



COVID-‘21’ Pandemic is Very Different from COVID-19 Pandemic in Japan - A Special Focus on the Frequency of Mechanical Ventilation and ECMO Treatments

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Short Communication

In February 2020, the World Health Organization (WHO) says the official name for the disease caused by the novel coronavirus, such as SARS-CoV-2, is COVID-19 [1]. The new name is taken from the words "corona", "virus" and "disease", with 2019 representing the year that it emerged (the outbreak was reported to the WHO on 31st December). Because the types of RNA virus genomes are frequently changed in infected hosts, there are many variants of SARS-CoV-2. In 2020, the main new variants-named Alpha, Beta, and Delta and first identified in Britain, South Africa, and India, respectively-have properties that make them more successful in transmitting and replicating than the original virus [2].

From 1st wave to fifth waves of COVID-19 pandemic due to SARS-CoV-2 original, Alpha, Beta, and Delta variant infection, we have to face the necessity of ventilator treatment and Extracorporeal Membrane Oxygenation (ECMO) treatment for many patients with COVID pneumonia. In adults with COVID-19 and acute hypoxemic respiratory failure, conventional oxygen therapy may be insufficient to meet the oxygen needs of the patient [3]. Options for providing enhanced respiratory support include High-Flow Nasal Cannula (HFNC) oxygen, intubation and mechanical ventilation, or ECMO. However, the ventilator and ECMO treatments for COVID-19 have a heavy human and financial burden a heavy financial burden. These skillful treatments under the infectious prevention controlled units are very stressful and exhausted in many medical staffs. Furthermore too many patients with severe condition of COVID-19 disturbed the usual hospital missions including the elective surgical operation and chemotherapy for cancers and emergency treatment for coronary artery disease or stroke. Although the survival rate was greater than 70% and 60% either in ventilator treatment and ECMO treatment in severe cases with COVID-19 pneumonia, many patients were killed by respiratory failure or multiple organ failure following SARS-CoV-2 infection (Figure 1) [4,5].

Although the pandemic isn't over, the other variant of SARS-CoV-2 emerged as the Omicron variant (B.1.1.529) is a variant of SARS-CoV-2. Now we still faced to sixth of COVID pandemic due to Omicron variants. The variant of SARS-CoV-2 was first reported to the World Health Organization (WHO) from South Africa on November 24th, 2021 [6]. Omicron multiplies around 70 times faster than the Delta variant in the bronchi (lung airways) but evidence suggests it is less severe than previous strains, especially compared to the Delta variant [7]. Although the higher spreading the virus in communities in the world including Japan, the most of the patients are asymptomatic and less hospitalized. But the number of infected population was more than four times greater than the total infected population of COVID-19 pandemic from 1st wave to fifth waves. Because the biological features of Omicron variants are very different of the original SARS-CoV-2, the disease caused by Omicron variants should be called as COVID-21, which is differentiated from COVID-19.

In Japan, the mechanical ventilator treated patients are around 1% of total patients with COVID-19 from the 1st wave to fifth wave, but the ventilator treated patients are about 0.1% of the total patients with COVID-21. The ECMO treated patients are around 0.3% of the total patients with COVID-19, whereas the patinas are about 0.01% of the total patients with COVID-21 (Figure 1). Although the application of HFNC treatment in the whole area of Japan may decrease the indication of mechanical ventilation and ECMO, it is clear that the coronavirus disease and its acute respiratory failure are less severe in COVID-21 than those in COVID-19.

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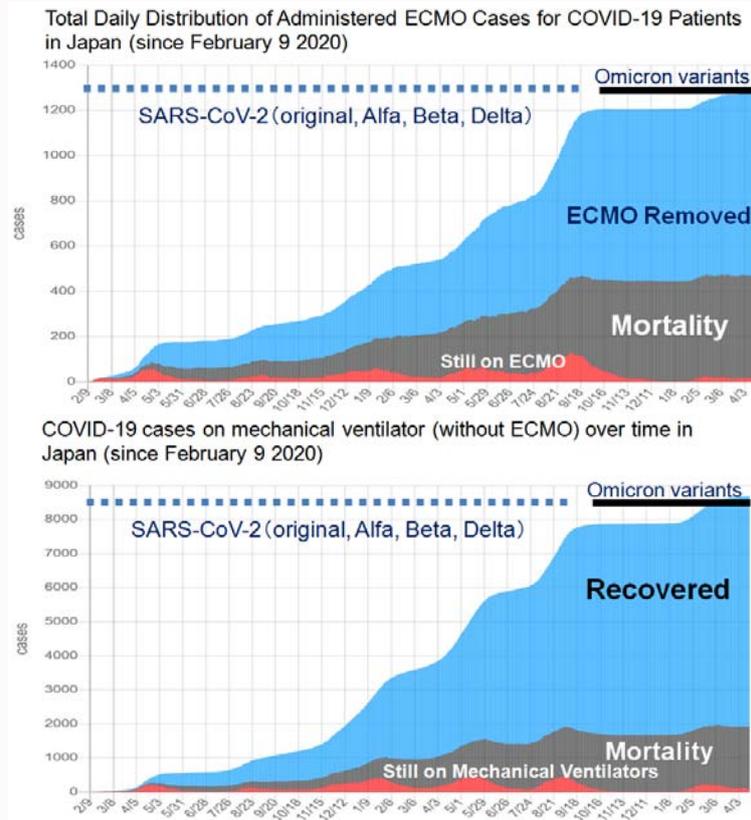


Figure 1: The mortality graph of respiratory failure or multiple organ failure following SARS-CoV-2 infection.

We should fairly face to new pandemic of COVID-21 based on the knowledge of prevention, vaccination and treatment of COVID-19.

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