

## Frail geriatric patient with covid-19 infection: a case report



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### ABSTRACT

**Introduction:** Covid 19 is a respiratory system disease caused by SARS-COV2. Geriatric patients with Covid-19 equipped with multiple comorbidities and a high vulnerability have high morbidity and mortality rates.

**Case illustrations:** A 75-year-old woman presents with confusion and fever. She was treated in the previous hospital for 7 days, experienced a deterioration of consciousness and had respiratory failure, thus was referred to Kariadi Hospital. She had comorbid hypertension, type 2 diabetes mellitus and grade 2 osteoarthritis genu bilateral. Bodyweight 45kg, height 150cm, BMI 20kg/m<sup>2</sup>, blood pressure 100/58 mmHg, pulse 110x/minute, Respiratory rate 28x/minute, Temperature 38.5°C, 93% oxygen saturation, Frailty Index 0.7, Katz Index G, Norton score 11/20. Leucocytes 9100, Lymphocytes 10%, Neutrophil Lymphocyte Ratio 2.2, Blood Glucose 247mg/dL, CRP 4.41mg/dL, Ferritin 5472.28, D-Dimer >20,000ug/dL, Fibrinogen 498 mg/dL, Procalcitonin 0.39, Chest X-ray showed pneumonia infiltrates with cardiomegaly. The RT-PCR swab examination showed positive SARS-Cov-2. Brain CT showed lacunar infarct and aging atrophy cerebral. the patient was admitted to intensive isolation room because of acute respiratory distress syndrome and covid coagulopathy. After clinical improvement, the next problems that must be addressed in isolation rooms are frail, confusion, cerebral syndrome, immobility and grade 1 decubitus.

**Conclusion:** Management of frail geriatric patients with Covid-19 has its challenges because of the high mortality rate. It requires a comprehensive and multidisciplinary approach.

**Keywords:** geriatric patient, frail, covid-19.

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## INTRODUCTION

In early December 2019, the first pneumonia cases of unknown origin were identified in Wuhan, the capital city of Hubei province.<sup>1</sup> On December 31, 2019, China officially reported a cluster of pneumonia cases of unknown cause that would later be identified to be caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Patients with the illness, called coronavirus disease (COVID-19), frequently present with fever, cough, and shortness of breath within 2 to 14 days after exposure. Genetic sequencing of the virus suggests that SARS-CoV-2 is a beta coronavirus closely linked to the SARS virus.<sup>2</sup>

As of June 13, 2020, there had been 7,553,182 confirmed cases of COVID-19 reported globally, and 423,349 deaths had been reported. In recognition of the widespread global transmission of Covid-19, the World Health Organization declared COVID-19 to be a pandemic on March 11, 2020.<sup>3</sup>

The first case of Covid-19 in Indonesia was diagnosed on March 2, 2020, in Depok, in a person who had traveled to Malaysia and contacted a Japanese who was later found to be COVID-19 positive. Since then, 38,277 cases had been confirmed and 2,134 deaths had occurred in Indonesia, as of June 14, 2020.<sup>4</sup>

While most people with COVID-19 develop only mild or uncomplicated

illness, approximately 14% develop severe disease that requires hospitalization and oxygen support, and 5% require admission to an intensive care unit. In severe cases, COVID-19 can be complicated by acute respiratory distress syndrome (ARDS) and Coagulopathy.<sup>5</sup>

A recent World Health Organization report found that the case fatality rate for COVID-19 patients older than 80 years in China was 21.9%, while patients of all ages with no underlying chronic conditions had a fatality rate of only 1.4%.<sup>6</sup>

Mortality data emerging from Italy reveals the staggeringly high risk of this virus for older adults. 6 In Italy, where 23% of the population is over 65 years, 89% of COVID-19 deaths are over 70 years old

(31% between 70-79 and 58% are over 80 years old).<sup>7</sup> On the hopeful side, 103-year-old Zhang Guangfen was admitted to Wuhan's Liyuan Hospital March 1st and has completely recovered.<sup>7</sup>

What is frailty? Frailty is a geriatric condition characterized by an increased vulnerability to external stressors. It is strongly linked to adverse outcomes, including mortality, nursing home admission, and falls.<sup>8,9</sup>

There is accumulating evidence that frailty may become one of the world's most serious health issues. A global epidemiological transition is currently occurring, in which mortality is becoming more likely to result from age-related degenerative diseases than from infectious diseases. These age-related diseases often manifest in frailty, resulting in serious functional limitations and susceptibility to adverse outcomes. Frailty exists in around a quarter of people aged over 85 years, and places a heavy burden on health and aged care systems. With the number of older people dramatically expanding in almost all countries, frailty prevalence is expected to soar.<sup>9</sup>

Frailty is different from aging, disability, and co-morbidity although it is distinctly related to these factors. For example, although frailty prevalence increases with age, it occurs independently from chronological age. Frailty does not yet have an internationally recognized standard definition, although the general premise is that frailty may be considered to be a geriatric syndrome reflecting multi-system dysfunction and in which individuals can dynamically transition between severity states. Multiple reasons exist as to why it is so challenging to define frailty, including its complex etiology, the often independent work of frailty researchers; and the inherent difficulty in distinguishing frailty from

both aging and disability. Regardless of these issues, and perhaps because of them, international groups such as the World Health Organization (WHO) and the International Association of Geriatrics and Gerontology (IAGG) are working on an internationally accepted frailty definition.<sup>10,11</sup>

Based on those problems, this case report aims to discuss Frail Geriatric patients' clinical management with severe COVID-19 based on available evidence.

## CASE REPORT

The patient was a 75 years old woman presented confusion and fever. She was treated in the previous hospital for 7 days, experienced a deterioration of consciousness and had respiratory failure. Then she was referred to Kariadi Hospital. The patient had comorbid hypertension, type 2 diabetes mellitus and grade 2 osteoarthritis genu bilateral. Her body weight 45 kg, height 150 cm, Body Mass Index 20 kg/m<sup>2</sup>, blood pressure 100/58 mmHg, Pulse rate 110x/minute, Respiratory rate 28x/minute, Temperature 38.5°C, 93% oxygen saturation, Frailty Index 0.7, Katz Index G, Norton score 11/20, nutritional status malnourish.

Laboratory results are Leucocytes 9100, Lymphocytes 10%, Neutrophil Lymphocyte Ratio 2.2, Blood Glucose 247 mg/dL, CRP 4.41 mg/dL, Ferritin 5472.28, D-Dimer >20,000 ug/dL, Fibrinogen 498 mg/dL, Procalcitonin 0.39, Ureum 50 mg/dL, Creatinin 1.04, GFR 39.06 ml. The RT-PCR swab examination showed positive SARS-Cov-2.

Blood Gas Analysis's initial result showed uncompensated alkalosis respiratory with pH 7.569, pCO<sub>2</sub> 33.7, pO<sub>2</sub> 57.2, FiO<sub>2</sub> 32, HCO<sub>3</sub> 28.6, BE 6.6, SO<sub>2</sub> 93.5, A-aDO<sub>2</sub> 124.3, PCO<sub>2</sub>/FiO<sub>2</sub> 178.75. Chest X-ray showed pneumonia

infiltrates with cardiomegaly. Brain CT showed lacunar infarct and aging atrophy of cerebral.

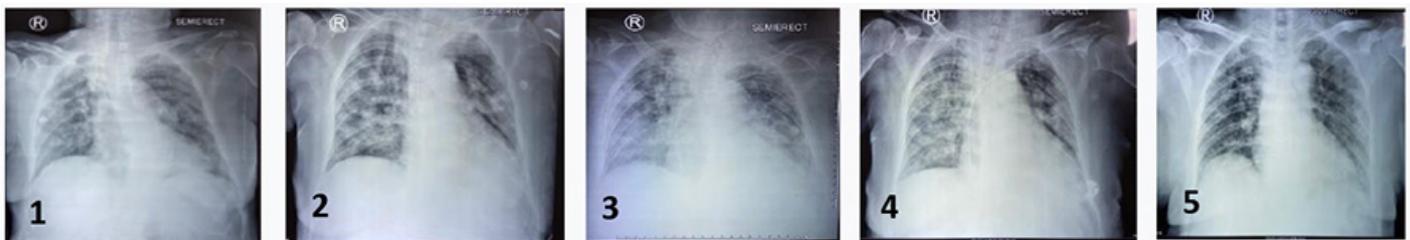
## DISCUSSION

The patient was admitted to intensive isolation room for 10 days because of Acute Respiratory Distress Syndrome (ARDS) and Covid Coagulopathy. During treatment in the intensive isolation room, the patient got Covid-19 therapy, high pressure oxygen therapy with Non rebreathing Oxygen Mask (NRM) 10 liters/minute for 3 days, and anticoagulants subcutaneous sliding scale insulin every 4 hours, antihypertensive agent, physiotherapy, Anti-decubitus mattress and adequate nutrition therapy.

For the Covid therapy the patient got Favipiravir day 1 loading dose 1600mg / 12h, and day 2 to 5 600 mg/12h, Antibiotic Levofloxacin 750 mg/24 h for 7 days, Vitamin C 1000mg/8h and Vitamin B 1tab/8h and also steroid. We didn't give Chloroquin because of the age. One of the side effects of Chloroquine is prolonged QT wave in Electrocardiography. We suggested enteral and parenteral nutrition, because in critical illness happens very often mesenteric ischemia.<sup>12,13</sup>

In the acute phase, the physiotherapy program must keep her energy effectively, so the intervention is proper body positioning, especially positioning every 2 hours, gentle chest physiotherapy and passive ROM exercise.<sup>14</sup> It has its own challenges, because it was difficult for the medical therapist to use safety clothes and instruct communication, especially the patient in confusion state. Our innovation used images or video.<sup>15</sup>

After clinical improvement, the next problems that must be addressed in general room are frail, immobility and grade 1 decubitus in the sacrum and right



**Figure 1.** Serial Chest X-Ray showed worsening (1-3) and improving after treatment (4-5).

heel area.

In general room the patient got 3 litre/minute oxygen cannula, oral diabetic agents, antihypertensive agents, physiotherapy (chest physiotherapy, active ROM mild exercise and mobilization), adequate nutrition therapy (oral, enteral nutrition) and management of decubitus, Osteoarthritis, lacunar infarction. The grade of Decubitus in this patient is grade 1, so she got massage 3 times per day and repositioning every 2 hours.<sup>16</sup> For bilateral genu grade 2 Osteoarthritis the patient only got topical anti-inflammatory and physiotherapy for reducing pain.<sup>10,14</sup>

Presentation of Geriatric patient is a difference with younger patient. In geriatric patients especially with frail, almost all of them have multiple diseases with malnutrition and have muscle wasting, so they need resistance training optimal. Geriatric patient management with Covid-19 and frail requires an interdisciplinary approach that involves collaboration with the geriatrician, the covid team, clinical nutrition specialist, medical rehabilitation specialist.<sup>14,17</sup>

Geriatrics patients with Covid-19 accompanied by multiple comorbidities and frail have a high risk of ARDS and complex post-convalescence management.

## CONCLUSION

Presentation of Geriatric patient is different with adult. In geriatric patients, especially with frail, almost of them have multiple diseases with malnutrition and have a muscle wasting, so they need a multidisciplinary approach. Management of frail geriatric patients with Covid-19 has its challenges because of the high mortality rate. It requires a comprehensive and multidisciplinary approach in interdisciplinary manner.

## CONFLICT OF INTEREST

The author declares no conflict of interest.

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## ETHICAL CONSIDERATION

Patient or legal guardian had received signed written informed consent regarding publication of the medical data in journal article as a case report.

## AUTHOR CONTRIBUTION

All author had contributed equally on writing the original draft and agree for the final version of manuscript for final publication.

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