Characteristics and Treatment of Pneumonia Patients at Cut Meutia General Hospital North Aceh in 2022

Muhammad Kautsar[1], Cut Khairunnisa[2]

[1]Medical Study Program, Faculty of Medicine, Universitas Malikussaleh, Aceh, Indonesia;
[2]Departement of Public Health, Faculty of Medicine, Universitas Malikussaleh, Aceh, Indonesia.

Correspondence: cut.khairunnisa@unimal.ac.id

Abstract

Pneumonia, an acute respiratory infection affecting the lungs, manifests as inflammation of lung parenchyma and can be caused by various infectious agents such as bacteria, fungi, viruses, and chemical substances. Pneumonia is a global health issue due to its high mortality rates, not only in developing countries but also in developed nations. There are 450 million recorded cases of pneumonia each year, resulting in approximately 4 million deaths. Length of stay for pneumonia patient is crucial as it correlates with the severity of the patient's condition and the associated costs or patient insurance. The general objective of this research is to determine the characteristics and treatment of the patient with the length of stay of pneumonia patients' hospitalization at Cut Meutia General Hospital in North Aceh in 2022. This study employs a descriptive approach with a cross-sectional method, by collecting medical record data from 107 samples aged >18 years through total sampling. The research findings indicate that the majority of hospitalized pneumonia patients are aged > 60 years, categorized as elderly, male, with comorbidities, receiving non-ICU treatment. Mostly undergoing monotherapy antibiotics, and the majority of patients are discharged with improvement, with length of stay for < 7 days.

Keywords: Pneumonia, infection, characteristics, treatment

Introduction

The World Health Organization (WHO) defines pneumonia as an acute respiratory infection affecting the lungs in the form of inflammation of the lung parenchyma that can be caused by various infectious agents, namely bacteria, fungi, viruses, and chemicals[1,2]. Pneumonia

is not a single disease but a group of specific infections that each have different pathogenesis, presentation, epidemiology, and clinical course[3].

Pneumonia is a global health problem because it causes high mortality rates, not only in developing countries such as Indonesia, but also in developed countries such as Canada, the United States, and European countries. The WHO report states that acute respiratory infections including pneumonia are the highest cause of death from infectious diseases in the world [4]. There are 450 million cases of pneumonia recorded each year. Around 4 million people die from pneumonia, accounting for 7% of the total deaths of 57 million people [5]. The highest incidence occurs in children under 5 years of age and in adults over 75 years of age [6]. The incidence of pneumonia in developing countries can be five times higher than in developed countries [7].

RISKESDAS 2018 stated that the prevalence of pneumonia in Indonesia was 2%, an increase from 2013, which was around 1.8% [8]. Pneumonia cases in Aceh province ranked fifth in Indonesia in 2018 with a prevalence of 2.5% [9]. The highest cases of pneumonia in Aceh Province were in North Aceh followed by East Aceh, Pidie, Bireuen and Banda Aceh [10]. According to RISKESDAS 2018 data, the prevalence of pneumonia according to the diagnosis of health workers in North Aceh was around 1.99% [10]. The number of pneumonia cases continues to increase with age. Based on RISKESDAS data in 2018, it was around 2.5% in the 55-64 age group, 3.0% in the 65-74 age group and reached 2.9% in the 75 and over age group [8]. In Aceh province itself, the prevalence of pneumonia shows an increase with age. In the 54-64 age group around 3.73%, in the 65-74 age group 3.97%, and the highest incidence occurs in the age group over 75 years reaching 5.67% [9].

Body immunity decreases with age, the decline in the body's immune system begins at the age of 50 years. According to the Indonesian Lung Doctors Association (PDPI), pneumonia patients are at greater risk of death in male patients, over 65 years of age and have comorbidities [11,12].

Male gender is associated with an increased risk of pneumonia and worse lung prognosis in various clinical conditions, including post-traumatic pneumonia and community-acquired pneumonia with a higher risk of re-hospitalization [13-15]. RISKESDAS 2018 data shows that the prevalence of pneumonia in Aceh Province is higher in men, namely 2.73% compared to women, namely 2.23% [9]. The length of hospitalization of pneumonia patients is closely related to the severity of the patient's illness and the patient's source of financing or insurance[16]. The American Thoracic Society (ATS) states that community-acquired pneumonia patients have an average length of stay of between 5-10 days, while patients who are hospitalized for more than 10 days include elderly patients with comorbidities [17]. Pneumonia patients with elderly age have a relatively longer hospitalization period, one of which is related to difficulty with oral intake and decreased functional status [18]. Based on an initial survey by researchers at Cut Meutia General Hospital, North Aceh throughout 2022, cases of pneumonia that were hospitalized were quite high. The high incidence of pneumonia at Cut Meutia General Hospital, North Aceh made researchers interested in

finding out more about the characteristics and treatment of patients with a long hospitalization of pneumonia patients at Cut Meutia General Hospital, North Aceh in 2022.

Material and methods

The type of research used is descriptive with a cross-sectional method, by collecting medical record data to see the relationship between patient characteristics and types of treatment with the length of stay of pneumonia patients at the Cut Meutia General Hospital, North Aceh in 2022. The study was conducted at the Cut Meutia General Hospital, North Aceh Regency, from March to December 2023. The population in this study were all pneumonia patients over the age of 18 who were treated at the Cut Meutia General Hospital from January to December in 2022.

The sample of this study was all inpatient pneumonia patients who met the inclusion and exclusion criteria. The inclusion and exclusion criteria for this study. The inclusion criteria are all patients diagnosed with pneumonia, over the age of 18 and hospitalized at the Cut Meutia General Hospital in the period January-December 2022. The exclusion criteria are patients whose medical record data is incomplete and patients who are not given antibiotic therapy. The sample size to be used is the entire population that meets the inclusion and exclusion criteria using the total sampling technique, namely a sampling technique where the sample size is the entire population that meets the inclusion and exclusion criteria, as many as 107 inpatient pneumonia patients at Cut Meutia Hospital, North Aceh from January-December 2022. In this study, the variables studied were length of hospitalization, age, gender, comorbidities, type of treatment, type of antibiotic therapy and patient outcomes.

The data collected in this study were secondary data, namely data obtained by researchers from patient medical records. The stages carried out to obtain data or data collection are the researcher takes care of the permit letter at the FK Campus, Malikussaleh University to request to conduct research, the researcher has received an EC submission from the FK Ethics Commission, the researcher submits a research application letter to the General Section of Cut Meutia Hospital, the researcher takes a cover letter from the training section and gives it to the medical records unit of Cut Meutia Hospital, the researcher selects patients based on inclusion and exclusion criteria, the researcher collects medical record data, the researcher processes and analyzes data and interprets the results and conclusions of the study. The data collected is then entered into Microsoft Excel and SPSS for analysis. The statistical analysis used in this study is univariate analysis to determine the frequency distribution and percentage of each variable studied.

Results

Univariate analysis shows the characteristics of pneumonia patients hospitalized at Cut Meutia General Hospital, North Aceh from January to December 2022. The majority of patients were aged ≥ 60 years (elderly) at 45.8% (49 patients), while the minority were aged 19-44 years (adults) at 24.3% (26 patients). The majority of patients were male at 71% (76

patients) compared to the female category at 29% (31 patients). The majority of patients had comorbidities 84.1% (90 patients), and a small portion did not have comorbidities 15.9% (17 patients).

Table 1 Characteristics of pneumonia patients

Characteristics	Frequency (n=107)	Percentage (%)
Age		
Adults: 19-44 years	26	24,3
Pre-Elderly: 45-59 years	32	29,9
Elderly: ≥ 60 years	49	45,8
Gender		
Male	76	71,0
Female	31	29,0
Comorbidities		
Yes	90	84,1
No	17	15,9

The results of univariate analysis showed that the majority of patients received non-ICU care of 95.3% (102 patients), while the minority received ICU care of 4.7% (5 patients). The majority of the types of antibiotic therapy received by patients were monotherapy of 82.2% (88 patients) compared to combination therapy of 17.8% (19 patients). The majority of patients went home with improvement of 99.1% (106 patients), and a small number of patients were referred 0.9% (1 patient).

Table 2. Description of types of treatment, types of therapy and outcomes of pneumonia patients

Description	Frequency (n=107)	Percentage (%)
Type of treatment		
ICU treatment	5	4,7
Non-ICU treatment	102	95,3
Type of therapy Antibiotics		
Monotherapy	88	82,2
Combination therapy	19	17,8
Outcome		
Discharge with improvement	106	99,1
Death	0	0
Hospital transfer	1	0,9

The description of the length of hospitalization of pneumonia patients who were hospitalized at Cut Meutia General Hospital, North Aceh from January to December 2022. From the results of univariate analysis, it was found that the majority of patients were hospitalized for <7 days, amounting to 72% (77 patients), while the minority were hospitalized for ≥ 7 days, amounting to 28% (30 patients).

Table 3 Overview of length of hospital stay for pneumonia patients

Description	Frequency (n=107)	Percentage (%)
Length of stay		
< 7 days	77	72
≥ 7 days	30	28

Discussion

The results of this study explain the characteristics of pneumonia patients who were hospitalized at Cut Meutia Aceh Utara Hospital from January to December 2022, totaling 107 patients as the study sample. The majority of patient characteristics are in the age group ≥ 60 years (elderly) at 45.8%. Elderly patients are the largest group because the elderly are susceptible to pneumonia infection. This is likely due to ineffective mucociliary clearance due to weakening of the respiratory muscles, disorders of the respiratory tract clearance system, decreased lung elasticity, and decreased immunity [19]. The results of this study are in line with the research of Aljufri et al., where the majority of pneumonia patients are in the age group > 60 years with a percentage of 59.18% [20]. These results are also in line with previous research by Lopardo et al., the main risk factor for pneumonia is increasing age. The annual incidence of pneumonia in adults ranges from 1.07 to 14 per 1,000 people per year and has not changed much in the last few decades [21].

The results of the study showed that the majority of patients were male at 71% compared to the female category at 29%. Factors that can influence the number of men who become pneumonia patients are that men tend to have higher work activities than women. The potential for men to get pneumonia is greater because men more often do activities and work outside the home. This makes men more susceptible to inhaling air that has been polluted, especially chemicals that can trigger pneumonia [22]. According to Henig et al, in adults, male gender and smoking behavior are risk factors for CAP [23]. The results of this study are in line with the results of the study by Hardiana et al where male patients (55.81%) experienced pneumonia more often than women (44.19%) [23]. And this study is also in line with research conducted by Cillóniz et al., which concluded that the annual incidence of CAP in Asia is estimated to reach 16.9 cases per 1,000 people per year, which occurs more frequently in men than women in all age groups (15.6: 9.3 per 1,000 people per year) [25].

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The results of this study also showed that most patients went home with 99.1% improvement, and a small number of patients were referred 0.9% and no patients were reported to have died 0%. This is because it is related to the accuracy of doctors and hospital medical personnel who provide appropriate treatment therapy. This is in line with research conducted by Setiadi et al, where the majority of patients went home with 52.5% improvement [33]. The results of the study showed that the majority of patients were hospitalized for <7 days, 72% (77 patients), while the minority were hospitalized for ≥7 days, 28% (30 patients). This is in line with research conducted by Farida et al, where the majority of pneumonia patients were hospitalized for 1-7 days, 81.8% [21]. The length of hospitalization of pneumonia patients is in line with the length of antibiotic administration to the patient. Antibiotic therapy for pneumonia patients is generally given for 3-7 days so that the majority of patients are allowed to go home after being hospitalized for 3-7 days. However, if the patient's condition has not improved, antibiotic therapy can be continued for up to 14 days [32]. Other factors that affect the length of hospitalization of patients are the presence of other diseases that accompany the patient's condition other than pneumonia itself, also due to hospital administration. This is in line with research by Setiadi et al, which found that the average length of hospitalization for pneumonia patients was 5 days [33].

Conclusion

It was found that the majority of pneumonia patients who were hospitalized were aged ≥ 60 years with the elderly category, were male and had comorbidities. The majority of patients received non-ICU care, the majority of the types of antibiotic therapy received by patients were monotherapy, and most patients went home with improvement. The majority of the length of stay of pneumonia patients was <7 days.

Disclosure

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