COVID-19 in Elderly Patient: A Case Report

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Abstract: *Coronavirus Disease 2019 (COVID-19) is an acute infectious respiratory disease which is a novel coronavirus as a causative agent. The diseases emerged in Wuhan, China since December 2019 and spread worldwide rapidly.COVID-19 in elderly patients are more potential to progress into severe type, it is very important to protect elderly people from infection. Therefore, all of the doctors in health care must be aware and give more attention to dealing with elderly COVID-19 patients.*

Keywords: COVID-19, elderly patient, potentially severe

1. Introduction

COVID-19 has constituted a Global Health Problem and as the International Concern, with cases confirmed in multiple areas or countries. The World Health Organization (WHO) has declared the COVID-19 as a global pandemic [1-3]. The traditional thought about aging and immunity, which views aging as an immunodeficiency state that predisposes the host to infectious diseases. COVID-19 in elderly are more potential to progress into severe type, therefore is very important to protect elderly people from infection [4-8]. According to the Chinese Center for Disease Control and Prevention, the overall case-fatality rate (CFR) of COVID-19 was 2.3% but the CFR for patients aged 80 years or older reached 14.8% [9-11].

Herein we report an elderly (80-year-old male) patient with COVID-19 who was hospitalized at Wangaya Hospital, in Denpasar, Bali, Indonesia.

2. Case Presentation

An 80-year-old male patient living in Denpasar, Bali, Indonesia came to Emergency Unit with complaint fever, dry cough, and shortness of breath for a week. The patient also had other complaints such as weakness, malaise, anorexia, and had a previous history of diabetes. He had close contact history with a COVID-19 patient at home.

The patient was fully alert. He had normal blood pressure, pulse rate 98 times per minute, respiratory rate 24 breath per minute, and the body temperature was 37.8^0C.

The laboratory examination revealed**;** leukocyte (in normal levels) = 7.03 x 10^3 /µL, neutrophilia (increased of neutrophil levels) = 8.64x 10^3 /µL, lymphopenia (decreased of lymphocyte levels)= 0.78 x 10^3 /µL, increased of neutrophil to lymphocyte ratio (NLR was 11.08), and high level of blood sugar = 256 mg/dL. There were no abnormalities of renal function, liver function, and serum electrolyte levels (Urea = 28 mg/dL, serum Creatinine = 0.9 mg/dL, ALT = 37 U/L, AST = 30 U/L, Sodium =134 mmol/L, Potassium = 4.5 mmol/L, Chlorida = 100 mmol/L). Decreased ofserum albumin level (hypoalbuminemia) = 2.5 g/dL. Oxygen saturation (SpO2) was 95%. Anti SARS-

CoV-2 test (SARS-CoV-2 IgG = Reactive, SARS-CoV-2 IgM = Reactive). Chest X-Ray showed bilateral infiltrates in the lungs and heart in the normal limits (Figure 1).


Figure 1: Chest X-ray on day-1 (admission) showing bilateral infiltrates

The clinical diagnosis was pneumonia caused by 2019 novel coronavirus (2019-nCoV) with differential diagnosis of pulmonary tuberculosis, poor regulated diabetes, and hypoalbuminemia. The patient was treated with antiviral such as oseltamivir and antibiotics 750 mg levofloxacin drip once daily. Other treatments were high protein diabetic diet and blood sugar regulation (subcutaneous injection of short acting insulin).

His disease deteriorated in 3 days; he presented dyspnea with respiratory rate 30 breath per minute with a SpO2 of 90%, body temperature 38.5^0C, blood pressure 110/70mmHg, and pulse rate 100 times per minute. The positive result in viral nucleic acid detection (Nasopharynx swab: SARS CoV-2 positive) confirmed the infection of 2019-nCoV. Additional laboratory findings showed X pert MTB-RIF Assay: MTB not detected and blood sugar = 214 mg/dL.

Diffuse infiltrates over bilateral pulmonary lobes were shown in Chest X-Ray (Figure 2).
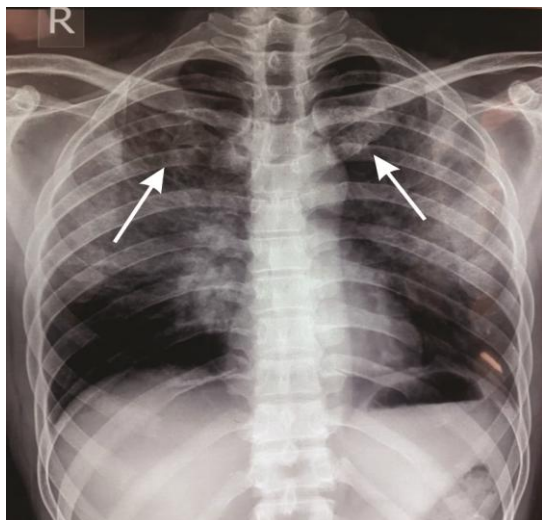
Figure 2: Chest X-ray on day 3 showed diffuse infiltrates over bilateral pulmonary lobes

He was observed in the Intensive Care Unit. The non-invasive ventilator was applied with continuous positive airway pressure mode (inspiratory positive airway pressure 6 cm H_2O). Cefoperazone was added to his regimen.

From day 7 to day 11, his fever subsided, ranging from 36.7^0C to 37.5^0C. The symptom of dyspnea relieved since day 12 and his body temperature had been controlled under 37.0^0C. Chest X-Ray on day 14 indicated the alleviation of pulmonary infiltrates (Figure 3). Negative results were shown in the RT-PCR, blood sugar 156 mg/dL, and serum albumin 3.7 g/dL. On day 16 he was discharged and carried out isolation for 14 days from his community.

Figure 3: Chest X-ray on day 14 showed the alleviation of pulmonary infiltrates

3. Discussion and Conclusion

Each individual has a susceptibility to new coronavirus infection, especially elderly patients with underlying comorbidities. Santesmasses D (2020), found that people with male sex and those who had age-related diseases had higher mortality [12]. Mills JP (2020), reported that age is one predictor of poor outcome in COVID-19 patients [13]. The underlying comorbidities are diabetes, hypertension, and cardiovascular disease [14]. Hypoalbuminemia also has been reported in severe COVID-19 patients seeking help in the emergency room due to COVID-19 infection. Hypoalbuminemia was considered to be a negative prognostic marker. Albumin is the major serum protein synthesized by the liver. Hypoalbuminemia (a low serum albumin level) is an ominous clinical sign [15-16].

We reported a case of an elderly (80-year-old)male patient with severe pneumonia caused by the infection of 2019-nCoV. Elderly patients with COVID-19 are more likely to develop into severe type with unfavorable prognosis. This patient had a history of diabetes and hypoalbuminemia, therefore attention should be given to his poor general condition and multiple underlying comorbidities. Nutritional status is sometimes ignored. Malnutrition was also closely linked with the prognosis of elderly patients, that need to be alert [14-15].

The common clinical manifestations included fever, dry cough, dyspnea, myalgia, fatigue, normal or decreased leukocyte counts, and radiographic evidence of pneumonia [17-21].

This patient came with complaint fever, dry cough, and shortness of breath for a week. He also complaint weakness, malaise, anorexia and insomnia. He had a previous history of diabetes and close contact with COVID-19 patients at home.

The neutrophil to lymphocyte ratio (NLR) calculated by dividing absolute neutrophil count and absolute lymphocyte count, having an important value in detecting the inflammatory status of COVID-19 patients [22-25]. Lymphopenia on admission was associated with poor outcome in patients with COVID-19 [26]. There was a high mortality rate in patients with severe COVID-19 with diabetes and diabetes may lead to an increase of mortality [27]. A low serum albumin level can potentially lead to early recognition of severe disease [16].

The laboratory results were leukocyte (in normal levels) = 7.03 x 10^3 /μL, neutrophilia (increased of neutrophil levels) = 8.64 x 10^3 /μL, lymphopenia (decreased of lymphocyte levels) = 0.78 x 10^3 /μL, increased of neutrophil to lymphocyte ratio (NLR was 11.08), and high level of blood sugar = 256 mg/dL. There were no abnormalities of renal, liver function test, and electrolyte (Urea = 28 mg/dL, serum creatinine = 0.9 mg/dL, ALT = 37 U/L, AST = 30 U/L, Sodium =134 mmol/L, Potassium = 4.5 mmol/L, Chlorida = 100 mmol/L). Decreased of serum albumin (hypoalbuminemia / a low serum albumin level) = 2.5 g/dL. Oxygen saturation (SpO2) = 95%. Anti SARS-CoV-2 (SARS-CoV-2 IgG = Reactive, SARS-CoV-2 IgM = Reactive). Chest X-Ray showed bilateral infiltrates in the lungs and heart in the normal limits.

The working diagnosis of this case was pneumonia caused by 2019 novel coronavirus (2019-nCoV), differential diagnosis with pulmonary tuberculosis, diabetes poor regulated, and hypoalbuminemia.

The main empirical therapies are symptomatic and antiviral drugs. The first helpful interventions are important for treating patients immediately at the onset of symptoms, including oxygen therapy, antibiotic therapy, and nutrient supplements. In particular, for critically ill patients, high-flow oxygen therapy and more aggressive therapies, such as non-invasive and invasive respiratory support are applied [28-31].

For this patient, therapies included symptomatic, antibiotic, and antiviral drugs. Due to hypoalbuminemia (a low serum albumin level) = 2.5 g/dL during admission, he was given albumin 20% (100 cc) 7 drop/min once daily until serum albumin level ≥ 3.5g/dL. High protein diabetic diet and subcutaneous injection of short-acting insulin were also given. Elder age and underlying comorbidities (diabetic poor regulated, hypoalbuminemia) were significantly contributed to the recovery of this patient.

Conclusion

Besides antiviral therapy and treatment for co-infections, the time of screening and intervention of underlying comorbidities (diabetes, hypoalbuminemia) are crucial issues to be concerned when treating elderly patients with severe COVID-19.

4. Declarations

Ethics approval and consent to participate. Ethical approval was obtained from the Ethical Committee of Wangaya hospital in Denpasar, Bali, Indonesia, and the study complied with the principles of the *Declaration of Helsinki.* The patient received detailed information about the study and the written informed consents was signed.

5. Consent for publication

Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

6. Competing Interests

The authors declare no conflict of interest.

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