Late gadolinium enhancement following Covid-19 infection does not predict outcome: a single-centre study

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Background: Some patients are found to have myocardial scarring after infection with coronavirus-2019 disease (COVID-19) as evidenced by the presence of late gadolinium enhancement on cardiac MRI (CMR). In many types of heart disease, the presence of late gadolinium enhancement (even without symptoms) is associated with a poorer prognosis. However, it is not known whether the presence of scar after COVID-19 is associated with outcome.

Purpose: This study explores the association between late gadolinium enhancement (LGE) in recovered patients with COVID-19 and of longer-term clinical outcomes.

Methods: In this single-centre, retrospective, observational cohort study, troponin levels, CMR data, and follow-up outcomes of 169 patients with COVID-19 were collected. The primary outcome was all-cause mortality. The secondary outcome was a composite of myocardial infarction, stroke, and admission for heart failure. The log-rank test was used to compare survival of those with and without late gadolinium enhancement.

Results: A total of 169 patients (mean age 61 ± 16 years, 54% male) were included. Scans were typically performed in patients with a raised troponin or ongoing cardiac symptoms post COVID-19 infection. The median (IQR) time between COVID-19 diagnosis and CMR was 14 (7-23) weeks. Median follow-up was 28 (IQR 23 to 37) months. Troponin was performed in 92% (n = 155) of patients. Of those, 78% (n = 121) had a positive result.

Late gadolinium enhancement was present in 54 patients (32%). There were no observed differences in comorbidities such as hypertension, known ischaemic heart disease or heart failure, diabetes, obesity, or frailty between in patients with LGE compared to those without LGE. Kaplan-Meier survival analysis showed no significant difference in all cause mortality for patients with COVID-19 with LGE compared to those without LGE (Log-rank P = 0.36). Similarly, the composite secondary endpoint was not significantly different (Log-rank P = 0.48).

Conclusion: In this single centre study, patients found to have myocardial LGE after COVID-19 did not have an increased risk of mortality or cardiovascular events compared to those without. The overall event rates remain low even after 2-3 years of follow-up. The cause of this is unclear but underlines the importance of larger multicentre studies to follow-up COVID-19 survivors.
Cardiovascular events in COVID-19 Survivors by LGE Status

Survival

Log-rank P-value = 0.48

LGE absent

LGE present

Months

0 12 24 36 48