

Assessment of Subclinical Biventricular Myocardial Systolic Function in COVID-19 patients: A Tissue Doppler Imaging Echocardiography Study

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Abstract

Background: The 2019 novel coronavirus disease (COVID-19) has been reported as pandemy and the number of patients continues to rise. Based on recent data, cardiac injury is a prominent feature of the disease, leading to increased morbidity and mortality. In the present study we aimed to evaluate myocardial dysfunction using transthoracic echocardiography (TTE) and tissue Doppler imaging (TDI) in hospitalized COVID-19 patients. Methods and Results: We recruited 30 patients (56.7 % male, 55.80±14.949 years) who were hospitalized with the diagnosis COVID-19 infection. We analyzed left ventricular (LV) and right ventricular (RV) conventional and TDI parameters at the time of hospitalization and during the course of the disease. Patients without any cardiac disease and with preserved LV ejection fraction (EF) were included. TTE examination was performed and all the variables were recorded and analyzed retrospectively. We observed that both LV and RV conventional echocardiographic parameters were similar when the day of admission to the hospital was compared to the 5th day of the disease. Regarding TDI analysis, we demonstrated significant impairment in LV septal and lateral deformation (p<.001). In the correlation analysis no marked correlation was observed between impairment in LV deformation and inflammation biomarkers. Conclusion: Cardiac involvement is an important feature of the COVID-19 infection but the exact mechanism is still undefined. Echocardiography is an essential technique to describe myocardial injury and provide new concepts for the possible definitions of cardiac dysfunction.

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