

## ORIGINAL ARTICLE

# Relationship Between Patient Characteristics and Severity With the Use of Antiviral Drugs Among Covid-19 Patients at Rumah Sakit Ichsan Medical Centre Bintaro

\*Gina Aulia<sup>1</sup>, Humaira Fadhilah<sup>1</sup>, Tania Rizki Amalia<sup>1</sup>, Fenita Purnama Sari Indah<sup>1</sup>, Nurihardianti<sup>1</sup>, Sintia<sup>1</sup>, Sandeep Poddar<sup>3</sup>

<sup>1</sup> Sekolah Tinggi Ilmu Kesehatan Widya Dharma Husada Tangerang, Pajajaran Street Number 1, 15417 South Tangerang, Banten, Indonesia

<sup>2</sup> Department of Public Health, Sekolah Tinggi Ilmu Kesehatan Widya Dharma Husada Tangerang, 15417 South Tangerang, Banten, Indonesia

<sup>3</sup> Lincoln University College, Wisma Lincoln, No. 12-18, Jalan SS 6/12, 47301 Petaling Jaya, Selangor D. E., Malaysia

## ABSTRACT

**Introduction:** Coronavirus Disease 2019 (COVID-19) is a pandemic infectious disease caused by SARS-CoV-2 that was declared in March 2020. The goal of this study was to see if there was a link between patient characteristics (age, gender) and patient severity with the use of Covid-19 antiviral drugs in Covid-19 patients hospitalized at Rumah Sakit Ichsan Medical Center Bintaro between July and December 2021. **Methods:** Through retrospective data tracing, this study employed an analytical observational method with a cross sectional design. The research data was gathered from Covid-19's medical records. With purposive sampling, the number of respondents as a sample reached 107 patients. **Results:** The results showed that the age range of most Covid-19 patients was 26–45 years old by 46.7%, males were more exposed to Covid-19 by 52.3%, the highest degree of severity was included in the mild category, namely 62.6%, and the highest use of antiviral was favipiravir at 70.1%. The analysis revealed that there was no significant relationship between age ( $p$  value = 0.346) and gender ( $p$  value = 0.387) with the use of Covid-19 antiviral drugs, but there was a significant relationship between patient severity and antiviral drug use ( $p$  value = 0.005). **Conclusion:** Finally, there is no significant relationship between age and gender with the use of Covid-19 antiviral drugs, while between the severity of patients there is a significant relationship with the use of Covid-19 antiviral drugs.

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## Corresponding Author:

Gina Aulia, MPharm  
Email: ginaaulia@wdh.ac.id  
Tel: +6281222217954

## INTRODUCTION

Infections with the SARS-CoV-2 virus, also known as the COVID-19 virus, have been spreading rapidly and fatally around the world since December 2019. This virus is a member of the Coronaviridae family, which also includes the pathogens SARS-CoV-2 and MERS-CoV. This virus attacks the lungs and can worsen if the individual has a comorbid disease. Compared with children, this virus causes more severe symptoms in adults. The pediatric population has a lower incidence, milder symptoms and a better prognosis. COVID-19 infection is

characterized by runny nose, nasal congestion, diarrhea and sore throat. One week after onset, severe patients frequently develop dyspnea and/or hypoxemia, and the virus quickly progresses to syndrome of acute respiratory distress, coagulation disorders, septic shock and metabolic acidosis that is intractable (1, 2).

Gender, older age, and comorbid diseases such as cardiovascular disease, hypertension, decreased lung function, cancer and diabetes are all risk factors for COVID-19 disease. Each person infected with the COVID-19 virus has a unique clinical picture. It is asymptomatic or causes mild upper respiratory tract symptoms in 80% of cases. However, pneumonia, along with fever, cough, dyspnea, and fatigue, affects 20% of the population, leading to respiratory failure and, in some cases, organ failure. To treat

this viral infection requires adequate therapy (3).

According to a systematic review study of the relationship between patient characteristics (age and gender) and severity, COVID-19 patients aged 50 years had a statistically significant risk of severity 3.36 times greater than those under 50 years of age, while patients aged 65 years had 0.79 times the risk compared to severe patients under 65 years of age. Gender revealed that males had a significantly higher proportion of severe patients than females, and male patients had a 2.41 times greater risk of developing severe than female patients (4). Because the number of COVID 19 cases in Indonesia is expected to reach 5 million by 2021, researchers are investigating the relationship between patient characteristics and severity and the use of Covid-19 antiviral drugs at a Rumah Sakit Ichsan Medical Centre Bintaro, South Tangerang.

The research aims to investigate the relationship between patient characteristics and severity and the use of COVID-19 antiviral drugs in hospitalized Covid-19 patients at Rumah Sakit Ichsan Medical Center Bintaro.

## MATERIALS AND METHODS

### Samples

The sample in this study were Covid-19 inpatients at the Rumah Sakit Ichsan Medical Center Bintaro who met the inclusion and exclusion criteria, namely 107 people. The sampling technique in this study uses the purposive sampling method, that is, each unit in the population that has been determined does not have the same opportunity to become the research sample.

### Research Design

This is an analytical observational study with a cross-sectional design using medical record data from Covid-19 patients at Rumah Sakit Ichsan Medical Center Bintaro.

### Research Location and Time

This research was conducted in the Rumah Sakit Ichsan Medical Center Bintaro. The research has been carried out in July and December 2021.

### Data analysis

Analysis of research data was carried out by univariate and bivariate analysis.

### Ethical Clearance

This research got approval from the ethics committee of Rumah Sakit (RS) Ichsan Medical Centre (IMC) Bintaro, Indonesia with number 207/5ktr-SMCV-22 dated 20<sup>th</sup> April 2022.

## RESULTS

**Table I : Characteristics of Respondents and Other Variables**

Univariate Analysis	Frequency	Percentage (%)
<b>Age</b>		
17-25 years old	22	20.6
26-45 years old	50	46.7
46-65 years old	32	29.9
>66 years old	3	2.8
<b>Gender</b>		
Male	56	52.3
Female	51	47.7
<b>Severity</b>		
Mild	67	62.6
Moderate	22	20.6
Critical	18	16.8
<b>Antivirus</b>		
Favipiravir	75	70.1
Remdesivir	19	17.8
Oseltamivir	13	12.1

**Table II : Class of Drugs Used**

Univariate Analysis	Frequency	Percentage (%)
<b>Drugs Class</b>		
Antiviral	107	100
Corticosteroids	19	17.8
Anticoagulant	42	39.3
Antibiotics	66	61.7
Analgesic	84	78.5
Mucolytic agent	82	76.6
Vitamin	107	100

Based on the analysis of the research data in Table I, the characteristics of patients based on age were dominated by patients aged 26-45 years as many as 50 people (46.7%). Characteristics of patients

**Table III : Analysis of The Relationship Between Patient Characteristics and Severity with The Use of Covid-19 Antiviral Drugs in Hospitalized Covid-19 Patients**

Variable	Antiviral Drugs						Total		p-Value
	Favipiravir		Remdesivir		Oseltamivir				
	N	%	N	%	N	%	N	%	
Patient characteristic									
Age									
17-25 years old	18	81.8	1	4.5	3	13.6	22	100	0.346
26-45 years old	31	62	11	22	8	16	50	100	
46-65 years old	23	71.9	7	21.9	2	6.2	32	100	
>66 years old	3	100	-	-	-	-	3	100	
Gender									
Male	36	64.3	12	21.4	8	14.3	56	100	0.387
Female	39	76.5	7	13.7	5	9.8	51	100	
Severity									
Mild	52	77.6	7	10.4	8	11.9	67	100	0.005
Moderate	13	59.1	4	18.2	5	22.7	22	100	
Critical	10	55.6	8	44.4	-	-	18	100	

based on gender dominated by male patients as many as 56 people (52.3%). The distribution of severity in this study, the majority of the severity of Covid-19 patients was mild at 62.6%. The majority of antiviral drugs used in this study were favipiravir.

Using a contingency coefficient, the results of testing the connection between patient characteristics (age, gender) and the degree of severity with the use of Covid-19 antiviral drugs in hospitalized Covid 19 patients are shown in Table II. The results from the bivariate analysis show that based on age, a p value > 0, 05 which is 0.346. Thus, age has no significant relationship with the use of Covid-19 antiviral drugs. Testing the relationship based on gender obtained P value > 0.05, which is 0.387. As a result, gender has no significant relationship with the use of Covid-19 antiviral drugs. Meanwhile, in testing the relationship between severity, p value < 0.05, which is 0.005, thus the level of severity has a significant relationship with the use of Covid-19 antiviral drugs in Covid-19 patients.

## DISCUSSION

This study is in accordance with the results of research from Wu & McGoogan that based on the majority of the age of patients affected by Covid-19 in China (n = 38,680) is the group of 30-79 years (87%) (5) because at the age of 31-45 years is a productive age, most of which are working outside the home and mobility so as to facilitate the spread of Covid-19 in this age range (6). A similar study was also conducted in Wuhan in 2020, which found that the most asymptomatic cases of Covid-19 occurred in young adults (30-39 years) (7), where in mild or asymptomatic symptoms can occur in young adults without their knowledge, contributing to the transmission or asymptomatic transmission to others, including those at risk of severe disease (8).

Characteristics of patients based on gender dominated by male patients as many as 56 people (52.3%). These results are in line with several studies of clinical characteristics of Covid-19 patients in Kuwait,

Wuhan and Jakarta which showed the majority of the sexes were male (9, 10, 11). Fried's research in the United States states that 53.45% of Covid-19 patients are dominated by male sex (12). Seftiya's research states that the majority of Covid-19 patients are male as much as 57.5% (13). Hadian's research also stated that 62% of Covid-19 patients were male (14). This occurs due to the influence of the X chromosome which is more dominant in women (XX) than in men (XY), the X chromosome is associated with many genes involved in the innate and adaptive immune system and it also has several effectors that can control the activation of receptors of cytokines that function as mediators and regulators of the immune system, so that women have a dominant immune system than men. The dominance of male Covid-19 patients is also likely due to one of them because men often do activities outside (15).

The distribution of severity in this study, the majority of the severity of Covid-19 patients was mild at 62.6%. This study supports Kurniato's findings that the majority of symptoms in Covid-19 patients are minor, such as coughing (6). Based on Yang X's research to date, it is estimated that 80% of positive cases of COVID-19 are cases of relatively mild infection or even no symptoms at all, 15% are cases of severe infection requiring oxygen therapy and 5% are critical cases requiring a ventilator. (16). In the mild category, symptoms of upper respiratory tract infections such as cough, fever, myalgia, fatigue, runny nose, sore throat, and sneezing are classified. Some people do not have a fever, and others have gastrointestinal symptoms like vomiting, nausea, diarrhea, abdominal pain, or other non-respiratory symptoms (17).

The majority of antiviral drugs used in this study were favipiravir. This study is in accordance with the WHO classification in the Covid-19 management guideline 4th Edition in Indonesia which states the indication of the drug favipiravir for confirmed mild COVID-19 patients (17). The majority in this study confirmed mild COVID-19 patients so that the antiviral drug that was widely used was favipiravir at 70.1%.

Using a contingency coefficient, the results of testing the relationship patient characteristics (age and gender) and the degree of severity with the use of Covid-19 antiviral drugs in hospitalized Covid 19 patients are shown in Table II. The results from the bivariate analysis show that based on age, a  $p$  value  $> 0,05$  which is 0.346. Thus, there are no significant relationship between age and the use of Covid-19 antiviral drugs. Testing the relationship based on gender obtained  $P$  value  $> 0.05$ , which is 0.387. As a result, there is no statistically significant

relationship between gender and the use of Covid-19 antiviral drugs. Meanwhile, in testing the relationship between severity,  $p$  value  $< 0.05$ , which is 0.005, thus there is a significant relationship between severity and the use of Covid-19 antiviral drugs in hospitalized Covid-19 patients. Based on the WHO classification and Covid-19 management guidelines Edition 4, the choice of antiviral therapy given to confirmed Covid-19 patients is based on the severity of the mild, moderate, and severe-critical categories. (17). Based on Kurniawan's research, he stated that the proportion of administration of antiviral therapy class drugs mostly had a significant level of administration to the severity of the disease. Of the three antiviral administrations consisting of remdesivir ( $p = 0.009 < 0.05$ ), favipiravir ( $p = 0.027 < 0.05$ ) and osetalmivir ( $p = 0.030 < 0.05$ ). The administration of the three types of antivirals has a significant effect on Covid-19 patient's severity. So based on this research, in accordance with this study, there is a relationship between the degree of severity and the use of antiviral drugs (18).

## CONCLUSION

The description of Covid-19 patient characteristics involving 107 patients reveals that the majority of Covid-19 patients are between the ages of 26 and 45 years (46.7%) and the most gender is male (52.3%). The severity of the majority of patients was classified as mild (62.6%). The most widely used antiviral drug is favipiravir (70.1%). Age ( $p$  value = 0.346) and gender ( $p$  value = 0.387) had no significant relationship with Covid-19 antiviral drug use, while between the severity of patients and the use of antiviral drugs there was a significant relationship ( $p$  value = 0.005) with the use of drugs Covid-19 antivirals.

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