Heart Failure and Cardiomyopathies

CLINICAL VARIANTS OF MYOCARDIAL INVOLVEMENT IN COVID-19 POSITIVE PATIENTS

Moderated Poster Contributions
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Background: Myocardial injury, diagnosed primarily by troponin elevation, is common in COVID-19 positive patients, but clinical manifestations of cardiac involvement occur less frequently.

Methods: We analyzed the literature on COVID-19 (2020) and systematically reviewed the cases and case series where individual patient data were presented. We searched Pubmed and Google Scholar for “COVID”, “COVID-19”, and “coronavirus” in combination with “myocarditis”, “heart failure”, “cardiomyopathy” and “cardiogenic shock”.

Results: We identified 88 cases of COVID-19 with myocardial involvement (age 52.9±18.3, 54.5% males) diagnosed by 1) new systolic dysfunction (92%) 2) pericardial effusion with elevated troponin and B-type natriuretic peptides (1%) 3) myocarditis on magnetic resonance imaging with preserved left ventricular ejection fraction (LVEF) (6.8%) or combination of the above. Of them, 55 survived (62.5%), 19 died (21.6%), and in 14(15.9%) the outcome was either unknown or not reported. Among patients with known outcome, mortality was 26%. LVEF decreased to 32.3±11.7% in a course of hours to 7 days, and recovered in 42 (51.8%) after a median interval of 10 days (range 2 to 54 days). In regards to wall motion characteristics, takotsubo pattern was present in 43.9%, diffuse hypokinesis in 26.8%, and reversed takotsubo in 24.4%. Moderate or large pericardial effusion was present in 16% of patients, with tamponade in 12.5%. Cardiogenic shock developed in 31 patients (32.5%). Except for older age (65.1±13.8 vs 49.8±18.4, p=0.0018), non-survivors were not different from survivors by the prevalence of cardiac risk factors or symptoms.

Conclusion: Myocardial involvement in COVID-19 patients most often presents as a new and rapid decrease in LVEF, although normal LVEF does not rule out myocarditis. A takotsubo-like pattern appears to be most common, followed by diffuse hypokinesis and basal hypokinesis (reversed takotsubo). Moderate and large pericardial effusion is common, and cardiac tamponade occurs in 12.5% of patients. Cardiogenic shock develops in one third of the patients. Mortality appears to be high at 26%, although many cases get reported while the outcome is still unknown.