Medical Xpress

Cardiovascular impairment in COVID-19

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Proven cardiovascular anti-inflammatory therapies should be used to treat COVID-19 patients that are at risk of, or have developed, cardiovascular problems, recommend leading cardiologists from Beijing, China, who have used their expertise in this area to detail treatment

options for these patients.

Published in *Frontiers in Cardiovascular Medicine*, the researchers have described the different ways COVID-19 can trigger serious inflammatory-related cardiovascular problems and provide clinicians with guidance for treating these issues. Potential problems with drugs currently being administered to fight this virus are also highlighted.

"We are the first to comprehensively discuss the application of cardiovascular anti-inflammatory treatments for patients severely affected by COVID-19," says Professor Shuyang Zhang, lead author of this research, based at the Department of Cardiology, Peking Union Medical College Hospital Beijing, China.

"Our study sets out guidance for the selection of specific cardiovascular anti-inflammatory therapies for COVID-19 patients, depending on the severity of disease and a patient's response to therapy. In addition, we highlight the known risks to the cardiovascular system of treatments currently being tested on patients with COVID-19."

Risk to the cardiovascular system

The risk of pneumonia and respiratory distress in COVID-19 patients is well known, but there is increasing evidence of severe cardiovascular problems associated with the disease.

"Inflammation plays an important role in the development and complications of cardiovascular diseases and we have seen that COVID-19 patients with greater signs of an inflammatory response are more likely to suffer serious cardiovascular events and are at greater risk of dying," explains Zhang.

"We have identified a number of ways that COVID-19 can trigger

cardiovascular issues. The virus could directly infect and cause inflammation of the heart's tissues, aggravate existing cardiovascular problems, or trigger an over-excessive immune response in the body, often referred to as a 'cytokine storm', which leads to the body attacking itself."

By examining current promising COVID-19 treatments as well as cardiovascular anti-inflammatory therapies that have been verified in clinical trials with positive results, Zhang and her colleagues highlight potentially effective treatments and suggest ongoing anti-inflammatory treatment to aid recovery.

"Many clinical trials have been conducted over the past decade to directly test the feasibility of using different anti-inflammatory agents for cardiovascular protection under various conditions, Accumulating evidence supports their ability to improve cardiovascular outcomes," explains Zhang.

"Using current knowledge of cardiovascular anti-inflammatory therapies might be of great value in the management of COVID-19 and we recommend referring to this knowledge and experience in clinical practice and conduct related COVID-19 clinical trials."

Use with caution

The researchers warn against using new, pre-clinical drugs for treating COVID-19 because of their unknown efficacy and safety risks. In addition, the use of certain anti-viral drugs, some currently under clinical assessment for treating COVID-19, should be used with caution.

"Some drugs currently in use for COVID-19 patients such as lopinavir/ritonavir, interferon-α, ribavirin, azithromycin, and hydroxychloroquine may actually increase the risk of cardiovascular

impairment," explains Zhang. "Considering that these drugs may be essential in the clinical management of COVID-19 patients, especially the anti-viral agents, cardiovascular protective strategies are urgently needed to improve the overall prognosis."

The researchers believe that sharing their knowledge and experience through this study will make a difference to patients severely affected by this disease.

"We hope our study provides useful information to the global community hoping to improve the clinical management of COVID-19 during this pandemic."

More information: Lun Wang et al, Cardiovascular Impairment in COVID-19: Learning From Current Options for Cardiovascular Anti-Inflammatory Therapy, *Frontiers in Cardiovascular Medicine* (2020). DOI: 10.3389/fcvm.2020.00078

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