International Journal of Advances in Medicine
Upadhana PS et al. Int J Adv Med. 2024 Sep;11(5):434-437
http://www.ijmedicine.com
pISSN 2349-3925 | eISSN 2349-3933

DOI: https://dx.doi.org/10.18203/2349-3933.ijam20242304

Original Research Article

Clinical characteristics of COVID-19 patients at Bali Mandara hospital

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Received: 19 May 2024
Revised: 17 June 2024
Accepted: 20 June 2024

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ABSTRACT

Background: Coronavirus disease 2019 (COVID-19) is an infectious disease that has spread in various parts of the world, including Bali, Indonesia. This study aims to identify the clinical characteristics of COVID-19 patients at Bali Mandara hospital.
Methods: This research is a descriptive observational study with a cross-sectional approach. This research uses secondary data from medical records at Bali Mandara hospital. The sample in this study was all COVID-19 patients treated at Bali Mandara hospital in the period January 2022-August 2023.
Results: There were 59 patients in this study. Most were female (n=37;62.70%) and aged ≥61 years (n=29; 49.20%) with a median age of 60 years. The median white blood cells and neutrophils to lymphocytes ratio (NLR) in patients were 7.20×10^3/uL and 4.40, respectively. The type of comorbidity most frequently found in patients was hypertension (n=23; 39.00%), followed by kidney disease (n=17; 28.80%) and type 2 diabetes mellitus (n=11;18.60%). Most patients had a hospital stay of ≥6 days (n=40; 67.80%) with a median of 6 days. The prevalence of death in patients was 15.30%. A total of 15 patients suffered from severe COVID-19.
Conclusions: Most of the patients were female and aged ≥61 years. The most common comorbidity found in patients is hypertension. Most patients had a hospital stay of ≥6 days.

Keywords: Clinical characteristic, COVID-19, Bali Mandara hospital

INTRODUCTION

Coronavirus disease 2019 (COVID-19) is a highly contagious disease caused by SARS-CoV-2. This disease has had a worldwide impact, resulting in a total of 6 million deaths worldwide. This disease was first discovered in Wuhan, Hubei Province, China in December 2019. To date, this disease has spread throughout the world.[1] COVID-19 is a challenge for all countries in the world.[2] Symptoms that can be found in COVID-19 include fever, cough, shortness of breath, headache, fatigue, muscle aches and digestive symptoms such as diarrhoea and vomiting. As of February 2021, there have been 106,797,721 cases of COVID-19 worldwide with a death toll of 2,341,145 cases.[3]

In Indonesia, as of August 2023, the number of COVID-19 cases has exceeded 6.8 million cases, with the number of deaths exceeding 161,900 cases, which marks the massive spread of COVID-19 in Indonesia. The number of unconfirmed cases and deaths is estimated to be higher.[4] Until now there has not been much research regarding the characteristics of COVID-19 patients in Bali, especially at the Bali Mandara hospital. This study aims to identify the characteristics of COVID patients treated at Bali Mandara hospital in the period January 2022-August 2023.

METHODS

This research is a descriptive observational study with a cross-sectional approach. This research was conducted in Bali Mandara hospital. This research uses secondary data

from medical records at Bali Mandara hospital. The samples in this study were all COVID-19 patients treated at Bali Mandara hospital in the period January 2022-August 2023. Sampling in this study used a total sampling technique. The inclusion criteria for this study were being >18 years old, and having complete medical record data. Exclusion criteria are patients who receive further referrals to other health facilities, do not have complete medical record data, and medical record data that is not available and cannot be accessed. There were 59 patients included in this study.

The variables examined in this study were socio-demographics (including age and gender), type of comorbidities, severity of COVID-19, laboratory examination results, and patient outcomes (death and longer duration of hospitalization). Data were analyzed using SPSS version 23. This research has received research permission from the health research ethics committee of Bali Mandara hospital with number: 073/EA/KEPK.RSBM.DISKES/2023.

RESULTS

There were 59 patients in this study. Most were female (n=37; 62.70%) and aged ≥61 years (n=29; 49.20%), followed by the age group ≤40 years (n=17; 28.80%), group age 51-60 years (n=9; 15.30%) and age group 41-50 years (n=4; 6.80%). The median age of patients was 60 years (Table 1).

Median white blood cells and NLR in patients were 7.20×10^3/ul and 4.40, respectively. Results of other lab examinations on patients can be seen in Table 2.

The type of comorbidity most frequently encountered in patients was hypertension (n=23;39.00%), followed by kidney disease (n=17; 28.80%) and type 2 diabetes mellitus (n=11; 18.60%). The distribution of comorbidities in patients can be seen in table 3 (Table 3).

Most patients had a hospital stay of ≥6 days (n=40; 67.80%). The prevalence of death in patients was 15.30%. A total of 15 patients suffered from severe COVID-19. Patient outcomes can be seen in Table 4.

Table 1: Sosio-demographic characteristics.

Parameters	N	Percentage (%)
Gender		
Male	22	37.30
Female	37	62.70
Total	59	100.00
Age (in years)		
≤40	17	28.80
41-50	4	6.80
51-60	9	15.30
≥61	29	49.20
Total	59	100.00

Table 2: Laboratory examination results.

Parameters	Median	Minimum-maximum
WBC (×10^3/ul)	7.20	1.60-31.76
Hb (gm/dl)	12.30	5.50-17.70
NLR	4.40	0.70-37.10
SGOT (U/l)	28.00	11.00-182.00
SGPT (U/l)	17.00	5.00-94.00
BUN (mg/dl)	33.00	7.00-260.00
SC (mg/dl)	0.98	0.41-13.69
Random blood glucose (mg/dl)	110.00	67.00-309.00
Sodium (mmol/l)	135.00	96.00-159.00
Potassium (mmol/l)	3.70	1.60-6.00

Table 3: Distribution of comorbidities.

Parameters	N	Percentage (%)
Hypertension		
Yes	23	39.00
No	36	61.00
Total	59	100.00
Kidney disease		
Yes	17	28.80
No	42	71.20
Total	59	100.00
Type 2 diabetes mellitus		
Yes	11	18.60
No	48	81.40
Total	59	100.00

Table 4: Outcomes of the patients.

Parameters	N	Percentage (%)
Death		
Yes	9	15.30
No	50	84.70
Total	59	100.00
Hospital stays of ≥6 days		
Yes	40	67.80
No	19	32.20
Total	59	100.00

DISCUSSION

In this study it was found that the majority of patients were female and aged ≥61 years. The results of this study are in accordance with research conducted at Mekar Sari hospital Bekasi in 2020-2021 which showed that the majority of patients were female (50.9%).[5] The results of this study were also similar to research conducted at Prof. Dr. I. G. N. G. Ngoerah hospital shows that the majority of patients are in the group of >55 years old (51.25%).[6] The spread of COVID-19 is found to be faster in countries with higher rates of elderly. The aging process is associated with dysregulation of the immune system and leads to impaired immune response. An increase in neutrophil count and a decrease in lymphocyte count is associated with increased

mortality in COVID-19 cases. Apart from that, aging is also associated with increased expression of ACE-2 which results in a high incidence of COVID-19 in older age.[7]

Based on one of the laboratory examination results, the median of NLR in patients was high. Inflammation has an important role in development of COVID-19. Patients with COVID-19 have immune system dysregulation, which can be detected by NLR examination. Patients with severe degrees of COVID-19 have higher NLR values than patients with lower degrees of disease. NLR can be used as a marker of the severity of COVID-19. The corona virus causes neutrophils to activate the immune system and release reactive oxygen species which cause damage to cell DNA. Apart from that, COVID-19 also causes a decrease in lymphocyte counts which results in higher NLR values. The higher the NLR value indicates the higher degree of disease severity.[8]

In this study, it was found that the most common comorbidity found in patients was hypertension. The results of this study are in accordance with research conducted in the North Wollo zone which showed that most of the comorbidities found in COVID-19 patients were hypertension.[9] Hypertension is associated with an increased risk of developing COVID-19 and has a worse prognosis.[10] Hypertension is a common comorbidity found in COVID-19 patients. Hypertension causes weakness in the immune system and damage to blood vessels. This results in a higher risk of developing more severe degrees of COVID-19. Hypertension is also associated with increased mortality and longer duration of hospitalization in COVID-19 patients.[11]

In this study, it was found that the majority of patients had a hospital stay of ≥6 days. COVID-19 patients with comorbidities such as hypertension, diabetes and heart disease have a longer duration of hospitalization than patients without comorbidities. The presence of these comorbidities can increase the risk of organ failure. The presence of organ failure means that the patient must be treated even though the patient has recovered from COVID-19.[12] This can result in the patient having a longer duration of hospitalization.

The limitation of this study is that this study was still conducted in one hospital with limited research data variables. Future research can be carried out in more than one hospital with more research variables so that it can provide more representative information regarding the characteristics of COVID-19 patients.

CONCLUSION

In this study, it was found that the majority of patients in this study were female, aged ≥61 years. The most common comorbidity is hypertension, followed by kidney disease and type 2 diabetes mellitus. Most patients had a hospital stay of ≥6 days. This study provides information about the characteristics of COVID-19 patients so that it can improve the quality of health services to COVID-19 patients.

ACKNOWLEDGEMENTS

Authors would like to express our gratitude to all of the staff in Bali Mandara hospital for all of the supports in this research.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Cascella M, Rajnik M, Aleem A, Dulebohn SC, Di Napoli R. Features, Evaluation, and Treatment of Coronavirus (COVID-19). In: StatPearls. Treasure Island (FL): StatPearls Publishing; 2024. Available at: https://www.ncbi.nlm.nih.gov/books/NBK554776/. Accessed on 12 April 2024.
2. Shi Y, Wang G, Cai XP, Deng JW, Zheng L, Zhu HH, Zheng M, Yang B, Chen Z. An overview of COVID-19. J Zhejiang Univ Sci B. 2020;21(5):343-60.
3. Halaji M, Heiat M, Faraji N, Ranjbar R. Epidemiology of COVID-19: An updated review. J Res Med Sci. 2021;26:82.
4. Harapan BN, Harapan T, Theodora L, Anantama NA. From Archipelago to Pandemic Battleground: Unveiling Indonesia's COVID-19 Crisis. J Epidemiol Glob Health. 2023;13(4):591-603.
5. Khaerunnisa R, Rumana NA, Yulia N, Fannya P. Gambaran Karakteristik Pasien COVID-19 di Rumah Sakit Mekar Sari Bekasi Tahun 2020-2021. J MIKI. 2022;10(1):72.
6. Nurcahya IG, Salim SE, Wulandari L, Semadi IM. Karakteristik Pasien COVID-19 Rawat Inap Di RSUP Prof. dr. I.G.N.G. Ngoerah periode Juni-Agustus 2021. Intisari Sains Med. 2023;14(1):262-6.
7. Farshbafnadi M, Kamali Zonouzi S, Sabahi M, Dolatshahi M, Aarabi MH. Aging and COVID-19 susceptibility, disease severity, and clinical outcomes: The role of entangled risk factors. Exp Gerontol. 2021;154:111507.
8. Toori KU, Qureshi MA, Chaudhry A, Safdar MF. Neutrophil to lymphocyte ratio (NLR) in COVID-19: A cheap prognostic marker in a resource constraint setting. Pak J Med Sci. 2021;37(5):1435-9.
9. Geteneh A, Alemnew B, Tadesse S, Girma A. Clinical characteristics of patients infected with SARS-CoV-2 in North Wollo Zone, North-East Ethiopia. Pan Afr Med J. 2021;38:217.
10. Gallo G, Calvez V, Savoia C. Hypertension and COVID-19: Current Evidence and Perspectives. High Blood Press Cardiovasc Prev. 2022;29(2):115-23.
11. Aslanbeigi F, Rahimi H, Malekipour A, Pahlevani H, Najafizadeh M, Ehteram H, et al. Association between hypertension and clinical outcomes in COVID-19

patients: a case-controlled study. Ann Med Surg (Lond). 2023;85(7):3258-63.
12. Birhanu A, Merga BT, Ayana GM, Alemu A, Negash B, Dessie Y. Factors associated with prolonged length of hospital stay among COVID-19 cases admitted to the largest treatment center in Eastern Ethiopia. SAGE Open Med. 2022;10:20503121211070366.

Cite this article as: Upadhana PS, Wibawa PGS. Clinical characteristics of COVID-19 patients at Bali Mandara hospital. Int J Adv Med 2024;11:434-7.