

Routine advanced echocardiography in the evaluation of cardiovascular sequelae of COVID19 survivors with elevated cardiovascular biomarkers

E. Rodenas Alesina, J. Rodriguez-Palomares, M. Oller-Bach, P. Jordan, C. Badia, L. Herrador, M. Garcia-De-Acila, F. Clau-Terre, M. Gonzalez-Del-Hoyo, R. Fernandez-Galera, L. Servato, G. Casas, J. Baneras, I. Ferreira-Gonzalez

University Hospital Vall d'Hebron, Barcelona, Spain

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Background: COVID19 has been related to elevated CVB and biventricular dysfunction during hospitalization. However, it is unknown whether patients with biomarker elevation exhibit long-lasting abnormalities in cardiac function.

Purpose: To determine, using advanced echocardiography, the prevalence and type of cardiovascular sequelae after COVID19 infection with marked elevation of cardiovascular biomarkers (CVB), and their prognostic implications.

Methods: All patients admitted from March 1st to May 25th, 2020 to a tertiary referral hospital were included. Patients with cardiovascular disease antecedent, death during admission, or the first 30 days after discharge were excluded. Patients with hs-TnI >45 ng/L, NT-proBNP >300 pg/ml, and D-dimer >8000 ng/ml were separated based on each CVB elevation and matched with COVID controls (three biomarkers within the normal range) based on intensive care requirements and age.

Results: From a total of 2025 hospitalized COVID19 patients, 80 patients

with significantly elevated CVB and 29 controls were finally included. No differences in baseline characteristics were observed among groups, but elevated CVB patients were sicker. Follow-up echocardiograms showed no differences among groups regarding LVEF or RV diameters, but TAPSE was lower if hs-TnI or D-dimer were elevated. Hs-TnI patients also had lower global myocardial work and global longitudinal strain. The presence of an abnormal echocardiogram was more frequent in the elevated CVB group compared to controls (23.8 vs 10.3%, P=0.123) but mainly associated with mild abnormalities in deformation parameters. Management did not change in any case and no major cardiovascular events except deep vein thrombosis occurred after a median follow-up of 7 months (Figure 1).

Conclusions: Minimal abnormalities in cardiac structure and function are observed in COVID19 survivors without previous cardiovascular diseases who presented a significant CVB rise at admission, with no impact on patient management or short-term prognosis. These results do not support a routine screening program after discharge in this population.

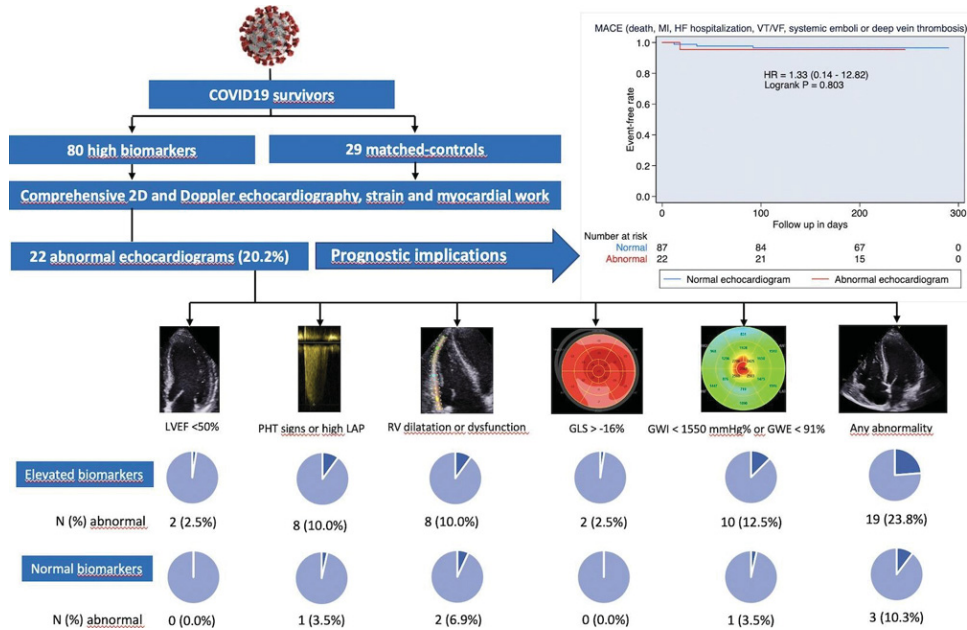


Figure 1