion:** Lung cancer incidence rate is highly increased in the South Indian state, Kerala. The majority of male patients were smokers, and female patients had a history of passive smoking.

INTRODUCTION: The term Neoplasia is a Greek word that means new growth and is the irregular and rapid increase in the number of cells in a tissue or organ. Globally it is the most important public health problem, and the burden of cancer incidence is continuously increasing [1].

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Cancer one of the most important causes of death worldwide and is the reason for death in economically developing and developed countries and the second most regular illness after cardiovascular disease [2, 3].

The International Agency for Research on Cancer GLOBOCAN 2012 project has prognosticated that India's tumor burden will nearly double in the coming 20 years, from over a million recent cases in 2012 to more than 1.7 million by 2035 [4]. Lung cancer considered as the most common and fatal forms of cancer because lack of proper diagnosis

and lack of effective treatments and it accounts for more deaths than any other cancer types [5]. In 2012, nearly 1.8 million new lung cancer cases were reported, and it represented about 12.9% of the total cancer occurrence globally [6].

The GLOBOCAN 2018 estimated that in both genders combined, lung malignancy is the most identified (11.6% of the aggregate cases) and the prominent reason for cancer deaths (18.4% of the total mortality due to cancer) [7]. This study gives an estimate of the number of lung cancer cases registering various palliative care clinics, and in addition, details of the patient pertaining to socio-demographic characteristics are also obtained.

MATERIALS AND METHODS: This is a prospective, observational study conducted on patients who registered in various palliative care clinics in Malappuram district Kerala, India, for a period of one year (2017 - 2018). A well-structured patient data collection form was developed and used for the study.

This form was prepared by consulting a physician in one of the palliative clinics, the staff of the pharmacy practice department. Patient demographic details such as age, gender, occupation, marital status, religion, and education were collected and recorded. Co-morbidities were also included. Each study subject and their caregivers received the description of the study and were communicated about the purpose of the study. Informed written consent was obtained from all the patients or from their caregivers.

The institutional ethics committee permission was obtained for carrying out this study from Malappuram Initiative in Palliative care (MIP) (Approval number is 112/MIP/MPM/2017). The data was collected, compiled, and summarized using percentages, proportions.

RESULTS: A total of 238 lung cancer patients were included in this study, among which 195 were males (82.0%), and 43 (18.0%) were females. The male-female ratio was found to be 4.5:1. The mean age of the study subjects was 63.45 ± 11.4years. In the case of males and females, the mean age was found to be 64.5 ± 11.11 and 59.02 ± 11.9, respectively.

TABLE 1: DEMOGRAPHIC CHARACTERISTICS OF PATIENTS

Category	Number of Subjects	Percentage
Gender		
Male	195	82.0%
Female	43	18.0%
Total	238	100%
Religion		
Islam	175	73.5%
Hindu	60	25.2%
Christian	3	01.3%
Total	238	100%
Marital Status		
Non Married	2	0.08%
Married	216	90.8%
Widow/Divorced	20	8.4%
Total	238	100%
Food Habits		
Vegetarian	03	01.3%
Non-vegetarian	235	98.7%
Total	238	100%

TABLE 2: STUDY SUBJECTS BASED ON AGE

S. no.	Age Group	Male (%)	Female (%)	Total (%)
1	<40	8 (4.1)	2 (4.7)	10 (4.2)
2	40-49	9 (4.6)	9 (20.9)	18 (7.6)
3	50-59	28 (14.4)	9 (20.9)	37 (15.5)
4	60-69	78 (40)	15 (34.9)	93 (39.1)
5	≥70	72 (36.9)	8 (18.6)	80 (33.6)

In the case of male subjects, most of the patients present in the age group of 60-69 (40%) followed by ≥ 70 (36.9%), and only 4.1% of subjects represents below 40 age group. In the case of female patients, 33.6% of patients presented in the 60-69 age group and followed by 50-59 and 40-49 age groups. In total subjects, approximately 73% belonged to above 60 years of age. (**Table 2**)

TABLE 3: DISTRIBUTION OF STUDY SUBJECTS BASED ON OCCUPATION

S. no.	Occupation	Male (%)	Female (%)	Total (%)
1	Farmer	81 (41.5)	2 (04.6)	83 (34.9)
2	Laborer	50 (25.6)	2 (04.6)	52 (21.8)
3	Business	14 (07.2)	0 (0)	14 (05.9)
4	Driver	5 (02.6)	0 (0)	5 (02.1)

5	Teacher	4 (02.0)	1 (02.3)	5 (02.1)
6	House wife	0 (0)	38 (88.4)	38 (16.0)
7	Beedi maker	13 (06.7)	0 (0)	13 (05.4)
8	Other	28 (14.4)	0 (0)	28 (11.8)

The majority of patients were manual laborers/farmers (56.7%). The percentage of government/office employees involved in this study was 11.8%. Around 13 subjects (5.4%) had a history of beedi making. In the case of females, the majority were housewives (88.4%). (Table 3)

TABLE 5: DISTRIBUTION OF SOCIAL HABITS OF STUDY SUBJECTS

Category	Male (n=195) (%)	Female (n=43) (%)	Total (%)
Chewing habits			
Yes	33 (16.9)	11 (25.6)	44 (18.5)
No	162 (83.1)	32 (74.4)	194 (81.5)
Alcohol consumption			
Yes	43 (22.0)	2 (04.6)	45 (18.9)
No	152 (77.8)	41 (95.3)	193 (81.1)
Smoking habits			
Never Smoker	31 (15.9)	41(95.3)	72 (30.2)
Current Smoker	106 (54.4)	02 (04.6)	108 (45.4)
Old Smoker	58 (29.7)	00 (00)	58 (24.4)

In the study population, 44 patients (18.5%) had a history of chewing habits, and 99% of these patients using tobacco for chewing. In the case of females, 11 cases (25.6%) have chewing habits of the 238 patients, 166 patients (69.7%) had a history of smoking in their lifetime, and 72 patients (30.2%) were non-smokers. In males majority of patients were smokers 164 (84.1%), and in female patients, 41 (95.3%) were non-smokers.

In the case of males, 58 patients (29.74%) were old smokers, and 106 patients (54.4%) were current smokers. In the case of current smokers, 97 subjects (89.8%) stopped smoking after the diagnosis of the disease, and 11 subjects continue the habit of smoking. Men had a significantly higher incidence of smoking compared to women, and the male-female ratio in the case of smoking was 83:1. The smoker: non-smoker ratio in this study was found to be 2.3:1. In males, 43 cases (22.1%) were alcoholic, and 152 cases (77.9%) were non-alcoholic. In the case of females, only 2 subjects (04.6%) were alcoholics. (**Table 5**)

TABLE 6: DISEASE CHARACTERISTICS

Category	No. of Patients	Percentage
Family history of disease		
Yes	21	08.8
No	217	91.2
History of lung disease		
Asthma	40	16.8
COPD	34	14.3
TB	21	08.8
Asthma+TB	6	02.5
COPD+TB	1	00.4
TOTAL	102	42.8

In the present study 21 patients had the history of cancer in their family and in the lung cancer patients, about 102 (42.8%) have the history of lung diseases like COPD, asthma, TB. In past, about 21 patients treated for TB. (**Table 6**)

TABLE 4: DISTRIBUTION OF STUDY SUBJECTS BASED ON EDUCATION

S. no	Education	No. of patients	Percentage
1	Illiterate	36	15.1
2	1-4	66	27.7
3	5-7	71	29.8
4	8-12	54	22.7
5	Graduate	11	04.6

In this study population, 36 patients (15.1%) were illiterate, and the majority of cases received primary education (57.6%). Only 11 patients (04.6%) completed their degree courses. 22.7% of patients have completed their 8-12 classes. (**Table 4**)

DISCUSSION: This study included 238 lung cancer patients from different regions of Malappuram district and was aimed to find out the demographic parameters, his to pathological profile, quality of life, and cost of lung cancer in this region. In this current study, a male to female ratio of 4.5:1 was observed, which was similar to another study from RCC Trivandrum, Kerala, with a male to female ratio of 4.7:18. The sex ratio reported in several Indian studies ranged from 4.5:1 to 8.2:1 9, 10. In another Indian study, a male: female ratio of 2.7:1 was reported, and in a US-based study, the male: female ratio was 5:1 [11, 12]. In the present study, the sex ratio demonstrates a clear male predominance. Age is an established factor for tumor risk. Some researchers reported that the incidence of lung carcinoma is relatively very low be 50 years of age increases rapidly afterward [13].

The mean age for the development of lung cancer is increasing in developed nations [14]. The mean age of patients with lung carcinoma has remained consistent over the years [11]. In the present study, the mean age at diagnosis was 63.45 years, which is almost similar to other studies from India, Iran, and Turkey [15, 16]. While the mean age for diagnosis is higher in other Gulf countries, Canada and USA [17, 18]. This study reveals that the age group in which lung cancer was most commonly affected was in the sixth and seventh decades of life, and most patients' lies in the age group of 50-70 years and the oldest patient were diagnosed at 85 years of age and the youngest was at 26 years of age. A similar report was established in another study [19]. The increasing number of incidence in the older age group, particularly in the sixth and seventh decades of life, shows that lung cancer is an old age disease [20]. In this study, many of the female patients were diagnosed with lung cancer at a young age compared to male patients, and this report is similar to reports from other studies [21, 22].

The study done by Manoharan showed that cancer gall bladder was more prevalent in illiterate as they were less aware of the risk factors [23]. Another study was done by Puri S *et al.*, also found that majority of cancer patients were illiterate [24]. In this study, the majority of patients completed their primary school life. The predominance of cancers in the Hindu religion has been cited in many studies. Hindus to be suffering from more cancers as compared to other religions could be because of their predominance in the community, but in this study, the majority of patients were of the Muslim religion in this district Muslim community is predominant [25].

The current study reveals that around 83.25% of the male patients were habited to smoking while the trend is very less among females. The majority of female patients (95.12%) were non-smokers. This clearly notes that the elevation in the rate of lung carcinoma in males could be related to the increasing consumption of tobacco in any form. In Kerala, the habit of tobacco using in females is very low compared to males [20]. The increasing percentage of smoking in males is consistent with the reports from various parts of India and also from other developing nations [9, 26]. Hence, the significance of tobacco termination programs, together with mass education and awareness plans among adolescents, needs to be strongly implemented. The present study shows a smoker: non-smoker ratio of 2.3:1 in patients with lung carcinoma, similar to other studies that reported a ratio of 2:1 and 2.4:1 [27, 28].

Even though the role of genetic factors in lung carcinoma is not established so far, 8.82% of patients in this study had a family history of lung cancer in their first- or second-degree relatives. Another Indian study reported a family history of lung cancer in 21.2% of the patients. However, many genetic related studies are needed to demonstrate the connection between lung cancer and family history of carcinoma in first- or second-degree family members [20]. Although the risk of previous lung diseases such as COPD and asthma in causing lung cancer is well established, our study reported 42.85% of patients had a history of lung diseases. This was contrary to an Indian study in which only 1.3% of the patients had a history of the above-mentioned lung diseases [29].

CONCLUSION: Lung cancer incidence rate is highly increased in the South Indian state, Kerala. This community-based study found that lung cancer is an old age disease, and smoking is the principal etiological factor in the development of lung carcinoma among men in the Malappuram district of Kerala. This mainly reveals the importance of tobacco termination programs in the community as well as awareness and education program among teenagers should be strongly implemented.

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CONFLICTS OF INTEREST: NIL

REFERENCES:

1. Jagannath DS, Manoj K, Tulika N, Sidhartha PS, Arpita S and Debanjana B. Cancer scenario and relationship of different geographical areas of the globe with special reference to North East India. Asian Pac J Cancer Prev 2014; 15(8): 3721-29.
2. Sukant S, Suraj S, Akhilesh C, Saurabh W, Prince K and Gagan K: Prevalence based epidemiological cancer statistics a brief assessment from different population in India. OHDM 2013; 12(3): 132-36.

3. Rehman F: Lung cancer scenario in specific territories of India and their causes. Int J Pharma Bio Sci 2015 April; 6(2); 450-57.
4. Mohandas KM, David GT, Rajendra AB, Goura KR, Shanta V and Pramesh CS: The growing burden of cancer in india epidemiology and social context. Lancet Oncol 2014; 15: 205-12.
5. Muhas C, Anand Vijaya Kumar PR and Raja D: Etiological factors for the development of lung cancer in non-smokers an over view. Int J Pharm Pharm Sci. 2019; 11(1): 10-16.
6. Yousheng M, Ding Y, Jie H and Mark JK: Epidemiology of Lung Cancer. Surg Oncol Clin N Am 2016; 25: 439-45.
7. Bray F, Ferlay J, Soerjomataram I, Siegel RL, Torre LA and Jemal A: Global cancer statistics GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA Can J Clin 2018; 68: 394-24.
8. Nair CK, Mathew AP and George PS: Lung cancer presentation and pattern of care in a cancer center in south india. Indian J Cancer 2017; 54: 164-68.
9. Rawat J, Sindhwani G, Gaur D, Dua R and Saini S: clinico-pathological profile of lung cancer in uttarakhand. Lung India 2009; 26: 74-76.
10. Kashyap S, Mohapatra PR and Negi RS: Pattern of primary lung cancer among bidi smokers in north-western himalayan region of india. Lung Cancer 2003; 41 (S2): S111.
11. Navin P, Balbir M, Nirmalchand K, Rahul RP, Nagaraja CL and Nidhi M: Clinicopathological profile of patients with lung cancer visiting chest and TB hospital Amritsar. Sch J App Med Sci 2015; 3(2D): 802-09.
12. Aisner SC and Mathews MJ: The pathology of lung cancer. In Aisner J editor Lung cancer New York Churchill Livingstone 1985.
13. Wender R, Fontham ET, Barrera E: American cancer society lung cancer screening guidelines. Ca Cancer J Clin 2013; 63: 106-117.
14. Delacruz CS, Tanoue LT and Matthay RA. Lung cancer epidemiology, etiology and prevention. Clin Chest Med 2011; 32: 605-44.
15. Khosravi A, Esfahani MZ, Seifi S, Karimi S, Emami H and Khodadad K: Clinicopathological characteristics of Iranian patients with lung cancer a single institute experience. Asian Pac J Cancer Prev 2016; 17: 3817-22.
16. Sadraei NH and Riahi T: Idiopathic pulmonary fibrosis in a referral centre in iran are patients developing the disease at a younger age. Arch Iranian Med 2013; 16: 177-81.
17. AL-Hashimi MMY and Wang XJ: Trend analysis of lung cancer incidence rates in ninawa province, Iraq, from 2000 to 2010 - decrease and recent stability. Asian Pac J Cancer Prev 2014; 15: 385-90.
18. Navaneelan T and Janz T: Cancer in canada focus on lung, colorectal breast and prostate. Statistics Canada Catalogue 2011; X: 82-624.
19. Navin P, Balbir M, Nirmalchand K, Rahul RP, Nagaraja CL and Nidhi M: Clinicopathological profile of patients with lung cancer visiting chest and TB hospital Amritsar. Sch J App Med Sci 2015; 3(2D): 802-09.
20. Binukumar B, Saina SK and Satheesan B: Lung cancer in malabar cancer center in Kerala- a descriptive analysis. Asian Pac J Cancer Prev 2012; 13: 4639-43.
21. Thomas L, Doyle LA and Edelman MJ: Lung cancer in women emerging differences in epidemiology, biology and therapy. Chest 2005; 128: 370-81.
22. Radzikowska E, Glaz P and Roszkowski K: Lung cancer in women age smoking histology performance status, stage initial treatment and survival population-based study of 20561 cases. Ann Oncol 13: 1087-93.
23. Manoharan N, Tyagi BB and Raina V: Cancer incidences in rural Delhi-2004-05. Asian Pac J Cancer Prev 2010; 11: 73-7.
24. Puri S, Ashat M, Pandey A, Goel NK, Singh A and Kaushal V: Socio-demographic characteristics of cancer patients hospital based cancer registry in a tertiary care hospital of India. Indian J Cancer 2014: 51; 1-4.
25. Parvaiz AK, Satish KK, Mohammad MS, Reyaz AT and Azra S: Lung cancer in the Kashmir valley. Lung India 2010; 27: 131-38.
26. Hassan MQ, Ahamad MSU and Rahman MZ: Clinico-pathological profile of bronchogenic carcinoma in a tertiary care hospital in Bangladesh. JCMCTA 2010; 21: 45-49.
27. Guleria JS, Gopinath N, Talwar JR, Bhargave S, Pande JN and Gupta RG: Bronchial carcinoma - An analysis of 120 cases. J Assoc Physicians India 1971; 19: 251-55.
28. Jindal SK, Behera D and Dhand R: Flexible fiberoptic bronchoscopy in clinical practice - A review of 100 procedures. Ind J Chest Dis 1990; 27: 153-58.
29. Sanjeet KM, Thaudem TS, Takhenchangbam DS and Venkatesan A: Clinico-pathology of lung cancer in a regional cancer center in Northeastern India. Asian Pac J Cancer Prev 2013; 14: 7277-81.

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