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Clinical Profile of Male Patients with Non-Small Cell Lung Cancer in Adam Malik General Hospital, Medan, Indonesia

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Abstract

BACKGROUND: Lung cancer is the most frequently found cancer among men around the world and is is the main cause of cancer deaths. The occurrence of lung cancer is particularly associated with smoking habit around men, along with environmental tobacco smoke in the workplace. It is diagnosed in patients with the varied clinical and demographical profile.

AIM: We aimed to determine the clinical profile of men with non-small cell lung cancer in Adam Malik Hospital Medan based on age, smoking habits, occupation, clinical symptoms, clinical stage, and type of lung cancer histopathology

MATERIAL AND METHODS: This is a descriptive study using medical record from 2012 to 2015 of all men with non-small cell lung cancer at Adam Malik Hospital Medan, Indonesia

RESULTS: Most men with lung cancer are aged 51-60 years old (43.5%) and work like entrepreneurs. More than 80% of men with lung cancer are heavy smokers. Adenocarcinoma is the most common type of lung cancer, and 2/3 of lung cancer patients are diagnosed at an advanced stage.

CONCLUSION: Lung cancer occurs most often in active smokers in the age group above 50 years. The most dominant type of histopathology is adenocarcinoma and is frequently diagnosed in the late stages.

Introduction

Lung cancer is cancer with the greatest number of patients in the world with an increase in the number of new patients reaching around 1.2 million people every year [1]. According to hospital-based cancer registration data at Dharmais Cancer Hospital Jakarta, in 2003-2007 [2] lung cancer was the most frequently found malignancy in males (5,92/100,000), and was ranked fourth for female (5.52/100,000). Which is associated with a history of smoking. Data in Persahabatan Hospital, Jakarta, in 2004-2006 showed that about 83.4% of lung cancer patients were men.

Lung cancer has a poor prognosis compared to other cancers and has a much lower survival rate [3]. Therefore, lung cancer is the main cause of cancer deaths [4], which is estimated at around 1.4 million people [5] each year. In the United States, lung cancer has replaced the position of coronary heart disease as a cause of death among smokers. The risk of death related to early age starts smoking, the length of smoking, the number of cigarettes, and the concentration of tar smoked by smokers every day.

This study aims to determine the clinical profile of men with non-small cell lung cancer in Adam Malik Hospital Medan based on age, smoking habits, occupation, clinical symptoms, clinical stage, and type of lung cancer histopathology.

Material and Methods

This research is a descriptive study using medical record. Medical records of patients who did not provide complete information will be excluded from the study. The sampling technique was carried out in total sampling from 2012 to 2015 of all men with non-small cell lung cancer at Adam Malik Hospital Medan, Indonesia.

Smoking status was stated by Brinkman Index, which is the calculation of the number of cigarettes consumed per day multiplied by the duration of smoking in the year. The Brinkman index was then classified into a mild smoker (score 0 – 199), moderate (200 – 599) and severe (> 600). The lung cancer subtype was determined by a pathologist from the cytological or histopathologic specimen. Ethical clearance was approved by Health Research Ethical Committee Faculty of Medicine Universitas Sumatera Utara

Statistical Analysis

Univariate analysis was carried out to describe the clinical profile of men with lung cancer based on age, smoking habits, occupation, clinical symptoms, clinical stage, and type of histopathology of lung cancer.

Results

There were 403 men with non-small cell lung cancer in the period January 2012 to December 2015 at Adam Malik Hospital Medan, but only 134 medical records were complete and included in the study. Demographic characteristics of patients can be seen in Table 1.

Table 1: Demographic characteristic of lung cancer patients

Characteristic		n	%
Age		3	2.2
	41-50 y.o	24	17.9
	51-60 y.o	57	42.5
	61-70 y.o	33	24.6
	71-80 y.o	17	12.7
Occupation	Government worker	13	9.7
	Entrepreneur	55	41.0
	Retired	28	20.9
	Farmer	24	17.9
	Others	14	10.4
Smoking History	Non-smoker	1	0.7
	Light	3	2.2
	Moderate	19	14.2
	Heavy	111	82.8
Total		134	100.0

Table 1 show that most men with lung cancer are in the age range of 51-60 years and 61-70 years, and work like entrepreneurs. Based on smoking history, more than 80% of men with lung cancer are heavy smokers, while the number of non-smokers

who have lung cancer is less than 1%.

Clinical characteristics of patients can be seen in Table 2.

Table 2: Clinical characteristic of lung cancer patients

Characteristic		n	%
Histopathological subtype	Squamous Cell Carcinoma	35	26.1
	Adenocarcinoma	98	73.1
	Large Cell Carcinoma	1	0.7
Stage	I	3	2.2
	II	10	7.5
	III	37	27.6
	IV	84	62.7
Predominant symptom	Cough	53	39.6
	Chest pain	30	22.4
	Shortness of breath	51	38.1
Total		134	100.0

Table 2 show that adenocarcinoma is the most common type of lung cancer histopathology. Nearly 2/3 of lung cancer patients are diagnosed at an advanced stage (stage 4). The most common clinical symptoms complained of by patients are coughing and shortness of breath.

Discussion

This study describes the clinical profile of male patients with lung cancer at Adam Malik Hospital from 2012 to 2015. Men have a higher risk of lung cancer compared to women associated with smoking habits. Since 1998 until now, Indonesia is the third-largest number of smokers in the world. The estimated number of people who smoke in Indonesia reaches around 61.4 million people (36.1%). About 67% of men in Indonesia are smokers, where 57% are registered as daily smokers.

The occurrence of lung cancer in smokers is basically a complex thing. In smokers, there is a persistent and progressive genetic lesion which then accumulates at specific chromosomal loci. The results of genetic studies show that smokers experience a loss of heterozygosity at various allelic sites such as 3p14, 9p21, p16 and p53. This does not only occur in the normal bronchial epithelium, but also in the epithelium that has undergone dysplasia or metaplasia [6].

In general, male smokers over the age of 40 are classified as a high-risk group for lung cancer. Several other studies concerning lung cancer have found that the incidence of lung cancer increases with age, due to the increased exposure to risk factors and decreased cell repair ability [7]; while lung cancer is found at a young age or < 50 years is associated with the involvement of genetic factors, or young age when first smoking [8].

Although smoking is a major risk factor for lung cancer, various other chemical and physical compounds commonly found in the workplace are

also carcinogens. An estimated 5-15% of lung cancers are associated with exposure to these compounds in the workplace [9]. Asbestos is the most studied compound related to lung cancer. Various industries that use asbestos are textiles, cement, paper, rope, tiles, water pipes and fire-resistant clothing.

Of 134 lung cancer cases in male smokers in this study, the most common type of cytology/histopathology was adenocarcinoma compared with squamous cell carcinoma. This is in line with research conducted in the Indian population, which states that the type of adenocarcinoma is most common in lung cancer, which is about 30.9% (Malik et al., 2013). Similarly, the results of research conducted at the Persahabatan Hospital, Jakarta, stating that the most frequently found subtype was adenocarcinoma, which is around 151 people (90.4%); followed by squamous cell carcinoma 11 (6.6%) [10].

Cigarette smoke will produce polycyclic aromatic hydrocarbons (PAHs) and tobacco-specific N-nitrosamines (TSNAs), which can affect the histopathological features of cancer cells. PAHs are carcinogens that can induce lung cancer squamous cell carcinoma type, whereas TSNAs can induce lung cancer adenocarcinoma type [11].

Most lung cancer patients in this study were diagnosed at the end-stage. Two major themes occur. The first issue is that there appears to be a lack of recognition of the presenting symptoms from lung cancer. Many patients delay presenting to their doctor because they initially think the symptoms are not serious. Once they do present to a doctor, they often receive treatments such as antibiotics, inhalers or cough syrup that would be more appropriate treatments for infection. The presence of such typical symptoms may result in more uncertainty about the initial diagnosis and longer time to diagnosis. The other significant issue is the time taken to complete diagnostic investigations. Our patient sample saw several doctors commencing treatment and had investigations ordered by multiple physicians. This complex diagnostic process adds considerable time to the entire process [12].

Overall, this study showed the demographics and characteristics of lung cancer patients in Medan, Indonesia. Delay in diagnosis and treatment has become the main problem of lung cancer in Indonesia. Further awareness should be implied to make an early diagnosis, particularly for those with a high risk of lung cancer.

In conclusion, lung cancer occurs most often in active smokers in the age group above 50 years. The most dominant type of histopathology is adenocarcinoma and is frequently diagnosed in the late stages.

Acknowledgement

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