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The Difference of Clinical Characteristic COVID-19 patient with Vaccinated andUnvaccinated

Azarine Marwah Salsabila Ubaidah[1], Iin Novita Nurhidayati Mahmuda[2]

[1]Faculty of Medicine, University of Muhammadiyah Surakarta
[2]Department of Internal Medicine, Faculty of Medicine, University of Muhammadiyah Surakarta Jl. A. Yani Tromol Pos 1 Gonilan Kabupaten Sukoharjo Jawa Tengah 57169

Email : azarinemarwah@gmail.com

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ABSTRACT

Coronavirus disease or COVID-19 was first discovered in Wuhan, China and spreads through respiratory droplet transmission with various clinical characteristics that are often encountered such as fever and cough, shortness of breath, myalgia and nausea/vomiting according to the severity of COVID-19 patients. The severity of clinical characteristics in COVID-19 patients can be influenced by factors of age, comorbidities, gender, immunocompromised status, occupation (healthworkers), and vaccination status. This research is for knowing the differences in the clinical characteristics of vaccinated and unvaccinated COVID-19 patients at University of Muhammadiyah Surakarta students. This study uses an observational analytic study with a cross-sectional approach and was carried out on students at the University of Muhammadiyah Surakarta who were confirmed to have COVID-19 using a google-form questionnaire as primary data. Data were analyzed using chi-square test. The symptoms of COVID-19 such as fever, cough, common cold, myalgia, anosmia or rash did not show a significant difference. Meanwhile, the symptoms of nausea/vomiting were found in individuals who had not been vaccinated more than individuals who had been vaccinated ($p = 0.002$). There was no significant difference in clinical characteristics of COVID-19 patients who had been vaccinated or had not been vaccinated, except for complaint of nausea/vomiting.

Keywords: clinical characteristics, vaccination, COVID-19

INTRODUCTION

In 2019, several cases of pneumonia caused unknown etiology emerged in Wuhan, Hubei Province, China, so WHO declared the epidemic disease caused by SARS-CoV-2 called coronavirus disease 2019 (COVID-19). WHO reported the first occurrence of COVID-19 in Indonesia on March 2, 2020 with a total of two cases. Data on March 31, 2020 showed that there were 1,528 confirmed cases and 136 deaths. Some of the symptoms that are often happened by COVID-19 patients include fever, cough (with or without sputum), fatigue, shortness of breath (dyspnea), myalgia (muscle pain),

headache, nausea, vomiting, diarrhea. Health workers who have been vaccinated have a relatively longer time interval or resistance to be infected with COVID-19 than health workers who have not been vaccinated. Health workers who were fully vaccinated were on average infected with COVID-19 at 16 weeks or 4 months after receiving the second dose. Meanwhile, for health workers who have not been vaccinated, on average they are infected with COVID-19 after 3 weeks from the first day of observation, which means that they are infected with COVID-19 much faster (Dhewantara, et al., 2021) .There are differences in the number of deaths of health workers in Turkey, with 2,477,463 (March 2020-January 2021) before being vaccinated and 1,810,366 (1 April-17 May 2021) after being vaccinated (Akpolat and Uzun, 2021). In data from the Weekly Report in New York, 1,271 new Covid-19 hospitalizations (0.17 per 100,000 person-days) occurred among fully vaccinated adults, compared with 7,308 (2.03 per 100,000 person-days).) among unvaccinated adults.

This study aims to determine and analyze the differences and clinical characteristics of vaccinated and unvaccinated Covid-19 patients at University of Muhammadiyah Surakarta students.

METHODS

The type of this research is an observational analytic study with a cross- sectional and was carried out on students of the University of Muhammadiyah Surakarta who were confirmed COVID-19 using a google-form questionnaire and conducted in October - November 2021. Researchers took samples using the total sampling principle. The inclusion criteria used in this study included students from the University of Muhammadiyah Surakarta who were confirmed to have COVID-9 with an age limit of 18-40 years. The research has obtained a permit from the KEPK team, Faculty of Medicine, University of Muhammadiyah Surakarta with number 3834/B.1/KEPK-UMS/XI/2021.

RESULTS AND DISCUSSION

The results of this study indicate that the majority (72.7%) of the respondents in this study have not been vaccinated against covid-19.

Table 1. Characteristics of Research Respondents

Variable	Frequency	Percentage
Gender		
Man	19	28,8
Woman	47	71,2
Age		
18 years old	5	7,6
19 years old	6	9,1

20 years old	20	30,3
21 years old	19	28,8
22 years old	15	22,7
23 years old	1	1,5
Department		
Economics and Business	1	1,5
Pharmaceutical	6	9,1
Physiotherapy	2	3,0
Geography	1	1,5
Nutritional Science	5	7,6
IT	2	3,0
Medical Science	37	56,1
Nursing	3	4,5
Management	1	1,5
Accountancy	1	1,5
English Education	1	1,5
Biology Education	4	6,1
Sport Management	1	1,5
Primary School Teacher Education	1	1,5
Total	66	100,0

Table 2. Clinical Characteristic of COVID-19

Variable	Frequency	Percentage
Symptomatic		
Yes	56	84,8
No	10	15,2
Fever		
Yes	52	78,8
No	14	21,2
Cough		
Yes	46	69,7
No	20	30,3
Common cold		
Yes	42	63,6
No	24	36,4
Dyspnea		
Yes	15	22,7
No	51	77,3
Nausea/vomiting		
Yes	23	34,8
No	43	65,2
Myalgia		
Yes	34	51,5
No	32	48,5
Anosmia		
Yes	9	13,6
No	57	86,4
Rash		
Yes	2	3,0
No	64	97,0
Hospitalized		

Variable	Frequency	Percentage
Yes	5	7,6
No	61	92,4
Total	66	100,0

From the table above shows that the majority (84.8%) of the respondents in this study were symptomatic and the most common symptom was fever (78.8%).

Table 3. Vaccination status of COVID-19 Variable

	Frequency	Percentage
Vaccination status		
Vaccinated	18	27,3
Unvaccinated	48	72,7
Total	66	100,0

The table above shows that the majority (72.7%) of the respondents in this study have not been vaccinated.

Table 4. The Difference of Severity Clinical Characteristic in COVID-19 patient

Symptom			Vaccinated		Unvaccinated		*P Value*	OR
			YES	NO	YES	NO		
Mild symptom	Fever	N(%)	13(25,0%)	5(35,7%)	39(75%)	9(64,3%)	0,424	0,600
	Cough	N(%)	13(28,3%)	5(25,0%)	33(71,7%)	15(75%)	0,785	1,182
	Common cold	N(%)	11(26,2%)	7(29,2%)	31(73,8%)	17(70,8%)	0,794	0,862
	Nausea/vomiting	N(%)	1(4,3%)	17(39,5%)	22(95,7%)	25(60,5%)	0,002	0,070
	Myalgia	N(%)	10(29,4%)	8(25.0%)	24(70,6%)	24(75,0%)	0,688	1,250
	Anosmia	N(%)	3(33,3%)	15(26,3%)	6(66,7%)	42(73,7%)	0,660	1,400
	Rash	N(%)	0(0,0%)	18(28,1%)	2(100,0%)	46(100,0%)	0,379	1,043

Tabel 5. The Severity of Clinical Characteristc of COVID-19 patient

Symptom	Hospitalized		Vaccinated	Unvaccinated	Total
	YES	NO			
Mild symptom	3	13	4	12	16
Moderate symptom	1	39	11	29	40

Unvaccinated COVID-19 patients experienced significantly more nausea/vomiting than vaccinated COVID-19 patients ($p = 0.002$). Meanwhile, there was no significant difference in symptoms of fever ($p = 0.424$), cough ($p = 0.785$), common cold ($p = 0.794$), shortness of breath/ dyspnea ($p = 0.952$), muscle pain ($p = 0.688$), anosmia ($p = 0.660$), or rash ($p = 0.379$) and hospitalization ($p = 0.704$) between vaccinated and unvaccinated COVID-19 patients.

This research is relatively in line with a study conducted by Taquet (2021) in the UK. The study, which was a retrospective cohort design involving 10,024 patients, aimed to determine the sequelae of COVID-19 in vaccinated individuals. One of the results of this study shows that individuals who have not received the COVID-19 vaccine will have a 1.03-fold greater risk (HR = 1.03) for experiencing various abdominal complaints (nausea/vomiting/diarrhea) than individuals who have received the vaccine. (Taquet et al., 2021).

Relatively different results were obtained in the study of Antonelli (2021) in England. The study with a case-control involving more than 120,000 people aims to determine the profile of COVID-19 infection in individuals who have received the COVID-19 vaccination. One of the results of this study showed that in individuals aged 18-59 years, only the symptoms of sneezing and shortness of breath were significantly different between individuals who had received the COVID-19 vaccine and those who had not (Antonelli et al., 2021). The difference in the results is thought to be caused by differences in characteristics, especially age, between the research conducted by the researcher and Antonelli's study and the difference in the type/brand of vaccine received between the British and Indonesian people. In theory, most of the clinical characteristics of COVID-19 are similar to other respiratory or viral illnesses, namely

fever, cough, shortness of breath, fatigue, muscle aches, headache, sore throat, loss of smell and taste, and nasal congestion or runny nose. These symptoms can vary between individuals and as the disease progresses. Most COVID-19 patients develop mild (40%) or moderate (40%), approximately 15% develop severe disease requiring oxygen support, and 5% develop critical illness with complications including respiratory failure, ARDS. sepsis and septic shock, thromboembolism, and/or multi-organ failure (Chen et al., 2020). In a study conducted by Guan (2020) showed that patients with comorbidities had a greater severity of disease than those without comorbidities such

as COPD (Chronic Obstructive Pulmonary Disease), hypertension, diabetes, and malignancy and patients with chronic disease. (Guan et al., 2020).

The relative absence of clinical characteristics differences between individuals who have been vaccinated and individuals who have not been vaccinated against COVID-19 is thought to be due to the large number of new variants of SARS-CoV-2. Data are also emerging on the humoral response to the variant of concern (VOC) of COVID-19, with various studies noting decreased virus neutralization in response to natural infection and vaccination (Hoffmann et al., 2020).

For further research to use other research designs that are more appropriate to compare two phenomena in a population, such as case control and cohorts, and use the same number of research subjects in the two groups of research subjects.

CONCLUSION

Coronavirus Disease 2019 (COVID-19) is an infectious disease transmitted by respiratory droplets and mainly attacks the lungs with clinical characteristics such as breath, dizziness, dyspnea, myalgia, nausea/vomiting, diarrhea. There is a difference between the symptoms of nausea and vomiting with vaccination status by COVID-19 patients, while in other symptoms there is no significant difference.

The suggestions that can be followed up based on this systematic review are for students to have themselves vaccinate because this study shows that the number of students who have not been vaccinated is greater than the number of students who have been vaccinated, for health workers to provide appropriate education regarding the signs and symptoms that maybe it will be the same if you experience COVID-19 even though you have been vaccinated and For the Government to urge the public to carry out a full dose of vaccination as an effort to prevent the spread of COVID-19.

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