Original Article

Profile of COVID-19 Patients at Arifin Achmad Hospital, Riau Province Between January 2021 and June 2021

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Abstract

Background: Coronavirus disease 2019 (COVID-19) is a disease caused by a new coronavirus called severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2, previously called 2019 novel coronavirus) which was first identified in Wuhan City, Hubei Province, China. World Health Organization declared COVID-19 a global pandemic on March 12 2020 and until June 2021 there were 184 million cases with 3.9 million deaths worldwide. In Indonesia, until June 2021 there have been 2.2 million positive cases of COVID-19 and 60 thousand deaths.

Method: The data collection method used in this study is a descriptive cross-sectional approach. According to the inclusion criteria, samples were collected for six months, and the results are shown as a distribution table.

Results: The number of patients treated for the period from January to June 2021 totaled 1,442 people. The highest number of patients treated according to age was middle-aged (40.6%) and children (1.1%). The number of COVID-19 patients based on length of treatment from January to June was suspected (2-4 days) 28.13%, confirmed (5–45 days) 61.6%, discharged at own request 9.78%, referred 0.48%. The number of cured COVID-19 patients being treated at the Arifin Achmad Hospital in Riau Province from January to June 2021 has recovered 75.9% and died 13.7%.

Conclusion: In Indonesia, until June 2021 there have been 2.2 million positive cases of COVID-19 and 60 thousand deaths. Riau Province as of June 2021 has recorded 70,520 confirmed cases and 1,931 deaths. The Arifin Achmad Pekanbaru General Hospital from March 2020 to June 2021 recorded 1,524 confirmedcases and 148 deaths.

Keywords: confirmed cases, COVID-19, profile of COVID-19 patients

INTRODUCTION

Coronavirus disease 2019 (COVID-19) is a disease caused by a new coronavirus called severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2, previously called 2019 novel coronavirus) which was first identified in Wuhan City, Hubei Province, China.[1]

This virus is a single-stranded ribonucleic acid (single-chain RNA) virus that can be isolated from several types of animals, the last being that this virus originated in bats and then moved to humans. This disease was first reported to the World Health Organization (WHO) on 31 December 2019.[1]

World Health Organization declared COVID-19 a global pandemic on March 12, 2020, and until June 2021 there were 184 million cases with 3.9 million deaths worldwide.[2,3] In Indonesia, until June 2021 there have been 2.2 million positive cases of COVID-19 and 60 thousand deaths.[4] Riau Province as of June 2021 has recorded 70,520 confirmed cases and 1,931 deaths.[5] The Arifin Achmad Pekanbaru General Hospital from March 2020 to June 2021 recorded 1,524 confirmed cases and 148 deaths.[6]

Based on the severity of the case, COVID-19 is divided into asymptomatic, mild, moderate, severe and critical. Asymptomatic COVID-19 patients are in the mildest condition and no clinical symptoms are found in patients. Mild symptoms such as fever, cough, sore throat and no pneumonia.

Moderate symptoms such as fever >38°C, persistent cough, shortness of breath with pneumonia symptoms and SO_2 >93% in room air. Severe symptoms such as fever >38°C, persistent cough, respiratory rate >30x/minute (respiratory distress) with severe pneumonia and SO_2 <93% in room air. COVID-19 patients with critical conditions have symptoms of acute respiratory distress syndrome (ARDS), sepsis and septic shock.[7]

There is very strong evidence that changes in the immune response are correlated with clinical manifestations in COVID-19 infection. The clinical manifestations of COVID-19 patients have a wide spectrum, ranging from asymptomatic, mild symptoms, pneumonia, ARDS, and sepsis to septic shock. Approximately 80% of cases were classified as asymptomatic as well as mild symptoms, 13.8% experienced moderate and severe symptoms, and 6.2% of patients were in critical condition.[8]

Mild symptoms were defined as patients with uncomplicated acute upper respiratory tract infection with symptoms of fever, fatigue, cough, malaise, sore throat and anosmia and did not require oxygen supplementation. In some cases, patients also complain of diarrhea and vomiting.[9,10]

Fever is caused by SARS-CoV2 which is recognized by macrophage cells so that the activation of macrophages activation syndrome (MAS) induces cytokines and chemokines that can invade the hypothalamus thereby increasing the set point of body temperature to increase according to the levels of pyrogen exposed.[9]

Likewise, fatigue and malaise are triggered by the innate immune response to the SARS-CoV-2 antigen. Colonization of the SARS-CoV-2 virus causes edema and inflammation of the oropharyngeal mucosa causing symptoms of sore throat and painful swallowing. Colonization

creates inflammation of the nasopharyngeal mucosa which affects the olfactory nerve (NI) and causes disturbance of smell or anosmia. Colonization that causes inflammation of the mucosa and papillae of the tongue then affects the facial nerve (N.7) causing disturbances of taste or augesia.[9]

Expression of the angiotensin-converting enzyme (ACE2) receptor on epithelial cells in various organs causes a wide spectrum of clinical manifestations of COVID-19. It was reported that the expression level of ACE2 receptors in gastrointestinal and kidney epithelial cells was higher than expression in epithelial cells of other organs, so symptoms of heartburn, nausea, vomiting and diarrhea were also found in COVID-19 patients.[11]

Symptoms of shortness of breath or no chest discomfort are caused by acute inflammation due to the innate immune response in the alveoli which interferes with the respiratory ventilation system resulting in ventilation and perfusion mismatch (V/Q mismatch) and shunting which causes hypoxemia.[12]

Moderate symptoms are defined as patients with clinical signs of pneumonia without signs of hypoxemia (SpO_2 >92%) but need oxygen supplementation. In this degree of COVID-19, there are manifestations of silent hypoxia or happy hypoxia. The patient did not complain of tightness or chest discomfort but showed decreased saturation. This is caused by the damage that occurs in the alveoli with an even distribution so that symptoms of shortness of breath do not arise.[13–16]

Severe symptoms are defined as patients with clinical signs of pneumonia, plus one of the following symptoms, namely increased respiratory rate >30x/minute, severe respiratory distress, or oxygen saturation <93% without oxygen support. Critical symptoms are defined as patients with clinical pneumonia and complications such as ARDS, multi-organ dysfunction syndrome (MODS), sepsis or septic shock.[9,12–17]

A critical degree of COVID-19 occurs after the 7th day of the incubation period. This situation is caused by many factors such as SARS-CoV-2 virulence, strains, mutations, viral load, and viral titers with innate and adaptive immune response factors in patients.[9,12–17]

The course of the disease begins with an incubation period of about 5 days. Then the higher the virus titer causing fever and other symptoms according to severity. Then if there is an increase in the immune response followed by a collection of symptoms of chest discomfort with decreased saturation, this condition enters the pneumonia phase. During this phase, there is also an increase in inflammatory markers and hypercoagulation begins.[18] If not resolved, the next phase is systemic inflammation, a cytokine storm occurs which results in ARDS, sepsis, and other complications.[19]

METHOD

The study is a cross-sectional descriptive study using secondary data

collected from patients in the PINERE (*penyakit infeksi new emerging dan re-emerging*) Ward of the Arifin Achmad Hospital in Pekanbaru between January 2021 and June 2021. Patients who satisfied the inclusion criteria, were all patients treated in the PINERE 1, PINERE 2, PINERE 3 wards and the RICU from January to June 2021.

RESULTS

The number of patients treated for the period from January to June 2021 totaled 1442 people. The highest number of patients treated according to age was middle age as much as 40.6% and childhood as much as 1.1%.

Table 1. Age Characteristics of Research Samples (N=1442)

Age (years)	N	%
Toddler (0-5)	121	8.4
Childhood (6-11)	16	1.1
Adolescence (12-25)	92	6.4
Young age (26-45)	456	31.6
Middle age (46-65)	585	40.6
Old age (>65)	172	11.9

Table 2. Characteristics of PINERE Ward Patients Based on Length of Treatment Days (N=1442)

Characteristics of length of stay (days-months)	N	%
Suspect (2-4 days)	399	27.7
Confirmed (5-45 days)	892	61.9
Discharged at Own Request	144	9.99
Referred	7	0.48

Table 3. Recovery and Died Patients (N=1442)

Characteristics of patients	N	%
Recovery/ Discharged	1.094	75.9
The patient died	197	13.7

DISCUSSION

Between January 2021 and June 2021, 1442 patients were hospitalized and received treatment at Arifin Achmad Hospital Pekanbaru's PINERE ward. This study is based on age 585 (40,6%) patients in middle age and 456 (31,6%) patients in young age. According to data from the Ministry of Health Indonesia, the highest positive cases of COVID-19 were experienced by the age group 31-45 years, namely 29,05% of cases. Meanwhile, positive cases for the age group 0-5 were 2,9% cases.[4]

In this study group, there were 8,4% inward patients that hadn't been confirmed the COVID-19 status until discharged. There were 61.6% of cases confirmed COVID-19 with a mean length of stay was 5 to 45 days.

The number of cured COVID-19 patients being treated at the Arifin Achmad Hospital in Riau Province from January to June 2021 has recovered 75.9%. As of 24 November 2021, the total number of confirmed cases of COVID-19 in the world is 258,164,425 cases with 5,166,192 deaths (CFR 2.0%) in 204 affected countries and 151 community transmission countries and there have been 194,102,700 patients (75.2%) have recovered from the disease.[2,3]

The recovery rate of patients in the subjects of this study was almost the same as global conditions. This is different from the recovery rate in Indonesia based on data from the Ministry of Health of the Republic of Indonesia which reached

96.4%. The Ministry of Health of the Republic of Indonesia has taken action to improve efforts to deal with COVID-19 in Indonesia, referring to WHO temporary guidelines on the novel coronavirus.[4]

The number of COVID-19 patients treated at Arifin Achmad Hospital in Riau Province from January to June 2021 who died was 13,7%. In Indonesia, until June 2021 there have been 2.2 million positive cases of COVID-19 and 60 thousand deaths.[4] Riau Province as of June 2021 has recorded 70,520 confirmed cases and 1,931 deaths.[5]

The Arifin Achmad Pekanbaru General Hospital from March 2020 to June 2021 recorded 1,514 confirmed cases and 148 deaths.[6] This means that 2.16% of confirmed COVID-19 cases were treated at Arifin Achmad General Hospital and 7.7% of deaths due to COVID-19 in Riau province were recorded. Further research is needed to determine the cause of death in the other 6% of patients.

CONCLUSION

Based on the results and discussion that has been described in this study, the results obtained from 1442 samples with various characteristics, it was concluded that the highest age group was obtained at the age of 26-45 years and 46-65 years. The number of confirmed COVID-19 patients based on the length of treatment from January to June about 5-45 days was 61.6%. The number of cured COVID-19 patients being treated at the Arifin Achmad Hospital in Riau Province from January to June 2021 has recovered 75,9%. Medical services are advised to provide appropriate action and adequate therapy, to avoid the severity and complications that will arise.

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