P-ISSN : 2527-4627
Warmadewa Medical Journal
Available online http://ejournal.warmadewa.ac.id/index.php/warmadewa_medical_journal

WMJ (Warmadewa Medical Journal), Vol. 9, No.2, November 2024, Page. 57-63

Profile of Healthcare Workers Infected by Covid-19 Admitted to Udayana University Hospital in April - June 2020

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Abstract

Due to repetitive exposure to COVID-19 patients, healthcare workers are always at a high risk of contracting COVID-19. Hence, a study of the COVID-19 profile among healthcare workers might minimize morbidity and mortality. We conducted a cross-sectional study using medical records of healthcare workers positive for COVID-19 treated at Udayana University Hospital from April to June 2020. We excluded the medical records with missing data. Afterward, we characterized the age, symptoms, gender, comorbidities, and other variables written on the existing medical records.Patients admitted mainly were at their peak age (33.75 ± 12.241 years old) and were primarily male (62.5%). Three main professions were a doctor (58.3%), nurse (28.2%), and laboratory analyst (8.3%). The mean interval between the onset of symptoms and testing was 3.54 days, with varied lengths of stay, at most about two weeks (18.67 ± 10.357 days). Most health workers experience symptoms such as fever (66.7%), cough (58.3%), sore throat (25%), chest tightness (25%), and cold (20.8%). Only hypertension (12.5%) and DM (8.3%) were comorbidities identified. Immense exposure to the virus does increase the risk of contracting COVID-19. However, fast recognition leads to more rapid diagnosis and treatment, preventing abundant virus replication and substantially shortening the isolation period (18.67 ± 10.357 days). With only relatively young healthcare workers stationed, severe conditions requiring ventilator use were seldom seen. Constant exposure to a highly contaminated environment with insufficient protection, exacerbated by the escalated number of COVID-19 patients, negatively impacted healthcare workers. Regular testing and testing as soon as symptoms appear can shorten the length of stay and reduce the risk of COVID-19 progressing to severe symptoms.

Keyword: Bali, Healthcare Workers, COVID-19

INTRODUCTION

Coronavirus disease 2019 (COVID-19) is a pneumonia-like disease that causes a series of acute atypical respiratory diseases, which was first reported in Wuhan, Hubei province, China.(1–4) COVID-19 is caused by a novel coronavirus, then named by WHO 2019 novel coronavirus (2019-nCoV) and updated by the international committee of the Coronavirus Study Group (CSG) to severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).(1) COVID-19 was first reported in late 2019 and quickly spread to various countries. On March 11, 2020, WHO declared COVID-19 a pandemic. SARS-CoV-2 is an outbreak similar to previous outbreaks, namely the SARS and MERS outbreaks. In 2002, an outbreak of SARS was reported in the Guangdong province of China, and it quickly spread to various countries. This outbreak affected 8422 people, mainly in China and Hong Kong, with a mortality rate of 11%. Furthermore, in 2012, it was reported that a MERS outbreak occurred in Saudi Arabia, affected 2494 people, and caused 858 deaths with a death rate of 37%. Both outbreaks are thought to have originated from bats that infect humans through intermediate animal hosts.(2)

The incubation period of COVID-19 ranges from 2-14 days after infection. The

symptoms are generally fever, dry cough, dyspnea, headache, dizziness, vomiting, malaise, and diarrhea.(3) In general, the symptoms of COVID-19 will be mild. Still, in people with comorbidities and the elderly, COVID-19 can develop into pneumonia, acute respiratory distress syndrome (ARDS), and multi-organ dysfunction, which can lead to death.(4) Transmission of COVID-19 can occur through aerosols, inhalation, direct contact, and respiratory droplets from people infected with COVID-19.(1,3) The ease of transmission of COVID-19 causes WHO to urge WHO to maintain a distance of 1-2 meters, wear masks when traveling, maintain ventilated rooms well, avoid crowds and close contact, wash hands regularly and always practice a healthy lifestyle. To date, 212 million people have been infected with COVID-19, with a total death toll of 4.43 million. Various measures have been carried out by the WHO to overcome the spread of COVID-19, but the number of people infected with COVID-19 is still increasing.(5)

The spread of COVID-19 has an impact on all walks of life, without exception. The ease of transmission of this disease causes the increasing number of COVID-19 cases that have an impact on healthcare workers. Healthcare workers are very vulnerable to being infected with SARS-CoV-2 because their environment is very close to COVID-19, such as isolation units, critical care units, intensive care units (ICUs), and emergency units. Repeated exposure to COVID-19 patients is unavoidable; health workers are always at high risk of contracting COVID-19. During the pandemic's beginning, healthcare workers in various countries were quickly infected with COVID-19. Understanding the COVID-19 symptoms commonly experienced by health workers can increase awareness of the possibility of being infected with COVID-19, thereby expediting symptoms to testing time.

Various factors have caused the spread of COVID-19 among health workers, such as the lack of personal protective equipment (PPE), the high risk of being exposed to the virus in hospitals, and the unpreparedness of the facilities to prevent the rapid spread of COVID-19.(6) Therefore, we conducted a study on COVID-19 among health workers to minimize morbidity and mortality among health workers. We conducted a study during the first three months of the COVID-19 pandemic to evaluate the symptoms of infection at the beginning of the spread of COVID-19 and the degree of severity experienced by health workers.

MATERIALS AND METHODS

This study was conducted by analyzing secondary data from electronic medical records of 24 confirmed cases of COVID-19 at Udayana University Hospital that met the inclusion criteria from April to June 2020. The inclusion criteria used included patients with confirmed COVID-19 and professionals as healthcare workers. Healthcare workers professions included workers who are in direct contact and have direct contact with patients, such as doctors, nurses, laboratory analysts, and ambulance drivers. Exclusion criteria included all patients who did not meet the inclusion criteria and had missing data on medical records. This study analyzed the length of treatment, age, symptoms, gender, comorbidities, length of stay, therapy, and discharge condition. Therapy was based on the use of a ventilator. Discharge conditions were divided into recovered or deceased.

This study uses a descriptive analysis (frequency, mean, standard deviation) with SPSS Statistics 25, which was carried out to present the final results of the data collected during this study. The ethical approval was issued by the ethics committee of Udayana University (No 1010/UN1422VII14/LT/2020). All information on the subject is used only in accordance with research ethics guidelines and kept confidential.

RESULTS

This study was conducted using 24 research subjects taken in three months between April to June 2020. Patients admitted were mostly at productive age (33.75 ± 12.241), ranging from 22 years to 67 years. The study subjects were dominated by men with a total of 15 people (62.5%) of all patients. All research subjects included are Indonesian. A complete demographic profile of our patients can be seen in (Table 1).

Table 1. Demographic Profile of COVID-19 Patients (n=24)

	Frequency	%
Age Group (years)		
< 20	0	0
20 – 24	3	12.5
25 – 29	8	33.3
30 – 34	6	25
35 – 39	2	8.3
40 – 44	2	8.3
45 – 49	0	0
≥ 50	3	12.5
Gender		
Male	15	62.5
Female	9	37.5
Profession		
Doctor	14	58.3
Nurse	7	28.2
Analyst	2	8.3
Ambulance driver	1	4.2

Most Health Care Workers treated at Udayana University Hospital are doctors (58.3%) and nurses (28.2%). The sexes of the patients included 15 men (62.5%) and 9 women (37.5%). The age of all patients ranged from 22 years to 67 years (33.75 ± 12.241). The clinical profile of admitted Health Care Workers can be seen in (Table 2).

DOI: https://doi.org/10.22225/wmj.9.2.9324.57-63

Table 2. Clinical Profile of COVID-19 Patients

	Frequency	%
Symptoms		
Cough	14	58.3
Sore Throat	6	25
Fever	16	66.7
Shivering	5	20.8
Shortness of Breath	6	25
Cough with Phlegm	2	8.3
Dry Cough	12	50
Comorbidities		
Diabetes Mellitus	2	8.3
Hypertension	3	12.5
Ventilator		
Without ventilator	23	95.83
With ventilator	1	4.16
Hospitalization		
≤ 14 days	7	29.16
15 – 21 days	8	33.3
22 – 28 days	3	12.5
> 28 days	5	20.83
Discharge Condition		
Recover	23	95.83
Died	1	4.16

The most common symptoms were fever (66.7%), followed by cough (58.3%), shortness of breath (25%), sore throat (25%), and runny nose (20.8%). There were 3 patients with comorbid hypertension and 2 patients with comorbid diabetes mellitus. We found only 1 person (4.16%) died among the HCWs, and out of all patients, there is only 1 person on a ventilator. Patients had a median duration between the onset of symptoms and testing of 3.54 days. Length of stay varied, at most about two weeks (18.67 ± 10.357 days).

DISCUSSION

COVID-19 has become a pandemic since WHO declared it on March 11, 2020. (7) Since it was reported at the end of December 2019 in China, COVID-19 has quickly spread to various countries worldwide. The disease that causes acute respiratory syndrome has begun to be reported in various countries and has experienced a very significant increase.(2) Health care centers have begun to experience an increase in COVID-19 patients, creating a susceptibility to the transmission of COVID-19 in hospitals.(8–11) During the pandemic's beginning, various countries reported COVID-19 infections in healthcare workers.(6) WHO reported that as many as 10% of HCWs were infected with SARS-CoV-2 in various countries. (12) HCWs have a high risk of being infected with COVID-19 due to the high number of COVID-19 patients in hospitals at the beginning of the pandemic. Udayana University Hospital reported increasing cases of COVID-19 transmission in HCWs. In the first 3 months of the COVID-19 pandemic, Udayana University Hospital reported as many as 24 cases of COVID-19

transmission by HCWs. This is influenced by several factors, such as the increasing workload of HCWs, which affects stress and fatigue levels, making it easier for HCWs to become infected with COVID-19, according to Maskari et al. The influence of Eid al-Fitr on 23-26 May 2020 also plays a significant role in the transmission of COVID-19.(13) High activity and social interaction on Eid al-Fitr causes easy transmission of COVID-19. Due to the increasing transmission of COVID-19, the workload of healthcare workers has increased drastically, causing fatigue, a lower immune system, and high exposure to infection, thus increasing the transmission of COVID-19 in healthcare workers. This is supported by cases of HCWs infected with COVID-19 at Udayana University Hospital, which increased in June 2020. Another influencing factor was the lack of PPE supplies at the start of the COVID-19 pandemic.(6,8–10,14) This is directly proportional to the research of Gómez-Ochoa et al., which stated that HCWs were more infected in hospital non-emergency wards due to the lack of PPE use.(9)

Most HCWs from this study had only mild symptoms and no moderate to severe symptoms. This is due to HCWs being at a young age, and only a few have comorbidities. HCWs who died amounted to 1 person who was 64 years old. It is said that older age can be a predisposing factor for developing COVID-19 infection with severe symptoms due to the downturn of the immune system.(3) Of all HCWs, only 2 had diabetes mellitus, and 3 had hypertension. The most common symptoms experienced by HCWs include fever (66.7%), cough (58.3%), shortness of breath (25%), and sore throat (25%). Fever is a common symptom in healthcare workers confirmed with COVID-19. Therefore, health workers with fever symptoms during the COVID-19 pandemic should undergo COVID-19 screening. Another study showed that a more than 37.5°C temperature may predict a positive SARS-CoV-2 RT-PCR result. (15)

This study showed a median duration between the onset of symptoms and testing was 3.54 days with varied lengths of stay, at most about two weeks (18.67 ± 10.357 days). These findings showed the importance of early detection of COVID-19 infection, especially among health workers. Treated HCWs have a relatively short duration of hospitalization; rapid recognition leads to faster diagnosis and treatment, prevents abundant viral replication, and substantially shortens the duration of hospitalization.

Understanding the COVID-19 symptoms commonly experienced by health workers can increase awareness of the possibility of being infected with COVID-19, thereby expediting symptoms to testing time. The earlier health workers are known to be infected with COVID-19, prevention of transmission to other health workers can be done earlier to prevent the spread of COVID-19 infection. Furthermore, with early detection of COVID-19, treatment can be carried out as soon as possible, thereby shortening the length of stay and preventing the possibility of COVID-19 developing into a severe type. Sufficient staffing is pivotal to preserve persistent care amid the continuous COVID-19 pandemic. An adequate number of health workers is essential. Therefore, the health of HCWs must also be a top priority at every health facility.

This study is limited due to the limited sampling of hospitalized health workers. Some health workers who experience milder symptoms are not hospitalized; thus, the number of health workers infected with COVID-19 reported in this study is lower than the actual number. Further research is needed to discover the relationship between screening time and the severity of COVID-19 and the symptoms that appear; hence, the government can provide the right time to conduct COVID-19 screening for health workers.

CONCLUSION

Being constantly present in a highly contaminated environment with insufficient protection, exacerbated by the escalated number of COVID-19 patients, had a negative impact on healthcare workers. This

study showed HCWs infected by COVID-19 ranged from 22 to 67 years (33.75 ± 12.241). The median duration between the onset of symptoms and testing was 3.54 days with varied lengths of stay, at most about two weeks (18.67 ± 10.357 days). Understanding the COVID-19 symptoms commonly experienced by health workers can increase awareness of the possibility of being infected with COVID-19, thereby expediting symptoms to testing time. Overwork and personal protective equipment (PPE) insufficiency lowers their immunity while increasing their exposure to the virus. This can be a concern for the government and health stakeholders regarding providing sufficient personal protective equipment and monitoring health workers' working hours so they are not overworking. The government and every healthcare facility should concerned about HCWs screening COVID-19 periodically to prevent the spread of COVID-19 infections and maintain health in HCWs. Health workers must also pay attention to the use and preparation of personal protective equipment and strengthen the body's immunity so that they are not easily infected with COVID-19 so that patient care can run more effectively.

REFERENCE

1. Lotfi M, Hamblin MR, Rezaei N. COVID-19: Transmission, prevention, and potential therapeutic opportunities. Clin Chim Acta [Internet]. 2020 Sep 1 [cited 2021 Aug 24];508:254. Available from: /PMC/articles/PMC7256510/
2. Li H, Liu S-M, Yu X-H, Tang S-L, Tang C-K. Coronavirus disease 2019 (COVID-19): current status and future perspectives. Int J Antimicrob Agents [Internet]. 2020 Mar; Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7139247/
3. Singhal T. A Review of Coronavirus Disease-2019 (COVID-19). Indian J Pediatr [Internet]. 2020 Apr 1 [cited 2021 Jul 13];87(4):281. Available from: /PMC/articles/PMC7090728/
4. Yuki K, Fujiogi M, Koutsogiannaki S. COVID-19 pathophysiology: A review. Clin Immunol [Internet]. 2020 Jun 1 [cited 2021 Aug 7];215:108427. Available from: /PMC/articles/PMC7169933/
5. WHO. Coronavirus disease (COVID-19) [Internet]. WHO. 2020 [cited 2021 Aug 24]. Available from: https://www.who.int/emergencies/diseases/novel-coronavirus-2019/question-and-answers-hub/q-a-detail/coronavirus-disease-covid-19
6. Deressa W, Worku A, Abebe W, Gizaw M, Amogne W. Risk perceptions and preventive practices of COVID-19 among healthcare professionals in public hospitals in Addis Ababa, Ethiopia. PLoS One [Internet]. 2021 Jun 1 [cited 2021 Aug 24];16(6):e0242471. Available from: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0242471
7. WHO. Timeline of WHO's response to COVID-19 [Internet]. WHO. [cited 2021 Aug 28]. Available from: https://www.who.int/emergencies/diseases/novel-coronavirus-2019/interactive-timeline#!
8. Li J, Long X, Zhang Q, Fang X, Li N, Lin Z, et al. Mild manifestations of COVID-19 in healthcare workers. PLoS Negl Trop Dis [Internet]. 2020 Dec 1 [cited 2021 Aug 28];14(12):1–5. Available from: /PMC/articles/PMC7755190/
9. Gómez-Ochoa SA, Franco OH, Rojas LZ, Raguindin PF, Roa-Díaz ZM, Wyssmann BM, et al. COVID-19 in Health-Care Workers: A Living Systematic Review and Meta-Analysis of Prevalence, Risk Factors, Clinical Characteristics, and Outcomes. Am J Epidemiol [Internet]. 2021 Jan 4 [cited 2021 Aug 28];190(1):161–75. Available from: https://academic.oup.com/aje/article/190/1/161/5900120
10. Kim R, Nachman S, Fernandes R, Meyers K, Taylor M, LeBlanc D, et al. Comparison of COVID-19 infections among healthcare workers and non-healthcare workers. PLoS One [Internet]. 2020 Dec 1 [cited 2021 Aug 28];15(12). Available from: /PMC/articles/PMC7725299/

11. Bielicki JA, Duval X, Gobat N, Goossens H, Koopmans M, Tacconelli E, et al. Monitoring approaches for healthcare workers during the COVID-19 pandemic. Lancet Infect Dis [Internet]. 2020 Oct 1 [cited 2021 Aug 28];20 (10):e261. Available from: /PMC/articles/PMC7377794/
12. WHO. How to protect health workers now: WHO COVID-19 briefing | World Economic Forum [Internet]. WHO. 2020 [cited 2021 Aug 28]. Available from: https://www.weforum.org/agenda/2020/04/10-april-who-briefing-health-workers-covid-19-ppe-training/
13. Maskari Z Al, Blushi A Al, Khamis F, Tai A Al, Salmi I Al, Harthi H Al, et al. Characteristics of healthcare workers infected with COVID-19: A cross-sectional observational study. Int J Infect Dis [Internet]. 2021 Jan 1 [cited 2021 Aug 28];102:32. Available from: /PMC/articles/PMC7543901/
14. Sethi BA, Sethi A, Ali S, Aamir HS. Impact of the Coronavirus disease (COVID-19) pandemic on health professionals. Pakistan J Med Sci [Internet]. 2020 [cited 2021 Aug 28];36(COVID19-S4):S6. Available from: /PMC/articles/PMC7306959/
15. Lan FY, Filler R, Mathew S, Buley J, Iliaki E, Bruno-Murtha LA, et al. COVID-19 symptoms predictive of healthcare workers' SARS-CoV-2 PCR results. PLoS One [Internet]. 2020 Jun 1 [cited 2024 Nov 23];15 (6):e0235460. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC7319316/