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DAFTAR ISI

Covid-19 Patient Condition at Early Pandemic in Jakarta

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Abstract:
Background: Covid-19 is a disease caused by Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) that has become a pandemic. It became apparent that Covid-19 transmitting from person to person. The clinical manifestations and characteristics of Covid-19 encompassing from asymptomatic infection until severe pneumonia and death. This study aimed to describe and compare the characteristics between Covid-19 suspected patients and confirmed patients at an early pandemic in Jakarta, Indonesia.
Methods: A cross-sectional design was used in this study. Data were collected from March to April 2020 using the electronic health record reporting database, initial laboratory tests, and RT-PCR for SARS-CoV-2 results. There were 58 subjects: 43 Covid-19 confirmed patients and 15 Covid-19 suspected patients.
Results: Male was found predominantly in Covid-19 confirmed patients than female. The mean age of confirmed patients was 49,6 years old. Nearly half of the confirmed patients had comorbidities namely hypertension and diabetes mellitus. Fever and cough were the most common presenting symptoms, and they were also found in suspected patients. Confirmed patients tended to have lymphopenia and neutrophilia. Pulmonary infiltrate was the most common feature in both confirmed and suspected patients.
Conclusion: There were no significant differences found between Covid-19 confirmed and suspected cases regarding demographic characteristics, comorbidities, presenting symptoms, physical examination results, laboratory tests, and chest x-ray results. Covid-19 confirmed patients had a history of exposure to Covid-19 confirmed patients. **(J Respirol Indones 2021; 41(3): 174–9)**
Keywords: coronavirus, Covid-19, Indonesia, Jakarta, SARS-CoV-2.

Karakteristik Pasien Covid-19 pada Awal Pandemi di Jakarta, Indonesia

Abstrak:
Pendahuluan: Covid-19 merupakan penyakit yang disebabkan oleh Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) yang saat ini telah menjadi pandemi. Covid-19 dapat menular dari orang ke orang. Manifestasi klinis dan karakteristik Covid-19 mencakup infeksi tanpa gejala hingga pneumonia berat dan kematian. Penelitian ini bertujuan untuk mendeskripsikan dan membandingkan karakteristik antara pasien terduga Covid-19 dengan pasien terkonfirmasi Covid-19 pada awal masa pandemi di Jakarta, Indonesia.
Metode: Penelitian ini menggunakan studi potong lintang. Pengumpulan data dilakukan dari Bulan Maret hingga April 2020 menggunakan basis data pelaporan rekam medis elektronik, uji laboratorium awal dan RT-PCR untuk hasil SARS-CoV-2. Subjek penelitian berjumlah 58 orang terdiri dari: 43 pasien terkonfirmasi Covid-19 dan 15 pasien terduga Covid-19.
Hasil: Pasien terkonfirmasi Covid-19 didominasi oleh laki-laki dengan rerata usia 49,6 tahun. Hampir setengah dari pasien yang terkonfirmasi memiliki penyakit penyerta di antaranya hipertensi dan diabetes mellitus. Demam dan batuk adalah gejala umum yang sering muncul, dan gejala tersebut ditemukan juga pada pasien terduga. Pasien yang terkonfirmasi cenderung memiliki limfositopenia dan neutrofilia. Infiltrat paru adalah gambaran yang paling umum pada pasien terkonfirmasi dan pasien terduga.
Kesimpulan: Tidak ditemukan perbedaan bermakna antara kasus Covid-19 terkonfirmasi dan terduga terkait karakteristik demografi, komorbiditas, gejala yang muncul, hasil pemeriksaan fisis, pemeriksaan laboratorium, dan foto toraks. Pasien terkonfirmasi Covid-19 memiliki riwayat kontak dengan pasien terkonfirmasi Covid-19 sebelumnya. **(J Respirol Indones 2021; 41(3): 174–9)**
Kata Kunci: coronavirus, Covid-19, Indonesia, Jakarta, SARS-CoV-2.

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INTRODUCTION

Coronavirus disease 2019 (Covid-19) is a disease caused by Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) has become a pandemic. Covid-19 was first reported in December 2019, on Wuhan city, the capital of Hubei province in China. Although SARS-CoV-2 did not have a mortality rate as high as the Middle East Respiratory Syndrome Coronavirus (MERS-CoV) or Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV), SARS-CoV-2 is much more infectious than MERS-CoV and SARS-CoV.[1,2] As of May 25th 2020, the total number of Covid-19 cases worldwide was 5.494.461, with total deaths of 346.434. In Indonesia, the total number of cases was 22.750 with total deaths of 1.391 as of May 25th 2020.[3]

This Covid-19 outbreak was likely started from a zoonotic transmission event associated with a large seafood market that also traded live wild animals in Wuhan, however, the highly infectious person-to-person transmission was also occurring and that was the reason for the outbreak.[4] The spectrum of clinical manifestations and characteristics of SARS-CoV-2 infection appears to be wide, encompassing from asymptomatic infection, mild upper respiratory tract illness, to severe pneumonia with acute respiratory failure and even could end up in death.[5–7]

Therefore, although most patients have mild symptoms and a good prognosis, some Covid-19 patients have developed severe pneumonia, pulmonary edema, multiple organ failure or ARDS that concluded in death.[7] The clinical manifestations and severity of Covid-19 could also be similar to other viral pneumonia or respiratory diseases.[1,2]

In this study, we aimed to describe and compare the characteristics between Covid-19 suspected patients and Covid-19 confirmed patients in St. Carolus Hospital as a private hospital located in Central Jakarta.

METHOD

This cross-sectional study was conducted in Carolus Hospital from March to April 2020. Data were collected from the electronic health record reporting database. Data collected included patient's demographic information, comorbidities, triage vital signs, presenting symptoms, history of contact with Covid-19 confirmed case, initial laboratory tests, diagnoses during the hospital course, chest x-ray (CXR) result, and real-time reverse transcription-polymerase chain reaction (RT-PCR) for SARS-CoV-2 result.

All consecutive patients who enrolled or were hospitalized in the Carolus hospital who were suspected as Covid-19 patients underwent RT-PCR testing, and had the available RT-PCR result data were included. A suspected case of Covid-19 was defined as someone who had a fever of >38° C with respiratory symptoms such as cough, dyspnea, sore throat, or runny nose. The confirmed case of Covid-19 was defined as a suspected case that had a positive RT-PCR result. The suspected Covid-19 patients who had negative RT-PCR results were labeled as COVID-19 suspected patients in this study. There were a total of 58 patients included in this study.

Data were cleaned, entered, stored, and managed with an excel database and IBM SPSS Version 25. Categorical data were described as a count and percentage that were tested using Fisher's exact test. Scaled variables with normal and abnormal distribution were expressed as mean (±SD) and median (interquartile range [IQR]) values, respectively, then were tested using an unpaired t-test and the Mann-Whitney test, respectively.

RESULT

A total of 58 Covid-19 patients were included in this study, divided into 43 Covid-19 confirmed patients and 15 suspected patients. About 26.7% of Covid-19 suspected patients were males (n=4) and 11 females (77.3%). For COVID-19 confirmed patients, 55.8% were males (n=24) and were 19 females (44.2%). The age of suspected patients ranged between 32 to 55 years with a mean were 44.3±6.7 years. Confirmed cases ranged between 30 to 71 years with a mean were 52.4±6.6 years.

Table 1. Patients, clinical and laboratory characteristic of suspected and confirmed Covid-19 cases.

Characteristics	Total (n=58)	Covid-19 Confirmed Patients (n=43)	Covid-19 Suspected Patients (n=15)	P
Age (SD)	44.1 (2.8)	49.6 (17.9)	55.6 (18.0)	0.27
Sex				
Male	28 (48.3%)	24 (55.8%)	4 (26.7%)	0.05
Female	30 (51.7%)	19 (44.2%)	11 (73.3%)	
Comorbidities				
Hypertension	10/63 (15.9%)	6/46 (13.0%)	4/17 (23.5%)	--
Diabetes Mellitus	10/63 (15.9%)	7/46 (15.2%)	3/17(17.6%)	--
COPD	2/63 (3.2%)	2/46(4.3%)	0 (0.0%)	--
Tuberculosis	1/63 (1.6%)	1/46 (2.2%)	0 (0.0%)	--
Thrombocytopenia	2/63 (3.2%)	2/46 (4.3%)	0 (0.0%)	--
Chronic Heart Disease	2/63 (3.2%)	1/46 (2.2%)	1/17 (5.9%)	--
Others	1/63 (1.6%)	1/46 (2.2%)	0 (0.0%)	--
None	32/63 (50.8%)	25/46 (54.3%)	7/17 (41.2%)	--
Presenting Symptoms				
Fever	39/45 (86.7%)	31/35 (88.6%)	8/10 (80.0%)	0.61
Cough	34/44 (77.3%)	27/34 (79.4%)	7/10 (70.0%)	0.67
Runny nose	10/44 (22.7%)	9/34 (26.5%)	1/10 (10.0%)	0.41
Sore throat	14/41 (34.1%)	11/31 (35.5%)	3/10 (30.0%)	1.00
Dyspnea	23/45 (51.1%)	18.35 (51.4%)	5/10 (50.0%)	1.00
Headache	7/41 (17.1%)	5/31 (16.1%)	2/10 (20.0%)	1.00
Nausea	15/41 (36.6%)	9/31 (29.0%)	6/10 (60.0%)	0.13
Diarrhea	4/41 (9.8%)	3/31 (9.7%)	1/10 (10.0%)	1.00
Exposure history	13/43 (30.2%)	11/33 (33.3%)	2/10 (20.0%)	0.69
Physical Examination				
Respiratory rate >24 breaths per minute	4/33 (12.1%)	4/23 (17.4%)	0 (0.0%)	0.29
Bilateral/unilateral lung rhonchi	11/24 (45.8%)	9/19 (47.4%)	2/5 (40.0%)	1.00
Epigastric pain	3/24 (12.5%)	3/19 (15.8%)	0 (0.0%)	1.00
Laboratory Findings				
Hemoglobin, g/dL	14.1(8.6–1.07)	14.0 (11.9–18.1)	14.9 (14.2–14.9)	0.84
Hemoglobin <13,7 g/dL (male) or <11,9 g/dL (female)	8/31 (25.8%)	5/23 (21.7%)	3/8 (37.5%)	0.39
Hematocrit	40.3 (0.8) 95% CI: 38.64–41.94	40.9 (17.9) 95% CI: -2.1–5.28	39.3 (4.7) 95% CI: -2.1–5.28	0.38
Total white blood cell	6298.6 (448.2) 95% CI: 5393.3–7203.9	7641.8 (7096.8) 95% CI: -4668.9–5381.3	7285.6 (3548.8) 95% CI: -4668.9–5381.3	0.87
<4.000	5/37 (13.5%)	3/28 (10.7%)	2/9 (22.2%)	--
4.000 - 10.000	26/37 (70.3%)	21/28 (75%)	5/9 (55.6%)	--
>10.000	6/37 (16.2%)	4/28 (14.3%)	2/9 (22.2%)	--
Basophil	0.3 (0.027) 95% CI: 0.204-0.315	0.3 (0.16) 95% CI: -2.47–0.06	0.4 (0.23) 95% CI: -2.47–0.06	0.22
Eosinophil	0.4 (0–9.0)	1.5 (0–3)	0.0 (0.0–1.9)	0.64
Neutrophil	70.6 (1.8) 95% CI: 66.96-74.28	69.8 (11.1) 95% CI: -9.89–8.36	70.5 (10.1) 95% CI: -9.89–8.36	0.87
40-60%	8/31 (25.8%)	7/23 (30.4%)	1/8 (12.5%)	0,64
>60%	24/31 (74.2%)	16/23 (69.6%)	7/8 (87.5%)	
Lymphocyte	20.3 (1.5) 95% CI: 17.30–23.20	21.5 (8.6) 95% CI: -5.09–8.55	19.7 (9.2) 95% CI: -5.09–8.55	0.61
< 20%	17/36 (47.2%)	12/27 (44.4%)	5/9 (55.6%)	0.70
20-40%	19/36 (52.8%)	15/27 (55.6%)	4/9 (44.4%)	
Monocyte	7.6 (0.45) 95% CI: 6.73–8.54	6.5 (2.7) 95% CI: -4610–3832	8.16 (2.5) 95% CI: -4610–3832	0.12
ESR	42 (3–115)	68.5 (9–115)	31.0 (6–31)	0.52
CRP	59 (2–314)	59.0 (2–135)	11.0 (11–314)	0.91
AST	76.3 (18.4) 95% CI: 35.87–118.8	64.5 (21.1) 95% CI: 10.36–118.64	136.3 (50.6) 95% CI: -81.37–354.04	0.63
ALT	72.4 (1.2) 95% CI: 32.46-112.37	53.3 (14.3) 95% CI: 16.64-90.36	154.33 (39.2) 95% CI: -14.27-322.93	0.66
Ureum	18.5 (10–38)	23,5 (15–38)	10.0 (10–16)	0.01
Creatinine	0.8 (0.6–1.2)	1.05 (0.6–1.2)	0.60 (0.6–0.9)	0.07
Imaging features				
Pulmonary infiltration	29/44 (65.9%)	21/32 (65.6%)	8/12 (66.7%)	--
Pericardial infiltrate	1/44 (2.3%)	1/32 (3.1%)	0 (0.0%)	--
Pleural effusion	2/44 (4.5%)	1/32 (3.1%)	1/12 (8.3%)	--
Aorta elongation	2/44 (4.5%)	2/32 (6.3%)	0 (0.0%)	--
Cardiomegaly	3/44 (6.8%)	2/32 (6.3%)	1/12 (8.3%)	--
Normal	7/44 (15.9%)	5/32 (15.6%)	1/12 (8.3%)	--

Note: ALT=Alanin Transminase; AST=Aspartate Transminase; CRP=C-Reactive Protein; ESR=Erythrocyte Sedimentation Rate

No significant differences were found between confirmed and suspected cases regarding demographic characteristics.

Comorbidities were present in nearly half of the total patients, with hypertension and diabetes mellitus being the most common. In confirmed patients, more than half (54.3%) of the patients had comorbidities, with diabetes mellitus being the most common; this number was not distant from suspected patients with 41.2% of them having comorbidities and hypertension being the most common followed by diabetes mellitus. The most common presenting symptom was fever, both in confirmed and suspected patients, followed by cough and dyspnea. Amongst Covid-19 confirmed patients, only 33.3% had a history of exposure to Covid-19 confirmed patients.

From physical examination upon entering the hospital, 17.4% of confirmed patients had a respiratory rate (RR) of more than 24 breaths per minute, whereas none of the suspected patients had a respiratory rate of more than 24 breaths per minute. About 47.4% of confirmed patients and 40.0% of suspected patients had bilateral/unilateral lung rhonchi. The Covid-19 confirmed patients also have epigastric pain (15.8%). There were no significant statistical differences between confirmed and suspected cases in terms of physical examination results.

Laboratory findings show that lymphopenia occurred in 44.4% of confirmed patients. Around 10.7% of confirmed patients had white blood cell (WBC) count <4.000, while 22.2% of suspected patients had WBC count <4.000. Neutrophilia was found in 69.6% of confirmed patients and 87.5% of suspected patients. Anemia was observed in 21.7% of confirmed patients and 37.5% of suspected patients. There were no significant statistical differences between confirmed and suspected cases regarding laboratory findings.

Bilateral/unilateral pulmonary infiltrations were the most usual radiological feature in both confirmed patients (65.6%) and suspected patients (66.7%). Pleural effusion was only seen in 1 out of 32 confirmed patients (3.1%). Normal imaging result

was observed in 15.6% of confirmed patients.

DISCUSSION

We analyzed demographical characteristics, comorbidities, presenting symptoms, laboratory findings, and imaging features of Covid-19 confirmed and suspected patients. The mean age of confirmed patients was 49.6 years. Male was more prevalent in confirmed patients, composing 55.8% of them. This finding was consistent with previous studies which showed that Covid-19 confirmed patients were more often male.[4–8] The cause of this phenomenon was still unknown, yet a possible explanation for this might have something to do with the protection provided by the X-chromosome and sex hormones, which play an important role in innate and adaptive immunity.[6] Within the confirmed patients, 45.7% had comorbidities with hypertension and diabetes mellitus being the most common. This was similar to the finding from previous studies that reported those with pre-existing hypertension and/or diabetes were highly prevalent in Covid-19 confirmed patients.[9]

At the beginning of the outbreak, the diagnosis of Covid-19 was challenging because of the very diverse symptoms and imaging findings and in the severity of the disease at the time of presentation. In this study, we pointed out that 88.6% of Covid-19 confirmed patients had a fever. Nevertheless, this number was similar to the 80.0% of the suspected patients who also had a fever. The second most usual symptom of confirmed patients was cough. Approximately 79.4% of confirmed patients had a cough, which was also found in 70.0% of suspected patients. This finding was in line with previous studies that discovered similar symptoms characteristics between Covid-19 and the other SARS-CoV.[4–7,10] Gastrointestinal symptom was not often found in Covid-19 confirmed patients.

The proportion of patients with lymphopenia was commonly observed in Covid-19 confirmed patients (44.4%). This result was similar to previous studies which reported lower total WBC in confirmed cases, even in patients with severe symptoms.[2] It was suggested that SARS-CoV 2 might mainly act

on lymphocytes, especially T lymphocytes, as does SARS-CoV. Particles of the virus would infect through the respiratory mucosa then could infect other cells, induce cytokine storm, generate a series of immune responses, and cause changes in peripheral WBC and immune cells. Some patients could rapidly progress into ARDS and septic shock, which eventually resulted in multiple organ failures. Damage to the T lymphocytes could be an important factor leading to exacerbations of patients. Neutrophilia that was found in this study was also consistent with results from previous studies.[7]

Pulmonary infiltrate was the most common imaging feature found in Covid-19 confirmed patients, even though it was not analyzed between unilateral and bilateral pulmonary infiltrates. In a study by Chen et al, it was reported that 74 patients (75.0%) had bilateral pneumonia, with just 25 (25.0%) having unilateral pneumonia.[2] Consolidation and ground-glass opacity appearance were not found in the confirmed patients in this study, unlike that reported by other studies.[2] Pleural effusion was not a major imaging feature in confirmed patients with only 1 of 32 patients having it, which was compatible with findings in previous studies that did not find pleural effusions in Covid-19 confirmed patients.[7]

This study had several limitations that should be mentioned. The number of subjects included in this study was relatively small, with a total of 58 subjects consisting of 43 were Covid-19 confirmed patients and 15 were Covid-19 suspected patients. Of all subjects, not all data were available in the medical records during the time of analysis. The cause of non Covid-19 pneumonia infection was still unclear because Covid-19 infection was ruled out by a negative RT-PCR result. However, the data in this study could allow an early assessment of the epidemiological and clinical characteristics of Covid-19 in Indonesia. Further studies with a larger number of subjects and more comprehensive data are needed to investigate more clinical characteristics of the disease.

CONCLUSION

No significant differences were found between confirmed and suspected cases regarding demographic characteristics, comorbidities, presenting symptoms, physical examination results, laboratory tests, and CXR results. Covid-19 confirmed patients had a history of exposure to Covid-19 confirmed patient.

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