RESEARCH ARTICLE

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Characteristics of Lung Cancer Patients at Dr. Soedarso Hospital Pontianak from 2017 to 2019

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ABSTRACT

Background: Lung cancer is the second most commonly diagnosed malignancy and the leading cause of death in 2020. Preliminary studies from 2014 to 2019 at Dr. Soedarso Hospital Pontianak showed there was an increase in lung cancer cases. This study aimed to determine the clinical profile of patients with lung cancer in Dr. Soedarso Hospital

Methods: This epidemiological study used medical records from patients diagnosed with lung cancer at Dr. Soedarso Hospital Pontianak from 2017 to 2019. It was a cross-sectional study, and 81 samples met the criteria. The inclusion criteria are the completeness of data and the results of cytopathology laboratory examinations. The data were processed using Microsoft Excel.

Results: In this study, based on the characteristics of patients diagnosed with lung cancer in Dr. Soedarso Hospital, 82.7% are male with an average diagnosed age of 54.8 years, and 72.8% of patients do not have a smoking history. The common symptoms of patients are shortness of breath (77.8%), chest pain (55.6%), and weight loss (30.9%). The most common type is Non-Small Cell Lung Carcinoma (NSCLC) specifically Adenocarcinoma (76.5%).

Conclusion: This study shows that lung cancer incidence in males was higher than in females, and most patients diagnosed did not have a smoking history. The most common symptom of patients is shortness of breath with the most common type of cytopathology results being adenocarcinoma.

INTRODUCTION

Cancer is a term to describe the abnormal growth of cells [1]. Cancer is one of the significant public health problems worldwide. According to GLOBOCAN 2018, it is estimated that there are 18.1 million cases and 9.6 million deaths from cancer worldwide. Lung cancer is the most frequently diagnosed cancer (11.6% of total cases) and the leading cause of cancer death (18.4% of total cancer deaths) [2,3].

In Indonesia, lung cancer has been placed in the third rank after breast and cervical cancers and accounts for the highest incidence of cancer in males and fourth in females [3]. In West Kalimantan, one of Indonesia's significant provinces, lung cancer cases at Dr. Soedarso Hospital Pontianak from 2014 to 2019 continued to increase every year.

Histopathology of lung cancer is classified into two categories: Small Cell Lung Carcinoma (SCLC) and Non-Small Cell Lung Carcinoma (NSCLC) with subtypes including Squamous Cell Carcinoma (SCC), Large Cell Carcinoma (LCC), and Adenocarcinoma (ADC) [4]. The type of lung cancer can be established through pathological examinations in biopsy and cytology. The accuracy of diagnosing lung cancer is crucial in the treatment. The cytological examination itself is a suitable method of diagnosis, especially with a fine needle aspiration biopsy (FNAB) for diagnosis [5,6]

The characteristics of lung cancer patients are varied, and there are no definite symptoms that indicate that someone has been diagnosed with lung cancer. The patients come to the hospital the common respiratory symptoms such as chest pain, shortness of breath, and cough. Early detection of lung cancer is still tricky, limited only to groups of patients with specific criteria such as age over 40 years, a history of smoking, and the presence of other supporting risk factors [7,8].

In West Kalimantan, epidemiological data on lung cancer are difficult to find, and the latest research on lung cancer is rarely found. This study was conducted because of the lack of research on lung cancer patients in West Kalimantan. The results of this study can be used as a reference to determine the development of lung cancer in West Kalimantan in recent years.

METHODS

This epidemiological study determines the characteristics of lung cancer patients. Data collection refers to the International Classification of Diseases for Oncology (ICD-0) with code C34 for all types of malignant neoplasm of the bronchus and lung. This cross-sectional study was conducted on 81 lung cancer patients at Dr. Soedarso Hospital Pontianak from 2017 to 2019 using medical records with a total sampling technique. Inclusion criteria include completeness of data and the results of cytopathology laboratory examinations.

The variables in this study included gender, age, smoking history, clinical features in the form of chronic cough, coughing up blood, shortness of breath, chest pain, hoarseness, and weight loss. The results of cytopathology laboratory examinations were processed using Microsoft Excel.

RESULTS

The characteristics of lung cancer patients at Dr. Soedarso Hospital Pontianak from 2017 to 2019 can be seen in **Table 1.**

Distribution of data on patients with lung cancer using univariate analysis assessment results. Based on **Table 1**, it was found that patients with the most lung cancer diagnoses were male (82.7%) in the 50–59 year age group, with AN average age of 54.8 years. A total of 72.8% of the patients did not have a smoking history. The findings of complaints that brought patients to come for the first time were shortness of breath (77.8%), chest pain (55.6%), and weight loss (30.9%). Lung cancer patients usually come with more than one complaint. The most common type of cytopathology was NSCLC with Adenocarcinoma subtype (62 cases OR 76.5%) followed by SCC (13 cases or 16.1%).

Table 1. Characteristics of lung cancer patients

Characteristics	N (N=81)	%
Gender		
Male	67	82.7
Female	14	17.3
Age		
20–29	3	3.7
30–39	9	11.1
40–49	13	16.1
50–59	29	35.8
60–69	15	18.5
70-–9	12	14.8
≥80	0	0
Smoking History		
Smoker	22	27.2
Non-Smoker	59	72.8
Clinical Manifestation		
Shortness Of Breath	63	77.8
Chest Pain	45	55.6
Chronic Cough	18	22.2
Hemoptysis	15	18.5
Hoarseness	1	1.2
Weight Loss	25	30.9
Type of Cytopathology		
Adenocarcinoma	62	76.5
Squamous Cell Carcinoma	13	16.1
Large Cell Carcinoma	0	0
Small Cell Lung Carcinoma	0	0
Others	6	7.4

DISCUSSION

Males are the most frequently diagnosed in this study. Another study conducted by Pradnyaandara et al. [9] found that 61.4% of patients diagnosed were male. Epidemiological data show that lung cancer is the leading cause of morbidity and mortality in males and is the leading cause of death in most regions in Eastern Europe, West Asia, North Africa, and certain countries in East Asia (China) and Southeast Asia. (e.g., Myanmar, Philippines, and Indonesia) [3]. Smoking habits are pretty high in males, increasing around 70% of mortality due to smoking [7].

The youngest age of patients diagnosed with lung cancer is in the age group of 15–20 years, with the incidence of lung cancer continuing to increase with age and as they entered the age of > 40 years [10,11]. The distribution of the data showed that lung cancer was diagnosed on average at the age of 54.8 years. Another similar study conducted by Hulma et al. [6] found that the most diagnosed patients were in the age group of > 40 years (85.2%), with an average age of 56.29 years. Increasing age can cause a person to be more susceptible to various risk factors for disease, especially lung cancer. Changes in metabolism and cell defense mechanisms in the body can also affect the development of carcinogens in a person's body in old age [8,12].

Smoking is often related to lung cancer incidence. Cigarette smoke inhaled by humans can cause cell

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mutations in the body. Cigarette smoke contains carbon monoxide (CO), nicotine, polycyclic aromatic hydrocarbons (PAH), tar, bencopyrenes, nitroso-nor-nicotine, cadmium, hydrogen cyanide, vinyl chloride, toluene, arsenic, etc. These substances trigger cancer cells to develop. The study conducted by Hulma et al. [6] and Tarigan et al. [13] showed that 66.4% of lung cancer patients were mostly active smokers, and more than 80% had a history of smoking, but this study found that 72.8% of patients did not have a history of smoking.

The percentage of smoking in the population aged > 15 years in West Kalimantan Province from 2016 to 2021 did not significantly decrease. The number of smokers in 2016 was 28.1%, and in 2021 it was 27.9% [14]. The high smoking rate in West Kalimantan can be a risk factor for lung cancer cases although most patients diagnosed did not have a history of smoking in this study. Risk factors are not limited to cigarettes; other risk factors such as passive smoking, radon exposure, environmental exposure (indoor air pollution, asbestos, arsenic, and others), a history of lung disease, and genetic factors cannot be ignored.

The National Disaster Management Agency has designated West Kalimantan as one of the provinces prone to forest and land fires, so the occurrence of smog is almost routine every year, especially during the dry season. Pollutants contained in the smoke of forest and land fires have a terrible impact on healthy organs that can cause respiratory problems, decreased lung function, and lung inflammation. They also have adverse effects on the immune system and body mechanisms in neutralizing inhaled foreign materials. Environmental influences in West Kalimantan can be one of the risk factors that can be considered regarding the incidence of lung cancer in this study [15].

In this study, the general symptoms of the patients were shortness of breath (77.8%), chest pain (55.6%), weight loss (30.9%), chronic cough (22.2%), hemoptysis (18.5%), and, rarely, hoarseness (1.2%). In another study conducted by Tarigan et al. [13], the general symptoms found were cough (39.6%), chest pain (22.4%), and shortness of breath (38.1%), a clinical manifestation showing the results of symptoms such as respiratory disease in general. Early detection of lung cancer is very difficult [7]. Symptoms of weight loss, coughing up blood, and hoarseness usually appear if the diagnosed patient has shown deteriorating body condition due to cancer and metastases [16–18].

Adenocarcinoma (76.5%) was the subtype of NSCLC, the most diagnosed in this study. The research conducted by Pradnyaandara et al. [9] showed that the type of lung cancer with the highest incidence rate is adenocarcinoma type (66.9%). NSCLC accounts for 85% of lung cancer cases, while SCLC accounts for only 15% of cases [8]. Determining the correct type of lung cancer is very important because it is closely related to the type of therapy for patients. Treatment for lung cancer varies, including surgery, chemotherapy, radiation therapy, and combined therapy. The early-stage prognosis of this type of NSCLC is better than SCLC. The SCLC type develops more rapidly and usually spreads in the early stages of disease progression; although SCLC-type cancers are radiosensitive and chemosensitive, 95% of patients die [19,20].

CONCLUSIONS

The characteristics of lung cancer patients at Dr. Soedarso Hospital Pontianak from 2017 to 2019 showed that lung cancer was more common in male patients (82.7%) in the age range of > 40 years (85.2%). This study found that 72.8% of patients did not have a history of smoking. The top three common symptoms were shortness of breath (77.8%), chest pain (55.6%), and weight loss (30.9%). The highest type of cytopathology was NSCLC, specifically the adenocarcinoma subtype (76.5%).

DECLARATIONS

Competing of Interest

The authors declare no competing interest in this study.

Ethics Approval

This study has passed the ethical review by the Health Research Ethics Committee of Dr. Soedarso Hospital Pontianak with Letter Number 02.04 / RSDS / KEPK / 2021.

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