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EPIDEMIOLOGICAL AND CLINICAL CHARACTERISTICS OF OUTPATIENTS WITH COVID-19 UNDERGOING SELF-ISOLATION

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Abstract

Background: The pandemic of COVID-19 first appeared in the Wuhan, China in the end of 2019 and caused a global pandemic including Indonesia. Millions of people were infected and died. The Ministry of Health in Indonesia published a recommendation that the COVID-19 patients who are asymptomatic and mild symptom were suggested to do self-isolation at their home. There were a few articles discussing outpatient with COVID-19 in the academic hospital setting. Therefore, this article aims to describe clinical dan laboratory characteristics of outpatient with COVID-19 who undergoing self-isolation. Methods: A retrospective study through the electronic medical records of 255 outpatients with COVID-19 was done by analysing electronic medical report from the first 6 months of opening outpatient clinic focused on sign and symptoms related to respiratory tract infection. Results: The result showed that more than half of patients were female (50.6%), aged 18-60 years (83.5%), had the mild COVID-19 symptoms (76.9%), normal chest X-ray (85.5%), normal C-reactive protein (77.6%), and the length of self-isolation was no more than 14 days (66.3%). Cough (48.2%) and fever (33.3%) were found as the majority clinical symptom of the patients. Conclusion: Our study shows that the outpatients with COVID-19 undergoing self-isolation have mild-symptoms such as cough and fever with normal chest x-ray, C-reactive protein and normal whole blood count values. Our study also confirms that patient with asymptomatic and mild symptoms of COVID-19 patients were safe to undergoing self-isolation with length of quarantine about 14 days.

Keywords*: COVID-19, Outpatient, SARS-COV 2, Self-isolation*

INTRODUCTION

Coronavirus is one of the main pathogens of respiratory tract infections. Two previously highly pathogenic viruses, severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS), had been found cause severe respiratory syndrome (Guan et al., 2019). At the end of 2019, a pandemic of pneumonia caused by the novel coronavirus (COVID-19) first appeared in Wuhan, causing the number of infections far exceeding the coverage that can be handled by health care facilities (Bai et al., 2020).

In Indonesia, novel coronavirus disease 2019 (COVID-19) was first discovered in early 2020 and the disease was declared as national pandemic after the number of infected patients increased. The Ministry of Health of the Republic of Indonesia categorized patients into confirmed COVID-19 into asymptomatic, mild symptoms, moderate symptoms, severe symptoms, and critical symptoms. COVID-19 patients management based on the Ministry of Health Guidelines Revision 5 states that asymptomatic and mild symptoms COVID-19 do not require hospitalization. Patients must undergo self-isolation for at least 10 days from the date of confirmed COVID-19. Self-isolation can be done at home or in public facilities that was prepared by the government. Self-isolation was important in order to reduce the level of transmission that occurs at the community level. Patients confirmed COVID-19 who were undergoing self-isolation must follow the rules related to the infection prevention and did signs

and symptoms regular monitoring. The decision to recommend patients to self-isolation was made by many factors, including the bed availability at the hospital, clinical characteristics, and laboratory characteristics (Kemenkes, 2020).

Recently, there is limited researches related to the clinical and laboratory characteristics of outpatients with COVID-19 patients who undergoing self-isolation. The clinical characteristics are signs and symptoms, whole blood count value and chest X-ray. The analysis of these data are expected to provide an overview of outpatients with COVID-19 patients who are able to complete self-isolation without hospitalization. Therefore, this study will identify clinical and laboratory characteristics of outpatients with COVID-19 visited "Klinik ISPA".

METHODS

The design of this study was a descriptive retrospective study. Sampling method of this study used a purposive sampling technique with a total of 255 patients. The subjects of this study were outpatients with inclusion criteria: COVID-19 patients who were confirmed by RT-PCR examination, visited "Klinik ISPA" during the first 6 month opened, had blood and chest x-ray examination, and the results of the examination is patient advised to self-isolation. The exclusion criteria of this study were patient who did not return to the hospital after being advised to self-isolation. Data obtained from electronic medical records include demographic data, signs and symptoms during examination, comorbidities, laboratory results, chest x-ray results, and the length of time the patient was quarantined until the quarantine time completed. This research already obtaining an ethical approval with number KE-FK-0957-EC-2021 from the Biomedical Research Ethics Committee, Faculty of Medicine, Public Health and Nursing, Universitas Gadjah Mada, Yogyakarta.

RESULTS

The number of respondents in this study was 255 patients with an age range of 0.4-81 years, the average age was (35.7+15.7).

Table 1
Characteristics outpatients with COVID-19

No	Characteristics	Total (n)	Percentage (%)
1	Sex		
	Male	126	49.4
	Female	129	50.6
2	Age		
	Children (< 18 yrs)	20	7.8
	Adults (18 – 60)	213	83.5
	Elderly (> 60 yrs)	22	8.6
3	Comorbidities		
	Hypertension	31	12.2
	Heart disease	5	2.0
	Diabetes	13	5.1
	Immunocompromises	4	2.0
	Asthma	16	6.3

4	Signs and symptoms		
	Fever	85	33.3
	Fatigue	29	11.4
	Cough	123	48.2
	Nasal congestion	10	3.9
	Runny nose	58	22.7
	Headache	42	16.5
	Sore throat	55	21.6
	Diarrhea	14	5.5
	Nausea	26	10.2
	Vomitus	12	4.7
	Hyposmia/anosmia	78	30.6
	Hypogeusia/Ageusia	40	15.7
	Muscle Pain	12	4.7
	Asymptomatic	59	23.1
5	Chest X-ray		
	Normal	218	85.5
	Abnormal	37	14.5
6	C-reactive protein		
	(CRP)	53	20.8
	Positive	198	77.6
	Negative	4	1.6
	None		
7	Exposure		
	Family	92	36.2
	Working	80	31.5
	environment	23	9.1
	Travellers	59	23.2
	Unidentified		
8	Length of Quarantine		
	< 14 days	169	66.3
	> 14 days	86	33.7

It can be seen that half of the outpatients with COVID-19 were female (50.6%), with aged range from 18 to 60 years (83.5%), symptomatics (76.9%), normal chest X-ray (85.5%), negative CRP results (77.6%) and the duration of isolation <14 days (66.3%). the mean of whole blood count tests in Respondents were on the normal range.

Table 2
Whole blood count test results

No	Haematological parameters	Mean +SD
1	WBCs*1000	7.02+2.17

2	RBCs	4.97+0.55
3	Hb	14.04+1.71
4	HCT,%	41.62+4.44
5	Platelet	306.9+94.99
6	Neutrophils	56.01+11.43
7	Lymphocyte	34.56+24.57
8	Neutrophil to Lymphocyte Ratio	1.98+1.12
9	Monocyte	8.04+2.81
10	Eosinophil	2.15+1.92
11	Basophil	0.41+0.23

DISCUSSION

Coronavirus Disease 2019 (COVID-19) is an infectious disease caused by a novel Coronavirus. This disease began with the emergence of pneumonia cases with unknown etiology in Wuhan, China at the end of December 2019 (Bai et al., 2020). Research conducted by the Chinese CDC found that the most cases occurred in men (51.4%) and occurred at the age range of 30-79 years and the least occurred at the age of <10 years (1%). There were as many as 81% of cases were mild cases, 14% severe, and 5% critical (Wu & McGoogan, 2020). Recommendation from the Ministry of Health of the Republic of Indonesia, self-isolation is recommended for asymptomatic confirmed COVID-19 patients and mild symptoms. Self-isolation is a mandatory for someone who has been confirmed COVID-19 or had close contact with confirmed COVID-19 patients. Self-isolation recommended for a person who is confirmed COVID-19 asymptomatic or with mild symptoms, namely fever, cough, and hyposmia/anosmia.

Our study shows most of outpatients with COVID-19 were asymptomatic or mild symptoms, where the number of men and women only has a slight difference, although it was dominated by women. This study is in accordance with previous studies, where more women were infected with COVID-19 than men (Jingyan, 1989). However, this study different to previous studies which showed that men were more easily infected with the SARS CoV-2 virus than women (Bwire, 2020). From previous studies, it was mentioned that SARS-CoV and MERS-CoV were reported to infect more men than women. It is associated with protection from the X chromosome and sex hormones, which were known to play an important role for innate immunity and for the increased susceptibility of men to COVID-19. In addition, probability of the biological aspects that causes men to have a higher susceptibility was the higher expression of the enzyme ACE-2 (Angiotensin Converting Enzyme 2) as coronavirus receptor in men than women. Another aspect is behavioral reasons such as higher smoking rates in men (Song et al., 2021).

Our study shows outpatient with confirmed COVID-19 was dominated by adults between 18-60 years. The number of infected children tends to be low in this study. There was evidence that the number of ACE-2 receptors was significantly lower in children than in adults, which may be the main reason why children have fewer symptoms, less severe and a lower proportion of pneumonia. In addition, differences in ACE-2 receptor maturity, functionality or affinity between children and adults may explain these differences to some extent, which requires

further research (Song et al., 2021). In addition, another possible reason is due to decreased immunity in adults (Otuonye et al., 2021).

Our study also shows the most common comorbidities was hypertension (12.2%) followed by diabetes mellitus (5.1%). Hypertension is a cardiovascular disease. Viral infectious diseases can cause a variety of cardiovascular diseases, including myocarditis, pericarditis causing arrhythmias and heart failure. In COVID-19 infections, although the exact mechanism of myocardial injury is still in question, new research has revealed a possible association with angiotensin-converting enzyme 2 (ACE-2) expression in cardiac tissue. Previous studies shows that among the spectrum of cardiovascular diseases, hypertension has been observed to be the most common (30%), and a similar leading cause of death in about 6% of cases. This study is in accordance with some country-specific evaluations where hypertension accounts for the majority of comorbidities of COVID-19 in most countries (Bajgain et al., 2021). Diabetes mellitus was second comorbidities in our study. Moreover, about half of one billion people live with diabetes that can lead to complications in multi organ. The long-term effects of elevated blood sugar can result in a weakened immune system and increased susceptibility to infectious diseases such as COVID-19. Although, no clear association has been established between diabetes mellitus and COVID-19 severity, preliminary investigations postulated a possible association of ACE-2 overexpression in patients with diabetes (Bajgain et al., 2021).

Our study shows the most common symptoms were cough, fever and hyposmia/anosmia. This study is in accordance with previous study that stated most common symptoms experienced by confirmed COVID-19 patients were fever with a temperature and also cough without sputum or dry cough (Jingyan, 1989). Based on our data analysis, most patients' exposure to the COVID-19 virus came from close contact with family (36.1%), followed by close contact at working environment (31.5%). This possibility because of the source of infection from family is an adult who can be asymptomatic or the onset is late than other family members. It could also because there were family members with early manifestations of mild symptoms with pneumonia, sometimes were ignored if the SARS-CoV-2 NAAT examination and chest X-ray were not performed (Song et al., 2021).

Data collection from the patient's chest X-ray was carried out because of the high prevalence of pneumonia in confirmed COVID-19 patients (Song et al., 2021)son. Our study shows normal chest x-rays in the majority of chest X-rays examinations, although there were 37 people who had abnormal chest X-rays. Based on previous research, it was known that most of the patients who were confirmed COVID-19 had normal chest X-ray imaging, but if a CT scan was performed, it would be seen that the potential for pneumonia was found in these patients (Stephanie et al., 2020). In this study, X-rays were performed because CT scanning was not a top priority in confirmed patients with mild symptoms. Pneumonia in confirmed COVID-19 patients related to the internalization of the virus in lung pneumocytes. This study is contrary with the findings of previous studies showing that the most commonly observed lung lesions were ground-glass opacity, “crazy-paving” pattern, and focal consolidation. The “crazy-paving” pattern represents the presence of some “ground glass opacity” mixed with interlobular and intralobular thickening (Ufuk & Savaş, 2020)**.**

CONCLUSION

The majority of outpatients with COVID-19 undergoing self-isolation were adults, with

symptoms namely fever, cough, hyposmia/anosmia with comorbidities such as hypertension and diabetes mellitus. Outpatients who undergoing self-isolation get COVID-19 exposure from the family close contact. Chest X-rays and whole blood count values shows normal values. Our study confirms that patient with asymptomatic and mild symptoms of COVID-19 patients were safe to undergoing self-isolation with length of quarantine about 14 days. This study also shows the importance of COVID-19 symptoms screening and also close contact screening to prevent the transmission of COVID-19, education related to comorbidities, laboratory examinations and chest X-rays to prevent patients deteriorating during self-isolation. This study was sponsored by Dana Hibah Penelitian staf RSA UGM tahun 2021. The author thanks the Academic Hospital UGM for all support for this research, Nurse Penta who are carefully collecting the data from patient medical record and Ratna who are patiently assisting the research administration.

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