

Abstract of Master's Dissertation

No.1

Course	Master of Tropical Medicine	Name	Kazuaki Fukushima
Thesis Title	Clinical characteristics of coronavirus disease 2019 (COVID-19) in a category-1 infectious diseases-designated hospital in Tokyo, a single-center retrospective observational study		
<p>Abstract of Master's Dissertation</p> <p>Background: Coronavirus disease 2019 (COVID-19) has spread all over the world since December 2019. The rapid increase in the number of infected people has led a devastating impact on the medical field. Japan has experienced five waves in its epidemic curve due to variant strain until December 2021. The impact of variants on the severity and death from COVID-19 has been reported overseas, but such data remains scarce in Japan.</p> <p>Objectives: We aimed to clarify the social demographics and clinical characteristics of COVID-19 patients in each epidemic wave from the first wave to fifth wave, to clarify the risk factors for critical illness and death from COVID-19, and to determine whether there is an independent association between each wave and clinical outcome.</p> <p>Materials and Methods: This is a retrospective observational study of a single-center hospital. From January 31, 2019, to October 31, 2021, patients who were admitted to Tokyo Metropolitan Komagome hospital with a diagnosis of COVID-19 were recruited. Based on the number of newly reported daily cases in Tokyo, the patients were classified into five waves. We collected medical data from the electronic medical record backwards. The severity is determined using the WHO classification. In the analysis of risk factors for severely ill patients, these patients were further classified into critical and non-critical groups, death and survive groups. Multivariate analysis performed Binomial logistic regression analysis by introducing waves and vaccine history as remarkable variables in addition to the variables that were significant in univariate analysis.</p>			

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<p>Results: The total number of the patients was 1948. The median age was 53.0 years with 61.8% of males. Median age was lowest in the second wave (39 years) and highest in the third wave (72 years). The proportion of cases that resulted in critical illness was significantly lower in the second wave. The fatality rate was highest at 7.7% during the first wave and lowest at 1.9% during the fifth wave. The number of the patients and the proportion of the severity by age category were different by each wave, in particular, the number and the proportion of severely ill patients are largest in their 40s and 50s in the fifth wave. Older age, male, high BMI, the longer days from onset to admission, DM, and CKD were associated with critical illness, on the other hand, older age, cancer, CKD, and immunosuppressant use were associated with death. Vaccine history was associated with protective effects for critical illness and death. The first wave was associated with critical illness and death, and the fifth wave was associated only with critical illness, independently.</p> <p>Conclusions: The risk of critical illness from COVID-19 was significantly higher in patients during the first and fifth wave even after adjusting for previously reported factors. However, the risk of death was significantly higher only in patients during the first wave but not during the fifth wave. This may reflect significant improvement of COVID-19 management and medical care delivery system over the period.</p>			