

Table 1: Summary of study findings—COVID-19 related cardiac

Cardiovascular complications	Countries	COVID-19 positive cases	Type of study	Main findings
Myocardial infarction				
Katsoularis et al. (2021)	Sweden	86,742	Nationwide database	- 2.5x increased risk of MI in the 2 weeks after COVID-19 infection.
Modin et al. (2020)	Denmark	5,119	Nationwide database	- 5.9x increased risk of MI in the 2 weeks after COVID-19 infection.
Zuin et al. (2023)	USA	1,245,157	Systematic review and meta-analysis	- MI occurs in 0.5% of COVID-19 recovered patients. - 93% higher risk acute MI in COVID-19 recovered patients (8.5 months follow-up).
Rodriguez-Leor et al. (2021)	Spain	91	Nationwide database	- 9% of STEMI patients had COVID-19. - Higher risk of HF, cardiogenic shock, stent thrombosis, and mortality in COVID-19 patients.
Garcia et al. (2021)	USA	230	Multicentre registry	- Higher rate of cardiogenic shock and less PCI in COVID-19 STEMI patients. - COVID-19 patients more likely to have no culprit lesion and be medically managed.
Gharibzadeh et al. (2021)	Brazil, USA, UK, Spain, Italy	447	Systematic review and meta-analysis	- 25% mortality in COVID-19 STEMI patients. - Cardiogenic shock in 18%, cardiac arrest in 3–28% - COVID-19 infection independent risk factor for mortality in STEMI patients.
Myocardial injury and myocarditis				
Biasco et al. (2021)	Switzerland	452	Multicentre prospective cohort	- Myocardial injury in 48% of COVID-19 patients (c.f. 65% influenza patients). - COVID-19 patients have 3.5x higher 28-day mortality compared to influenza patients.
Puntmann et al. (2020)	Germany	100	Prospective cohort	- Cardiac MRI evidence of cardiac involvement in 78% - Persistent myocardial inflammation in 60% of COVID-19 recovered patients.
CAPACITY-COVID-19 and LEOSS Study Group (2022)	18 countries	16,511	Multinational observational	- Myocarditis in 0.2% of COVID-19 patients.
Daniels et al (2021)	USA	1,597	Multicentre observational	- Myocarditis in 2.3% (most subclinical). - Cardiac MRI increased detection of myocarditis by 7.4x.

Table 1 (continued): Summary of study findings—COVID-19 related cardiac complications.

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Arrhythmia				
Coromilas et al. (2021)	12 countries	4,526	International multicentre observational	<ul style="list-style-type: none"> - Tachyarrhythmia in 18% of COVID-19 patients (80% atrial, 20% ventricular). - Bradyarrhythmia in 22%. - High mortality in patients with arrhythmia (49% any arrhythmia; 62% for ventricular arrhythmia).
Venous thromboembolism				
Knight et al. (2022)	England and Wales	1,367,059	Nationwide cohort	<ul style="list-style-type: none"> - Increased risk of DVT (12x) and PE (39x) in the first week after diagnosis with COVID-19. - Risk decreases over time.
Nasrullah et al. (2022)	USA	1,659,040	Nationwide database	<ul style="list-style-type: none"> - Hospitalised patients with COVID-19 and PE had higher need for mechanical ventilation and higher in-hospital mortality.
Heart failure				
CAPACITY-COVID-19 and LEOSS Study Group (2022)	18 countries	16,511	Multinational observational	<ul style="list-style-type: none"> - <i>de novo</i> HF in 0.6%. - HF associated with in-hospital mortality (RR 1.6).
Rey et al. (2020)	Spain	3,080	Single-centre prospective	<ul style="list-style-type: none"> - Acute HF in 2.5%, most <i>de novo</i>. - Pre-existing HF strongest risk factor for developing HF with COVID-19. - COVID-19 patients with HF had >2x mortality rate (26%) compared to those without HF.
Petrili et al. (2020)	USA	5,279	Single-centre prospective	<ul style="list-style-type: none"> - HF strongly associated with hospital admission (OR 4.4) and critical illness (OR 1.9).

Table 1 (continued): Summary of study findings—COVID-19 related cardiac complications.

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Long COVID				
Subramanian et al. (2022)	UK	486,149	National database	<ul style="list-style-type: none"> - Female gender, ethnic minority and socioeconomic deprivation associated with risk of long COVID. - COPD (HR 1.55), smoking (HR 1.12) and obesity (HR 1.1) were also risk factors. - Most common cardiorespiratory symptoms were shortness of breath at rest and chest pain.
Roca-Fernandez et al. (2022)	UK	534 with long COVID-19	Multicentre prospective	<ul style="list-style-type: none"> - 19% had abnormal baseline cardiac MRI, most with normal cardiac biomarkers. - Cardiac symptoms not predictive of cardiac impairment on MRI. - Persistent cardiac impairment in 58% of those with follow up data at 12 months.

Abbreviations: COPD = chronic obstructive pulmonary disease; DVT = deep vein thrombosis; HF = heart failure; MI = myocardial infarction; MRI = magnetic resonance imaging; OR = odds ratio; PCI = percutaneous coronary intervention; PE = pulmonary embolus; STEMI = ST-elevation myocardial infarction.