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Clinical characteristics of confirmed patients with COVID-19: A perspective from tropical region

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Clinical characteristics of confirmed patients with COVID-19: A perspective from tropical region

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ABSTRACT

Introduction: There is a growing number of studies on coronavirus disease 2019 (COVID-19) but data analysis focusing on clinical characteristics in the tropics has not been widely carried out. This study aimed to analyze demographic characteristics, symptoms, length of stay, laboratory results at hospital admission, and the final outcome of infected patients in the tropics in confirmed COVID-19 patients.
Methods: This retrospective study analyzed medical records including socio-demography, clinical manifestations, length of stay, comorbidities, laboratory data, and disease outcomes of 128 COVID-19 patients hospitalized, with confirmed COVID-19 infection results. Existing data were compared using Fisher's Exact Test or Chi Square (X2), determining the difference in the median value which was then assessed using Mann-Whitney.
Results: The mean age of the patients was 50 years, the most common comorbidity was diabetes mellitus 18.8%, the most common symptom was dyspnea 36.7%.
Conclusion: In general, studies conducted to analyze the clinical characteristics of confirmed COVID-19 patients show that the clinical picture of COVID-19 patients in the tropics is generally similar to previous studies. Older age, comorbid patients and patients with dyspnea may help identify a higher risk of death.

Keywords: clinical characteristics, covid-19, tropical region.
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INTRODUCTION

Coronavirus disease 2019 (COVID-19) is a disease caused by the Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) virus which is currently endemic and has caused significant morbidity and mortality worldwide.[1] The presence of COVID 19 is manifested by several symptoms ranging from asymptomatic, to severe illness and even death.[2] Diagnostic procedures were developed based on epidemiological data and clinical characteristics of patients. Clinical characteristics that occur in patients with COVID-19 include cough, shortness of breath, or difficulty breathing, fever, chills, muscle aches, sore throat, loss of taste or smell, and less often nausea, vomiting, diarrhea.[3] Screening for symptoms and especially measuring body temperature is the first step to identify individuals who have the potential to suffer from COVID-19.[4] Research on coronavirus disease 2019 (COVID-19) is increasing, but data analysis that focuses on clinical characteristics in the tropic regions has not been widely carried out.

The spread of COVID-19 in Asia is estimated to have a higher incidence and mortality.[5] Indonesia is one of the countries that is significantly affected by the increase in the number of patients every day.[6] With respect to the severity and mortality associated with COVID-19, it is shown that the epidemiology, clinical characteristics, and course of COVID-19 may vary from region to region.[7] Managing COVID-19 cases will be a challenge in Indonesia, especially in the tropic area. The results of previous studies, patients who were confirmed positive for COVID-19 in Indonesia showed that the clinical features of age, comorbidities, and spO2 values were the easiest clinical characteristics to identify the risk of death in patients who were confirmed positive for COVID-19.[8]

The patient's condition and the presence of comorbidity associated with that condition affect the prognosis and progression of COVID-19 disease.[15] Patients with older age, diabetes, hypertension, low PaO2 / FiO2, and delayed treatment are risk factors for serious and fatal illness. The presence of comorbidities in patients with COVID-19 disease is often associated with increased complications and in-hospital mortality.[9] Diseases such as hypertension, diabetes, respiratory system diseases, cardiovascular diseases, and susceptibility conditions may be associated with the pathogenesis of COVID-19.[10] The current pandemic has also brought a new situation related to cardiovascular complications and comorbidities which mainly lead to hypertension and diabetes mellitus.[11]

Preliminary clinical observations suggest that hypertension and diabetes are the most important complications of COVID-19, along with cardiovascular disease, chronic obstructive pulmonary disease and malignancies.[12] Diabetics with COVID-19 infection are at increased risk of being infected with the ICU during infection and are also at increased risk of death.[13] Hypertension is the most common cardiovascular comorbidity that appears to significantly increase the risk of death in patients with COVID-19.[14] Chronic conditions can lead to infections such as pro-inflammatory conditions and decreased innate immune response.[10] The severe and fatal course of COVID-19 is associated with organ damage, especially It affects the heart, liver and kidneys. Coagulopathy can play an important role in organ damage.[15]

Hospital care for patients confirmed positive for COVID-19 can range from general inpatient care to highly dependent oxygen support units to critical care units where patients can be intubated on mechanical ventilation.[5] There are factors such as time from exposure to onset of symptoms, elapsed time from onset of symptoms to hospitalization, and details of the countries surveyed.[16] Length of hospital stay is associated with significantly higher medical costs and associated patients. Understanding early predictive long-term stay risk is critical for early medical decision-making and resource allocation.[7]

Therefore, this study aimed to analyze the determinants of clinical characteristics on the final treatment outcome in COVID-19 patients. New and significant contributions from this study include complex factors regarding symptoms, length of hospitalization, laboratory results at hospital admission as determinants of the final outcome of care in COVID-19 patients.

METHODS

Study Design

This is a retrospective cohort study with confirmed COVID-19 patients at the Surabaya Islamic Hospital, one of 18 hospitals in the city of Surabaya designated for the treatment of COVID-19 patients. Respondents were patients who were hospitalized due to COVID-19 infection. All patients confirmed cases of SARS-CoV-2 infection diagnosed by RT-PCR

Data Collection

The following data were collected from the patient's medical records: demographic information, medical history, clinical signs, symptoms and complications, duration and severity of treatment, laboratory test results, disease progression (death or discharge). Patients were divided into mild, moderate, and severe clinical groups according to the national guidelines for COVID-19 management. Mild clinical groups include fever, 12-20 breaths per minute (RR), mild respiratory symptoms (rhinorrhea, sore throat, cough), joint pain, digestive symptoms (diarrhea and vomiting), etc. Mild clinical symptoms were seen. Moderate clinical group presented: fever, dyspnea. The severe clinical group presented with fever, severe dyspnea, dyspnea, acute respiratory distress syndrome (ARDS), sepsis, and septic shock. Laboratory test results include hemoglobin levels, white blood cell count, D-dimer, creatinine, and x-rays of pneumonia.

Data Analysis

Data were entered and stored in Microsoft Excel 2016. Frequency, rates, and percentages were used to summarize categorical variables, the proportions of which were compared using X2 or Fisher's exact test. Statistical analysis was carried out using the SPSS statistical program version 22.

RESULTS

The characteristics of respondents in this study showed that patients who were confirmed positive for COVID-19 were divided into three categories, namely mild, moderate, and severe degrees. The degree of severity occurred in respondents with an age range of 2 years to 81 years with a median value of 53.77. For gender, most of the respondents are female in all categories with a score of 64.1%. Most of the respondents who were confirmed positive for COVID-19, namely 117 people (91.4%) had comorbidities, and the comorbidities experienced by patients included hypertension, diabetes, heart disease, kidney disease, asthma, and gastritis. Patients not only experience one type of comorbidity but can be more. Next was the length of treatment, whether it was mild, moderate, or even severe, most of which were in the range of 1-29 days of treatment with a median value of 9.04.

Symptoms experienced by patients with confirmed COVID-19, according to table 2 above, show that most of the patients on admission to the emergency room experienced complaints of shortness of breath (36.7%). Other complaints included nausea (33.6%), cough (32.8%), fever (28.9%), weakness (25%), vomiting (19.5), myalgia and arthralgia (15.6%), headache (13.3%), diarrhea (10.9%), influenza (5.5%), and anosmia (3.1%). While the final results during the treatment period at the hospital, most of the patients who were confirmed positive for Covid-19 were able to improve and were allowed to go home, namely 83 respondents (64.8%). Patients who were discharged, at the beginning of admission, were mostly in a mild condition (97.1%). On the other hand, most of the patients who died due to COVID-19 infection were in severe cases (76.7%).

The laboratory results of patients who were confirmed positive for COVID-19 based on table 3 show that most of the respondents entered with pneumonia conditions (86.7%) from the results of the chest examination. Most of the patients had normal hemoglobin values, either mild, moderate, or severe. The leukocyte count (WBC) of COVID-19 positive patients is in the normal range. Patients with severe grades had a higher leukocyte count (51.2%) than patients with mild and moderate grades. For the D-dimer and creatinine examination, most of the respondents were in normal numbers. However, patients with severe COVID-19 grades had higher D-dimer (16.3%) and creatinine (51.2) numbers compared to mild grade patients. and medium.

DISCUSSION

This study describes the clinical course of COVID-19 patients hospitalized in the tropics of Indonesia. Patients diagnosed with COVID-19 in this study were reported as 128 respondents with an age distribution ranging from 2 years to 81

years of age. The morbidity of COVID-19 in children is not as large as adults and shows mild disease, although it needs to be a concern because it has the potential to be a source of transmission and affect public health.[17] Patients with severe degrees of COVID-19 occur in adults and even the elderly. In accordance with the results of previous studies, that the distribution of older age will experience more severe conditions.

This study reported that the distribution of sex, mostly female (64.1%) was more than male. This difference occurs because the study only reported patients who were treated in Islamic hospitals, while the previous research subjects from the community and general hospitals. This study is in line with the results of previous studies that women are less likely to be affected by infection because these patients go to the hospital at an early stage characterized by mild symptoms compared to men who are already in a progressive or severe stage when they arrive at the hospital. However, this study did not conclude the relationship between gender and hospital mortality.

Most of the patients with confirmed COVID-19 in this study did not have a clear epidemiological history, only a small proportion of patients from the positive COVID-19 group had contact with suspected COVID-19 patients who were generally parents or close relatives, and there were no patients who were diagnosed with COVID-19. recorded to have contact with a confirmed COVID-19 patient. This is in contrast to previous studies which reported that most of the patients had contact with confirmed patients and lived in infected areas. Most of the respondents who were confirmed positive for COVID-19, namely 117 people (91.4%) had comorbidities, and the comorbidities experienced by patients included hypertension, diabetes, heart disease, kidney disease, asthma, and gastritis. Patients not only experience one type of comorbidity but can be more. The most common comorbidities are hypertension

Table 1. Demographic characteristics of patients with SARS-CoV-2 infection.

	All Patient (n = 128)	Mild (n = 34)	Moderate (n = 51)	Severe (n = 43)
Variables				
Age (year)	50.71 (2-81)	46.18 (13-74)	51.16 (16-81)	53.77 (2-80)
Sex				
Male	46 (35.9%)	10 (29.4%)	20 (39.2)	16 (37.2)
Female	82 (64.1%)	24 (70.6%)	31 (60.8)	27 (62.8)
Comorbidities				
Any	117 (91.4%)	27 (79.4%)	50 (98%)	40 (93%)
Hypertension	11 (8.6%)	1 (2.9%)	4 (7.8%)	6 (14%)
Diabetes	24 (18.8%)	7 (20.6%)	6 (11.8%)	11 (25.6%)
Heart Disease	19 (14.8%)	1 (2.9%)	11 (21.6%)	7 (16.3%)
Kidney Disease	5 (3.9%)	1 (2.9%)	2 (3.9%)	2 (4.7%)
Asthma / Chronic pulmonary disease	17 (13.3%)	1 (2.9%)	11 (21.6%)	5 (11.6%)
Gastritis	16 (12.5%)	10 (29.4%)	5 (9.8%)	1 (2.3)
Length of stay (day)	9.04 (1-29)	11.15 (4-26)	10.12 (1-25)	6.02 (1-29)

Table 2. Symptoms and outcomes of patients infected with SARS-CoV-2 infection.

	All Patient (n = 128)	Mild (n = 34)	Moderate (n = 51)	Severe (n = 43)
Variables				
Symptom				
Cough	42 (32.8%)	11 (32.4%)	16 (31.4%)	15 (34.9%)
Fever	37 (28.9%)	11 (32.4%)	13 (25.5%)	13 (30.2%)
Nausea	43 (33.6%)	16 (47.1%)	16 (31.4%)	11 (25.6%)
Vomiting	25 (19.5%)	11 (32.4%)	6 (11.8%)	8 (18.6%)
Shortness of breath	47 (36.7%)	-	23 (45.1%)	24 (55.8%)
Myalgia and arthralgia	20 (15.6%)	2 (5.9%)	10 (19.6%)	8 (18.6%)
Anosmia	4 (3.1%)	2 (5.9%)	2 (3.9%)	-
Headache	17 (13.3%)	7 (20.6%)	6 (11.8%)	4 (9.3%)
Diarrhea	14 (10.9%)	5 (14.7%)	5 (9.8%)	4 (9.3%)
Weak	32 (25%)	7 (20.6%)	12 (23.5%)	13 (30.2%)
Influenza	7 (5.5%)	2 (5.9%)	3 (5.9%)	2 (4.7%)
Outcome				
Discharge	83 (64.8%)	33 (97.1%)	40 (78.4%)	10 (23.3%)
Death	45 (35.2%)	1 (2.9%)	21 (21.6%)	33 (76.7%)

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Table 3. Laboratory findings on admission.

	All Patient (n = 128)	Mild (n = 34)	Moderate (n = 51)	Severe (n = 43)
Variables				
Hemoglobin g/dL	13.44 (5.2-19)	13.93 (9.4-17.8)	12.96 (5.2-18.5)	13.6 (7.1-19)
White Blood Cell (WBC), median (IQR)	11.22 (2.3-27.4)	8.42 (3.3-19.7)	10.5 (2.3-30)	14.2 (3.5-27.4)
< 4000	5 (3.9%)	2 5.9%)	2 (3.9%)	1 (2.3%)
4000-12000	69 (53.9%)	25 (73.5%)	28 (54.9%)	16 (37.2%)
>12000	42 (32.8%)	4 (11.8%)	16 (31.4%)	22 (51.2%)
D-dimer mg/mL, median (IQR)	357 (0.3-6770)	450 (0.3-3650)	378 (0.5-6770)	240 (0.3-1550)
<500	74 (57.8%)	19 (55.9%)	34 (66.7%)	21 (48.8%)
≥500	20 (15.6%)	8 (23.5%)	5 (9.8%)	7 (16.3%)
Creatinine mg/dL, median (IQR)	1.54 (0.31-9.9)	0.97 (0.47-3)	1.44 (0.32-7.89)	2.17 (0.3-9.9)
0.6-1.2 mg/dL	69 (53.9%)	25 (73.5%)	31 (60.8%)	13 (30.2%)
>1.2 mg/dL	45 (35.2%)	5 (14.7%)	18 (35.3%)	22 (51.2%)
Pneumonia	111(86.7%)	27 (79.4%)	46 (90.2%)	38 (88.4%)

and diabetes. These comorbidities will be the basis for identifying the symptoms experienced by the patient. Patients with comorbidities report symptoms that are more severe. The length of treatment for patients with COVID-19, whether mild, moderate, or even severe, is mostly in the 1-29 days treatment period. Factors that affect the length of the day of care in COVID-19 patients with comorbid and without comorbid are divided into 2 factors, namely internal factors and external factors. In internal factors, there are several things that influence, namely age, gender, type and degree of disease and comorbidities, while external factors are food and drink consumed, separation from the closest people and hospitalization. In previous studies, comorbid heart disease or hypertension was not associated with an increase in the number of COVID-19 patients who died in hospital.

Symptoms experienced by patients with confirmed COVID-19 indicate that when they enter the emergency room, most of them experience shortness of breath (36.7%). Other complaints include nausea, cough, fever, weak, vomiting, myalgia and arthralgia, headache, diarrhea, influenza, and anosmia. A list of common symptoms can help medical staff identify suspected cases of COVID-19 and determine the severity of the disease so that they can determine effective therapy for COVID-19 patients. While the final results during the hospitalization period, most of the patients who were confirmed positive for COVID-19 were able to improve and were allowed to go home 64.8%. Patients who were discharged, at the beginning of admission, were mostly in a mild condition (97.1%). On the other hand, most of the patients who died due to COVID-19 infection were in severe cases (76.7%). In line with previous studies, that patients with mild or moderate degrees when they first entered the ER, the condition will gradually improve.

Clinical characteristics from the results of supporting examinations of patients with COVID-19 appear typical symptoms on X-ray examination, namely pneumonia is generally found in the form of infiltrates without any characteristic features such as ground glass opacity.[18] Patients with mild degrees may not have these characteristic symptoms. Patients with pneumonia and comorbidities are at higher risk of developing severe pneumonia. The presence of comorbidities in patients with COVID-19 makes diagnosis more difficult because the characteristics of the symptoms are similar to those of pneumonia due to other causes.[18] Efforts to rule out other causes of infection before underdiagnosis, especially in the current epidemic conditions, the follow-up is for patients to be tested for D-dimer. Patients with confirmed COVID-19 with positive PCR results tend to have an increase in the value of D-dimer. Coagulation disorders were measured by the level of D-dimer.[19] The results of previous studies also conveyed that the increase in D-dimer was in line with the severity of the disease. In addition, from the results of this study, patients with severe degrees had an increased leukocyte count. This indicates an inflammatory disorder. So to determine the severity of the disease due to COVID-19 infection, apart from observing the oxygen saturation value, the D-dimer value and leukocyte count can also be identified.[5] Supportive management guidelines and basic conditions and comorbidities used by Islamic Hospitals have followed the guidelines published by WHO.

This study has limitations, namely that the laboratory tests carried out are not comprehensive, such as liver enzyme examinations because liver function abnormalities, especially AST elevations, can significantly also be an indicator of the severity of COVID-19 and also death due to COVID-19. Therefore, identification of clinical characteristics should be added to the examination of liver enzymes.

CONCLUSION

In general, studies conducted to analyze the clinical characteristics of confirmed COVID-19 patients show that the clinical picture of COVID-19 patients in the tropics is generally similar to previous studies. Older age, comorbid of the patients, and patients with dyspnea may help to identify the patients are in the higher risk of death. Further studies are needed to assess the relationship among variables with larger sample size.

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CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

AUTHOR CONTRIBUTION

All authors similarly contribute to the think about from the investigate concepts, information acquisitions, information investigation, factual investigations, changing the paper, until detailing the consider comes about through publication.

ETHICAL CONSIDERATION

The investigators agreed to conduct this study in full agreement with the principles of the Declaration of Helsinki' and its subsequent related amendments. This study was approved by the Ethics Committee of the Surabaya Islamic Hospital. Letter of exemption Ref. No. 1273/EC.KEPK/UMS/2020.

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REFERENCES

1. Arshad Ali S, Baloch M, Ahmed N, Arshad Ali A, Iqbal A. The outbreak of Coronavirus Disease 2019 (COVID-19)-An emerging global health threat. J Infect Public Health. 2020 Apr;13(4):644–6.
2. Goldenfeld M, Nir-Paz R, Segal G, Bar-On E, Mendelson E, Mandelboim M, et al. Characteristics of Clinically Asymptomatic Patients with SARS-CoV-2 Infections, Case Series. Prehosp Disaster Med. 2021 Feb;36(1):125–8.
3. Rong Y, Wang F, Liu J, Zhou Y, Li X, Liang X, et al. Clinical characteristics and risk factors of mild-to-moderate COVID-19 patients with false-negative SARS-CoV-2 nucleic acid. J Med Virol. 2021 Jan;93(1):448–55.
4. Alkundi A, Mahmoud I, Musa A, Naveed S, Alshawwaf M. Clinical characteristics and outcomes of COVID-19 hospitalized patients with diabetes in the United Kingdom: A retrospective single centre study. Diabetes Res Clin Pract. 2020 Jul;165:108263.
5. Jiang F, Deng L, Zhang L, Cai Y, Cheung CW, Xia Z. Review of the Clinical Characteristics of Coronavirus Disease 2019 (COVID-19). J Gen Intern Med. 2020;35(5):1545–9.
6. Harapan H, Itoh N, Yufika A, Winardi W, Keam S, Te H, et al. Coronavirus disease 2019 (COVID-19): A literature review. J Infect Public Health [Internet]. 2020;13(5):667–73. Available from: https://doi.org/10.1016/j.jiph.2020.03.019
7. Hong Y, Wu X, Qu J, Gao Y, Chen H, Zhang Z. Clinical characteristics of Coronavirus Disease 2019 and development of a prediction model for prolonged hospital length of stay. Ann Transl Med. 2020;8(7):443–443.
8. Hafiz MZA, Icksan AG, Harlivasari AD, Aulia R, Susanti F, Eldinia L. Clinical, Radiological Features and Outcome of COVID-19 patients in a Secondary Hospital in Jakarta, Indonesia. J Infect Dev Ctries. 2020;14 7:750–7.
9. Singh AK, Misra A. Impact of COVID-19 and comorbidities on health and economics: Focus on developing countries and India. Diabetes \& Metab Syndr. 2020;14:1625–30.
10. Yang J, Zheng Y, Gou X, Pu K, Chen Z, Guo Q, et al. Prevalence of comorbidities and its effects in patients infected with SARS-CoV-2: a systematic review and meta-analysis. Int J Infect Dis IJID Off Publ Int Soc Infect Dis. 2020 May;94:91–5.
11. Tascioglu D, Yalta K, Yetkın E. Hypertension and diabetes mellitus in patients with COVID 19: a viewpoint on mortality. Cardiovasc Endocrinol \& Metab. 2020;9:108–9.
12. Huang C, Wang Y, Li X, Ren L, Zhao J, Hu Y, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. Lancet (London, England). 2020 Feb;395(10223):497–506.
13. Roncon L, Zuin M, Rigatelli G, Zuliani G. Diabetic patients with COVID-19 infection are at higher risk of ICU admission and poor short-term outcome. J Clin Virol Off Publ Pan Am Soc Clin Virol. 2020 Jun;127:104354.
14. Zuin M, Rigatelli G, Zuliani G, Rigatelli A, Mazza A, Roncon L. Arterial hypertension and risk of death in patients with COVID-19 infection: Systematic review and meta-analysis. Vol. 81, The Journal of infection. 2020. p. e84–6.
15. Wolff D, Nee S, Hickey NS, Marschollek M. Risk factors for Covid-19 severity and fatality: a structured literature review. Infection. 2021 Feb;49(1):15–28.
16. Thai PQ, Toan DTT, Son DT, Van HTH, Minh LN, Hung LX, et al. Factors associated with the duration of hospitalisation among COVID-19 patients in Vietnam: A survival analysis. Epidemiol Infect. 2020 Jun;148:e114.
17. Rodriguez-Gonzalez M, Castellano-Martinez A, Cascales-Poyatos HM, Perez-Reviriego AA. Cardiovascular impact of COVID-19 with a focus on children: A systematic review. World J Clin cases. 2020 Nov;8(21):5250–83.
18. Chan JFW, Yuan S, Kok KH, To KKW, Chu H, Yang J, et al. A familial cluster of pneumonia associated with the 2019 novel coronavirus indicating person-to-person transmission: a study of a family cluster. Lancet [Internet]. 2020;395(10223):514–23. Available from: http://dx.doi.org/10.1016/S0140-6736(20)30154-9
19. Wang D, Hu B, Hu C, Zhu F, Liu X, Zhang J, et al. Clinical Characteristics of 138 Hospitalized Patients With 2019 Novel Coronavirus-Infected Pneumonia in Wuhan, China. JAMA. 2020 Mar;323(11):1061–9.

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