Hidden Danger of COVID-19 Outbreak: Evaluation of Subclinical Myocardial Dysfunction in Patients with Mild Symptoms

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Abstract

Background: The COVID 19 infection, which is caused by the novel coronavirus SARS-CoV-2, has rapidly emerged as a global public health issue. This study aimed to evaluate whether subclinical myocardial dysfunction using left ventricular global longitudinal strain (LVGLS) in non-hospitalized mildly symptomatic COVID-19 patients. Methods: Fifty (26 male, 24 female) non-hospitalized COVID-19 patients and 50 age- and sex-matched healthy volunteers have included in the study. Apical four-, three-, and two-chamber images were analyzed longitudinally by conventional methods and speckle tracking echocardiography (STE) for left ventricle functions. Results: The mean age of the COVID-19 patients was 39.55 ± 8.96, 52% of them were male. The most prevalent presenting symptoms were fever (in 34 (68%)), asthenia (in 30 (60%)), loss of appetite (in 21 (42%)), myalgia (in 20 (40%)), and cough (in 13 (26%)). Plasma levels of C-reactive protein (CRP) were significantly higher in the COVID-19 patients than in the controls (10.84 ± 12.44 vs. 4.50 ± 2.81, $p < 0.001$). There was no significant difference between the groups in terms of standard echocardiography and Doppler parameters ($p>0.05$). Left ventricular longitudinal strain and strain velocity parameters were significantly decreased in COVID-19 patients compared to healthy individuals. LV-GLS values ($-21,72 \pm 3,85\%$ vs. $-23,11 \pm 4,16\%$; $P =0,003$) were significantly lower in COVID-19 patients when compared with the healthy controls. Conclusion: Mildly symptomatic COVID-19 patients also have subclinical myocardial dysfunction similar to hospitalized patients. STE has the potential for detecting subclinical LV systolic dysfunction and can provide useful information on the risk stratification in the mildly symptomatic COVID-19 population.

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