



Coronavirus disease in 2020 and *Precision and Future Medicine*

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The World Health Organization declared coronavirus disease 2019 (COVID-19) a pandemic on March 11, 2020. As of September 8, 2020, more than 27 million cases have been diagnosed globally resulting in almost 0.9 million fatal cases. In this issue, two interesting papers addressed the relevant issues of the COVID-19 pandemic era.

In a report by Enkhtur et al. [1], the authors elucidated the factors underlying the increased morbidity and mortality in patients with comorbid metabolic disorders and viral infection, particularly coronavirus “Factors increasing the risk of mortality and morbidity due to coronavirus infection in patients with metabolic syndrome.” They suggested that the increased pro-inflammatory cytokine release is a risk factor; therefore, targeting inflammatory signalling pathways represents a potential therapeutic target to control the cytokine release, and thereby prevent serious outcomes.

Li et al. [2] showed the relation between various infectious diseases and a common non-infectious disease, i.e., acute stroke “Infectious causes of acute ischemic stroke: pathomechanisms and distribution of brain infarct.” They showed that different pathomechanisms of stroke are associated with infectious organisms, suggesting that prompt and appropriate control of these organisms could prevent ischemic stroke.

Precision and Future Medicine covers new and innovative diagnostic and therapeutic information that could be relevant to the COVID-19 pandemic, such as regenerative medicine, telemedicine, and infoepidemiology. Mesenchymal stem/stromal cells (MSCs) have been tested for the treatment of acute and chronic lung diseases, including acute respiratory distress syndrome, which represents the most threatening complication of COVID-19 in both animal models and actual patients. There are increasing experimental evidences underlying the possible use of MSCs and MSC-derived extracellular vesicles (EVs) in severe COVID-19 cases [3]. Recently, the results of a first-in-man trial on 24 patients with severe COVID-19 pneumonia treated with MSC-derived EVs was published [4]. Moreover, health workers are exposed to patients in their everyday practice. Most hospitals have a limited or no-visitor policy. Telemedicine and wearable health devices can play a significant role in this COVID-19 pandemic. Using telemedicine, multiple patients can be monitored simultaneously and in different situations. For example, wearable technology (Google eyeglass-based video device or smartphone applications) was feasible and reliable in the early assessment of patients with acute illnesses [5]. The advances in biosensors and application of machine-learning technique enabled accurate diagnosis of common acute febrile and cardiopulmonary diseases [6]. Using this technology, healthcare

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workers can be protected when patients suspected with COVID-19 arrive at the hospital. Additionally, it enables physicians to deliver timely and efficacious care in cases that are unlikely to have COVID-19. Lastly, infoepidemiology is the technology of predicting the outbreak of infectious diseases and spread of virus utilizing artificial intelligence and big data analysis technology. This technology was selected as one of the 10 promising biotechnologies of the 4th industrial revolution in 2017 by Korea Research Institute of Bioscience and Biotechnology. This technology may be helpful in understanding the mechanisms of the spread of COVID-19 and predicting geographic outbreaks.

CONFLICTS OF INTEREST

No potential conflict of interest relevant to this article was reported.

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