

COVID-19 and cardiovascular system: not only heart but also vascular. The effects of the infection on arterial stiffness

A. Maloberti, E. Gualini, S. Scarpellini, M. Algeri, M. Biolcati, E. Grasso, C. Tognola, A. Moreo

Niguarda Ca' Granda Hospital, Cardiology 4, Milan, Italy

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Background: SARS-CoV-2 determines a framework of multi-organ dysfunction that can involve the cardiovascular system creating damages of different nature. Among these, endothelial damage could play a key role in increasing arterial stiffness and thus the cardiovascular risk of infected patients. The aim of this study is to evaluate the Pulse Wave Velocity (PWV) of a population of patients after recovery from infection and to compare them with those of a group affected by arterial hypertension.

Methods: This prospective observational monocentric study involved 143 patients with previous diagnosis of Covid-19 who undergone PWV measurement during the follow-up at a median time of 3.8 months after the infection. These patients were compared to a population of 143 patients

with hypertension matched by age, sex, Systolic Blood Pressure values and Body Mass Index.

Results: PWV values were higher in Covid-19 group comparing to hypertension group (10.5 ± 3.0 m/s VS 8.9 ± 2.5 m/s). Furthermore, there is a correlation between higher PWV values and lower values of SpO₂% at time of admission at the Emergency Department. ($R = -0.302$; $p < 0.001$).

Conclusions: SARS-CoV-2 infection seems related to increased PWV values. Moreover, higher arterial stiffness seems correlated to a worse oxygen saturation in Emergency Department. More studies with longer follow-up time are necessary to establish whether the vascular damage is reversible and whether it correlates with an increase of long-term cardiovascular risk.