Case report

COVID-19 Treatment in Medan, Indonesia: a Case Report

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Abstract

SARS-CoV-2, which belongs to a unique clade of the Sarbecovirus subgenus of the Orthocoronavirinae subfamily, was identified as the pathogen of Coronavirus disease 2019 (COVID-19) in January 2020. A majority (67-85%) of critically ill patients admitted in intensive care units with confirmed infection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) developed the acute respiratory distress syndrome (ARDS). Indonesia has been hit by COVID-19 with CFR being 8.9% at the end of March 2020. There have been 1,528 confirmed COVID-19 cases in Indonesia and 136 deaths related to the disease. The nation's case fatality rate (CFR) is also much higher than that of the People's Republic of China (8.9% vs 4%). According to the latest data of the Ministry of Health of Indonesia, there are only 309,100 hospital beds in Indonesia, with most of them being located on Java island. On top of that, there is less than 6,000 Intensive Care Unit (ICU) beds nationwide. The number appears much, but in fact, Indonesia only had 2.7 ICU beds per 100,000 people and thus the country ranked among the lowest in Asia. Indonesia's president finally decided to implement large-scale social restriction / Pembatasan Sosial Berskala Besar in cities and provinces, instead of regional quarantine. Regional quarantine is one of four types of health quarantine according to the 2018 Health Quarantine Law. The government also emphasizes the need to stay at home for all Indonesian citizens, and this "lockdown" scenario was initially prepared in Jakarta and West Java in March 2020.

Keywords: COVID-19, Treatment, Case Report, North Sumatera, Indonesia

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Introduction

The outbreak of the "Coronavirus Disease 2019" (COVID-19) started in December 2019, as unknown pneumonia that occurred in Wuhan with a history of South China seafood market exposure, then quickly became a sweeping and unprecedented challenge to different stakeholders in mainland China, and later, has been declared a public health emergency by the World Health Organization on January 30, 2020 (1-3). In the past decades, two known zoonotic coronaviruses, SARS-CoV and MERS-CoV, have been reported to

damage the respiratory tract and cause severe outbreaks. Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is a newly discovered coronavirus, which was first discovered in Wuhan, China in December 2019 (1). Coronaviruses are enveloped, positive single-stranded large RNA viruses that infect humans, but also a wide range of animals. Coronaviruses were first described in 1966 by Tyrell and Bynoe, who cultivated the viruses from patients with common colds (2-4).

SARS-CoV-2, which belongs to a unique clade of the *Sarbecovirus* subgenus of the *Orthocoronavirinae* subfamily, was identified as the pathogen of Coronavirus disease 2019 (COVID-19) in January 2020 (3). A majority (67-85%) of critically ill patients admitted in intensive care units with confirmed infection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) developed the acute respiratory distress syndrome (ARDS) (4).

The maximum incubation period is assumed to be up to 14 days, whereas the median time from onset of symptoms to intensive care unit (ICU) admission is around 10 days. Recently, WHO reported that the time between symptom onset and death ranged from about 2 weeks to 8 weeks (5). The severity of the patient's symptoms was categorized as mild, severe, or critical. Mild included non-pneumonia and mild pneumonia cases. Severe was characterized by dyspnea, respiratory frequency ≥30/minute, blood oxygen saturation ≤93%, PaO2/FiO2ratio <300, and/or lung infiltrates >50% within 24–48hours. Critical cases were those that exhibited respiratory failure, septic shock, and/or multiple organ dysfunction/failure (6, 7).

Indonesia has been hit by COVID-19 with CFR being 8.9% at the end of March 2020 (11). There have been 1,528 confirmed COVID-19 cases in Indonesia and 136 deaths related to the disease. The nation's case fatality rate (CFR) is also much higher than that of the People's Republic of China (8.9% vs 4%) (1-2).

According to the latest data of the Ministry of Health of Indonesia, there are only 309,100 hospital beds in Indonesia, with most of them being located on Java island. On top of that, there is less than 6,000 Intensive Care Unit (ICU) beds nationwide. The number appears much, but in fact, Indonesia only had 2.7 ICU beds per 100,000 people and thus the country ranked among the lowest in Asia (1-3).

Indonesia's president finally decided to implement large-scale social restriction / Pembatasan Sosial Berskala Besar in cities and provinces, instead of regional quarantine. Regional quarantine is one of four types of health quarantine according to the 2018 Health Quarantine Law. The government also emphasizes the need to stay at home for all Indonesian citizens, and this "lockdown" scenario was initially prepared in Jakarta and West Java in March 2020 (8-10).

Case Report

A 48-years male presented to the ER at 15:37 with unconsciousness which occurs since midnight one day ago, with fever and respiratory distress from last week. Coughs were noticed three days ago. There were no difficulties or abnormalities in urination or defecation.

The patient's family denied any sore throat, epilepsy and denied having anti-TB drugs. History of cardiac disease, diabetes, hypertension was also denied. History of traveling outside Medan or meeting anyone from outside Medan was denied. History of having COVID-19 positive in the nearby neighborhood was denied.

On clinical examinations, sopor, BP: 130/90 mmHg, HR: 120 bpm, RR: 30 bpm with SpO2 70-75%, Temp: 38C. Ronchi was heard on the left lung during chest auscultation. This patient was then diagnosed with Probable COVID-19 dd/ ARDS. CHF and given initial therapies from the ER, as stated below:

1. IVFD NaCl 0.9% 20 gtt
2. Injected Dexamethasone
3. Injected Meropenem 1 gram /8 hour
4. Injected Levofloxacin 750 mg /24 hour
5. Oseltamifir 75 mg/12 hour po
6. Hidroquinon 200 mg/12 hour po
7. Injected Vitamin C 1 gram/12-hour IV

The lab results are stated below:

- Hb/Ht/L/T: 11,1/34/9750/349000
- Neutrophil: 86,9
- Lymphocyte: 8,3
- PT/APTT/INR: 18,3(14)/26,5(32,5)/1,35
- D-dimer: >4000 ng/ml
- SGOT(ALT)/SGPT(AST): 53/107
- GDS: 107
- Hb-A1c: 6,6%
- BUN/Ur/Cr: 19/41/1,1

- Electrolytes:
  - Na: 132
  - K: 3,5
  - Cl: 98
- Blood Gas Analysis:
  - pH: 7,550
  - pCO2: 25
  - pO2: 151
  - Bicarbonate (HCO3): 21,9
  - Total CO2: 22,7
  - Base excess (BE): 0,3
  - O2 Saturation: 100

Sinus tachycardia was concluded on ECG examination. On radiologic/x-ray examination, the hospital radiologist concluded that there were infiltrates on the left lung and interpret the finding as left lung pneumonia. Treatment for this patient stated below:

- Bed rest + head up 30 deg.
- Injected Meropenem 1 gram/8hour IV
- Injected Levofloksasin 750 mg/24hour IV
- Injected Vitamin C 1 gram/12hour IV
- Injected Metilprednisolon 125 mg/12hour IV
- Injected Lovenox 0,6 ml/12hour SC
- Injected Omeprazole 40 mg/12hour IV
- Zinc 20 mg/12 hour orally
- B Complex 1 tab/8hour orally
- Oseltamifir 75 mg/12hour po
- Hidroquinon 200 mg/12hour po
- Hidonac 200 mg in Dextrose 5% in Water given in 2 hours/24hour IV

This patient was admitted for 18 days and tested for COVID-19 every 7-day using the PCR examination method. On the first day, this patient consulted the anesthesia department for airway management by using an endotracheal tube (ETT) and mechanical ventilation, with SaO2 95%-96% with setting SIMV 14, PEEP 8. VT 450, PSup 15, I:P 1:2, FiO2 100%, and then changed into SIMV 12, PEEP 6. VT 450, PSup 15, I:P 1:2, FiO2 100%. A high flow nasal cannula was used on the day-xx for x days, with oxygen saturation 96%-98% with FiO2% 60%. On admission, this patient was monitored for his blood pressure, heart rate, heart rhythm as expressed on ECG, and oxygen saturation, which ranged from 100 to 110 in systolic and 68-70 for diastolic. Heart rates were ranged in 80-90bpm. During admission, this patient was afebrile upon examination and denies any episodes of fever. Any other adverse effects from medication nor any additional symptoms were denied by the patient. This patient confirmed COVID-19 negative on the 17th day since admission with PCR test, then transferred to a non-COVID-19 ward on the same day and discharged from admission on the 18th day since admission.

Discussion

On admission, anamnesis, physical examination, and screening were done to this patient by the ER Adam Malik General Hospital triage and suspected with COVID-19 for its clinical appearance and radiology expertise's result. Every patient who had Acute Respiratory Infections (ARI) and in the last 14 days before symptoms develops (1) had traveled or live in a country/territory of Indonesia that reports local transmission (2) or had any contact with probable/confirmed COVID-19 patients, and (3) People with severe upper airway infection/pneumonia requiring hospitalization and no other cause based on convincing clinical appearances are categorized as suspect patients6. WHO advises for screening on every patient who may have COVID-19 – by finding any upper respiratory tract viral infection non-specific signs and symptoms, such as fever, fatigue, cough (with or without sputum production), anorexia, malaise, muscle pain, sore throat, dyspnea, nasal congestion, or headache. Rarely, patients may also present with diarrhea, nausea, and vomiting (6). Patients also screened for any signs or symptoms for sepsis such as life-threatening organ dysfunction caused by a dysregulated host response to suspected or proven infection. This patient was then treated on the quarantine ward, whilst waiting for his COVID-19 test result, with complete monitoring for vital signs – which is important for any COVID-19 suspects since its variety in severity.

In Indonesia, tracking every person who had close contact with the patient is also important, regulated in the Guidelines For Prevention And Control Coronavirus Disease (Covid-19) (Pendoman Pencegahan dan Pengendalian Coronavirus Disease (COVID-19); this patient was found positive, and the screening was done accordingly. For asymptomatic patients, every close contact was screened from any

history of contacting the patient since 2 days before and 14 days after testing specimen; for symptomatic patients, 2 days before and 14 days after any sign or symptoms show was used (3, 6).

The elderly and immunosuppressed may present with atypical symptoms. Symptoms due to physiologic adaptations of pregnancy or adverse pregnancy events, such as dyspnea, fever, GI symptoms, or fatigue, may overlap with COVID-19 symptoms (6).

COVID-19 patients tend to have decreased leukocyte (white blood cells / WBC) level, C-Reactive Protein (CRP) level and increased aspartate aminotransferase (AST) level, alanine aminotransferase (ALT and LDH) level, as concluded by Ferrari et al (7). In this patient, the value of SGOT (ALT) 53 and SGPT (AST) 107 each – both increase remarkedly, so if Ferrari et al study was applied, the diagnosis/rapid examination measures/swab COVID-19 is likely to get a positive result (7).

Give supplemental oxygen therapy immediately to patients with SARI (Severe Acute Respiratory Infection) and respiratory distress, hypoxemia, or shock and target SpO2> 94%. Adults with emergency signs (obstructed or absent breathing, severe respiratory distress, central cyanosis, shock, coma, or convulsions) should receive airway management and oxygen therapy during resuscitation to target SpO2≥ 94%. Initiate oxygen therapy at 5 L/min and titrate flow rates to reach target SpO2 ≥93%during resuscitation, or use a face mask with reservoir bag (at 10–15 L/min) if the patient in critical condition (6).

Once the patient was stable, the target was >90% SpO2 in non-pregnant adults. All areas where patients with SARI are cared for should be equipped with pulse oximeters, functioning oxygen systems, and disposable, single-use, oxygen-delivering interfaces (nasal cannula, nasal prongs, simple face mask, and mask with reservoir bag). Patients hospitalized with COVID-19 require regular monitoring of vital signs and, where possible, utilization of medical early warning score (e.g. NEWS2) that facilitate early recognition and escalation of treatment of the deteriorating patient. Recognize severe hypoxemic respiratory failure when a patient with respiratory distress is failing to respond to standard oxygen therapy and prepare to provide advanced oxygen/ventilatory support WHO (6).

Empiric therapy should be de-escalated based on microbiology results and clinical judgment. Treatment with Levofloxacin was done following the WHO guideline, as WHO states that empiric antimicrobials must be given to treat all likely pathogens causing SARI and sepsis as soon as possible, within one hour of initial assessment for patients with sepsis. Although the patient may be suspected to have COVID-19, administer appropriate empiric antimicrobials within one hour of identification of sepsis (4-7).

Oseltamivir, as a neuraminidase inhibitor (NAI), was hypothesized to be effective against COVID-19, as Zhang et al. found that the active site of the Spike (S) 1 Protein of SARS is similar to that of neuraminidase, despite no clinical data suggest that oseltamivir is effective in treating SARS-CoV (8). From the research conducted by Anatoly et al and Wessels et al, zinc supplementation is one of the best covid-19 treatment choices, as zinc (Zn2+) provides an inhibitory effect of RNA replication in covid-19 patients, and in general, COVID-19 patients suffer from Zinc deficiency (9,10). Moreover, chloroquine treatment is also considered to potentiate the therapeutic effects of zinc, and administration of zinc can reduce the incidence of cytokine storms, prevent secondary lung infections, maintain lung tissue barriers and prevent complications from COVID-19 (9,10).

Conclusion

As of date, COVID-19 is a disease that has many appearances. Quick treatment and intervention which determined from many factors; various studies, medical disciplines, and current National Ministry of Health's regulations and treatment choices, and the patient signs and symptoms, hopefully, benefit the patient and prevents morbidity and mortality.

Acknowledgment

None.

Conflicts of Interest

The authors declare that there are no conflicts of interest.

References

1. Zhu N, Zhang D, Wang W, Li X, Yang B, Song J, et al. A Novel Coronavirus from Patients with Pneumonia in China, 2019. N Engl J Med. 2020;382(8):727-33.
2. Setiati S, Azwar MK. COVID-19 and Indonesia. Acta Med Indones. 2020;52(1):84-9.
3. Tosepu R, Gunawan J, Effendy DS, Ahmad OAI, Lestari H, Bahar H, et al. Correlation between weather and Covid-19 pandemic in Jakarta, Indonesia. Sci Total Environ. 2020;725:138436.
4. Phua J, Faruq MO, Kulkarni AP, Redjeki IS, Detleuxay K, Mendsaikhan N, et al. Critical Care Bed Capacity in Asian Countries and Regions. Critical care medicine. 2020;48(5):654-62.
5. van Empel G, Mulyanto J, Wiratama BS. Undertesting of COVID-19 in Indonesia: what has gone wrong? J Glob Health. 2020;10(2):020306.
6. Liu J, Liu S. The management of coronavirus disease 2019 (COVID-19). J Med Virol. 2020;92(9):1484-90.
7. Ferrari D, Motta A, Strollo M, Banfi G, Locatelli M. Routine blood tests as a potential diagnostic tool for COVID-19. Clin Chem Lab Med. 2020;58(7):1095-9.
8. Zhang XW, Yap YL. The 3D structure analysis of SARS-CoV S1 protein reveals a link to influenza virus neuraminidase and implications for drug and antibody discovery. Theochem. 2004;681(1):137-41.
9. Skalny AV, Rink L, Ajsuvakova OP, Aschner M, Gritsenko VA, Alekseenko SI, et al. Zinc and respiratory tract infections: Perspectives for COVID-19 (Review). Int J Mol Med. 2020;46(1):17-26.
10. Wessels I, Rolles B, Rink L. The Potential Impact of Zinc Supplementation on COVID-19 Pathogenesis. Front Immunol. 2020;11:1712.