

196 Cardiovascular magnetic resonance characterization of myocardial injury in recovered COVID-19 patients with elevated troponins during hospital stay

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Aims: Despite being a common finding in hospitalized COVID-19 patients, cardiac troponin elevation remains a nonspecific detection of myocardial injury and further in-hospital investigation into the cause of myocardial injury is rarely done. COVID-19 patients with myocardial injury show a significantly higher in-hospital mortality rate compared with those without myocardial injury and among those with myocardial injury, greater degrees of troponin elevation are associated with higher mortality rates. There are still many questions regarding possible cardiovascular sequelae and prognostic significance in these patients. Being able to distinguish between inflammatory and ischaemic causes of myocardial injury cardiovascular magnetic resonance (CMR) is the non-invasive modality of choice to investigate myocardial involvement in these patients. Presented are the preliminary single-centre results from a multi-centre study aimed to characterize the prevalence, type and extent of COVID-19-related cardiovascular sequelae using CMR imaging.

Methods and results: In this single-centre prospective observational cohort study, patients hospitalized with confirmed COVID-19 and at least one value of high sensitivity I troponin (hs-TnI) >99th percentile during hospitalization were eligible for follow-up contrast-enhanced CMR imaging. Patients with any standard CMR contraindications were excluded. Images were acquired using a standardized myocarditis protocol including late gadolinium enhancement (LGE) and T1 and T2 mapping. Cutoff values of 1015 ms and 50 ms were used for abnormal T1 and T2 measurements, respectively. Of the 21 patients (65 ± 11.85 years) who underwent imaging, 15 (71.4%) were male. The mean follow-up duration from the date of confirmed COVID-19 diagnosis was 169 ± 19 days. The mean left ventricular ejection fraction was 64.1 ± 13.87 and 3 (14.3%) patients had evidence of wall motion abnormalities. LGE was seen in 9/20 (45.0%) patients, reflecting myocardial fibrosis. Increased native T1 signal representing myocardial fibrosis and/or oedema was seen in 9/20 (45.0%) patients. While increased native T2 signal, being more specific for oedema was observed in 3/20 (15.0%) patients. Considering CMR findings, 6 (28.6%) patients showed evidence of previous myocarditis.

Conclusions: In this single centre Italian study of patients hospitalized with COVID-19 and elevated cardiac enzymes, myocarditis-like injury was evident in about a quarter of the patients. Whether these findings will lead to long-term cardiac complications is still to be confirmed.