

RISK FACTOR ASSOCIATED SEVERITY DISEASE AND HOSPITALIZED IN COVID-19 PATIENTS

ABSTRACT

Background : Severe acute respiratory syndrome corona virus 2 (SARS-CoV-2) is the virus rapidly spreading from its origin in Wuhan City of Hubei Province of China in late December 2019. The common clinical features of COVID-19 are varied, being respiratory symptoms (sore throat, cough, shortness of breath), fever, malaise, headache, muscle pain, nausea, vomiting, diarrhea, anosmia, or dysgeusia. Indonesia has reported 4,249,323 confirmed cases and 143,592 death related COVID-19 on November 10, 2021.

Methodology : This was observational analitic using medical record data. Study participants were adults (age \geq 18 years) with a positive results on real-time reverse transcription polymerase chain reaction (RT-PCR) for the presence of SARS-CoV-2. All confirmed cases of COVID-19 at Naibonat Regional General Hospital in East Nusa Tenggara, Indonesia between 2020 June and 2021 May were included the analysis. We excluded COVID-19 patients death.

Results : In this study, a total of 38 participants are analyzed. we found that significant association statistically of length of stay patients (p value <0.05) are age (p=0.003), fever symptom (p=0.232), cough symptom (p=0.017), and hypertension (p=0.131).

Conclusion : In Conclusion, this study has shown that age, fever,cough and hypertension associated with length of stay.

Keyword : COVID, observational analitic, comorbid, risk factor

INTRODUCTION

Severe acute respiratory syndrome corona virus 2 (SARS-CoV-2) is the virus rapidly spreading from its origin in Wuhan City of Hubei Province of China in late December 2019.(1) Coronavirus disease 2019 (COVID-19), the highly contagious viral illness caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), ***has had a catastrophic effect on the world's demographics resulting in more than 3.8 million deaths worldwide***, and enormous burden on health authorities. On March 11, 2020 the World Health Organization (WHO) declares COVID-19 as a global pandemic.(2) The common clinical features of COVID-19 are varied, being respiratory symptoms (sore throat, cough, shortness of breath), fever, malaise, headache, muscle pain, nausea, vomiting, diarrhea, anosmia, or dysgeusia. In severe cases, infection causes pneumonia, acute respiratory failure, septic shock, and/or multiple organ dysfunction, and death.(3)

On November 22 2021, the pandemic has resulted 256,966,237 confirmed cases and the disease has spread rapidly throughout at least 2015 countries including Indonesia. Indonesia has reported 4,249,323 confirmed cases and 143,592 death related COVID-19 on November 10, 2021.(4)

As the pandemic progressed, severe outcomes of COVID-19 have been implicated as a potential risk factors for severe COVID-19 illness (hospitalization) including hypertension, diabetes, cardiovascular disease, chronic kidney disease, chronic respiratory disease and obesity. Patient characteristics, specifically older age, male sex had also been associated with increased risk factors for severe COVID-19 illness.(5)

This goal of this study, we have discussed the risk factors, baseline on age, sex, comorbidities (hypertension, diabetes melitus), fever, cough, anosmia, shortness of breath of COVID-19 patients affect length of stay COVID-19 patients at Naibonat Regional General Hospital in Naibonat, East Nusa Tenggara was conducted.

METHODOLOGY

Study population and design

This was observational analitic using medical record data. Study participants were adults (age \geq 18 years) with a positive results on real-time reverse transcription polymerase chain reaction (RT-PCR) for the presence of SARS-CoV-2. All confirmed cases of COVID-19 at Naibonat Regional General Hospital in East Nusa Tenggara, Indonesia between 2020 June and 2021 May were included the analysis. We excluded COVID-19 patients death.

Data collection

Data were collected from the COVID-19 patient medical record. Data regarding of SARS-CoV-2 PCR testing, and outcomes (hospitalization) along with age, sex, symptoms and comorbidities. Fever was defines as axillary temperature at least 38 °C. In case patients were hospitalized, the start and end date of hospitalisation were recorded together and clinical outcomes data were collected.

Statistical analysis

The data were The data were collected and analyzed using Statistical Package for Social Sciences (SPSS). Statistics for windows version 25.0. The categorical variables sex, age, fever, cough, shortness of breath, anosmia, hypertension, diabetes melitus, and length of stay were analyzed by bivariate chi-square test (P value <0.05) was considered statistically significant.

RESULTS

Characteristics of The Study Samples

This study's goal is to assess the risk factor associated severity disease and hospitalized in COVID-19 patients at Naibonat Hospital, Naibonat, East Nusa Tenggara, Indonesia in 2020 June and 2021 May. In this study, a total of 38 participants are analyzed. In table 1, we found that 21 (55.3%) are male, 17 (44.7%) are female, 15 (39.5%) are age \leq 45 years old, 23 (60.5%) are age $>$ 45 years old. There are 30 (78.9%) participants being cough, 26 (68.4%) participants being fever, 15 (39.5%) participants being anosmia. In 38 participants, there are 11 (28.9%) participants with hypertension and 6 (15.8%) participants with diabetes. The length of hospital stay $>$ 10 days 25 (65.8%) participants and \leq 10 days 13 (34.2%) participants.

Table 1. Characteristic of The Study Samples

Characteristic patients	N (%)
Sex	
Male	21 (55.3)
Female	17 (44.7)
Age	
≤ 45	15 (39.5)
> 45	23 (60.5)
Fever	
Yes	11 (28.9)
No	27 (71.1)
Cough	
Yes	8 (21.1)
No	30 (78.9)
Anosmia	
Yes	15 (39.5)
No	23 (60.5)
Dyspneu	
Yes	16 (42.1)
No	22 (57.9)
Hypertension	
Yes	14 (36.8)
No	24 (63.2)
Diabetes	
Yes	6 (15.8)
No	32 (84.2)
Length of stay	
≤ 10	25 (51.0)
>10	24 (49.0)

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Table 2. Bivariate Analytic of the Length of Stay and Risk Factor

Variable	≤ 10 days		>10 days		Bivariate	
	N	%	N	%	P value	OR
Sex						
Male	10	26.3	11	28.9	0.327	
Female	13	34.2	4	10.5		
Age						
≤ 45	9	23.7	6	15.8	0.003	
> 45	14	36.9	9	23.7		
Fever						
Yes	6	15.8	5	13.2	0.232	
No	17	44.7	10	26.3		
Cough						
Yes	5	13.1	3	7.9	0.017	
No	18	47.4	12	31.6		
Anosmia						
Yes	7	18.4	8	21.0	1.993	
No	16	42.1	7	18.4		
Dyspneu						
Yes	11	28.9	5	13.1	0.782	
No	12	31.6	10	26.3		
Hypertension						
Yes	9	23.7	5	13.1	0.131	
No	14	36.8	10	26.3		
Diabetes						
Yes	5	13.2	1	2.6	1.551	
No	18	47.4	14	36.8		

In table 2, we found that significant association statistically of length of stay patients (p value <0.05) are age (p=0.003), fever symptom (p=0.232), cough symptom (p=0.017), and hypertension (p=0.131).

DISCUSSION

In this study, we discussed about risk factors for prolonged length of stays in patients hospitalized with COVID-19. The previous studies, we have reported from Chen J et al, length of stay patients was 11 days after onset symptoms the disease progressed into week 2 symptoms began to relieve in most of patients.(6)

Patient with the laboratory confirmed COVID-19, we found many patients characteristic, underlying medical conditions to be associated with the hospitalization. we found factors to be associated with hospitalization due to COVID-19 (sex, age, fever, cough, anosmia, dyspneu, hypertension, diabetes).

In addition, we did not significant association between hospitalization or other indicators of severe COVID-19 including sex.(5)

Eldery patients with coexisting conditions have suffered due their weak immunity as a result of infection with COVID-19 and previous studies have described advanced ages and pre-existing condition as factor of severity COVID-19.(7) In the present study, older age associated with prolonged hospitalization and an increased risk of developing complications and that older age is an important predictor of adverse outcome (length of stay). **Eldery** patient may be proxy for a deficiency to control the viral replication and less-robust immune responses, potentially leading to adverse clinical outcomes.(8)The age dependent defects in T-cell and B-cell function and the excess production type 2 cytokines could lead to deficiency in viral replication and prolonged proinflammatory responses, potentially leading to poor outcome.(9)

We found that fever has been used widely as an indicator for assessing disease severity in COVID-19, the study suggest patients who received having fever at the early stage of infection require longer hospitalization with is contrast with this studies.(10)

Shishi et al, the hypertension that risk factors for COVID-19 and poor prognosis or length of stay. One explanation could be that the virus is binding to angiotensin-converting enzyme 2 (ACE2), thus affecting the ACE2 **signaling** pathways and leading to acute cardiac injury. Also that acute systemic inflammatory response caused by the uncontrolled release of pro-inflammatory cytokines may affect cardiovascular system as pro-inflammatory cytokines was among severe patients COVID-19. Our analysis showed that hypertension increased the length of stay. (10)

CONCLUSION

In Conclusion, this study has shown that age, fever,cough and hypertension associated with length of stay.

LIMITATIONS OF STUDY

The limitations of this study included its small sample size. This study conducted at Naibonat Regional General Hospital in East Nusa Tenggara. Laboratory studies has limited.

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