

Arterial function should be focused in the follow-up treatment of COVID-19 mild patients

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Abstract

An outbreak of pneumonia named coronavirus disease 2019 (COVID-19) occurred in Wuhan in December 2019. COVID-19 has spread rapidly throughout China, even the whole world [1]. The treatment of COVID-19 has won a stage of success after the active intervention of the Chinese government. Cardiovascular damage was found in COVID-19 patients with the increasing research of COVID-19. There might be two pathways [2,3]. The first one was immune injury or inflammatory outbreak caused by coronavirus infection. Another was angiotensin-converting enzyme 2 pathway, which was a functional receptor for coronavirus. The earliest retrospective study analysis suggested that nearly half of COVID-19 patients had hypertension, or cerebrovascular disease [4]. The latest large-scale epidemiological study showed that the mortality rate increased significantly in COVID-19 patients accompanied with hypertension, diabetes mellitus and coronary artery disease. And fatality rate could reach 10.5% in COVID-19 patients combined with cardiovascular disease [5]. In addition, 80.9% COVID-19 patients manifested with mild. However, cardiovascular system affected by COVID-19 in this part of population was still unknown, or the future cardiovascular events has yet to know. So cardiovascular function assessment in mild patients should be focused in addition to the treatment of severe patients. Because cardiovascular disease is still an important factor affecting human life in the future, especially after COVID-19 infection.

China is the one of the first countries to carry out the assessment of early vascular lesion detection technology for vascular diseases. Early vascular lesion detection technology was approved by the Ministry of Health of the People's Republic of China to be promoted to the whole People's Republic of China in 2004 [6]. The idea is that if you have good vascular function, you will have good health and a long life. Arteriosclerosis, increased arterial stiffness and endothelial function disorder are the pathophysiological changes of cardiovascular disease, and also the predictor factors of future cardiovascular events. So, the following should be focused in the management of COVID-19 mild patients. 1) Endothelial function evaluation: endothelial dysfunction is an initial factor of cardiovascular events.

It could be evaluated by flow mediated dilation or reactive hyperemia index. 2) Arterial stiffness evaluation: arterial stiffness could be evaluated by pulse wave velocity and cardio ankle vascular index. Many studies have confirmed their predictive role of future cardiovascular events. For example, cardio ankle vascular index was affected by huge earthquake [7]. 3) Holter monitoring and echocardiography: this examination could detect occult myocardial ischemia, which plays an important role in the prediction of acute cardiovascular events.

In conclusion, the mortality rate increased significantly in COVID-19 patients accompanied with cardiovascular diseases. Cardiovascular function could be affected by coronavirus, and arterial function including endothelial function, arterial stiffness, occult myocardial ischemia should be focused in the management of mild patients even in severe patients. And prospective studies are needed to confirm in future.

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