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Complex Clinical Cases

FULMINANT MYOCARDITIS-A UNIQUE COMPLICATION OF COVID-19

Poster Contributions

Monday, May 17, 2021, 10:45 a.m.-11:30 a.m.

Session Title: Complex Clinical Cases: FIT Covid-19 3

Abstract Category: FIT: Coronavirus Disease (COVID-19)

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Background: Fulminant myocarditis is sudden, severe inflammation of the myocardium resulting in myocyte necrosis, edema and cardiogenic shock. This is a unique case of fulminant myocarditis due to COVID-19.

Case: A 60 year old woman with no medical history presented with tachycardia, dyspnea and malaise. She was diagnosed with COVID-19 three weeks prior with mild symptoms. COVID-19 PCR was positive and chest X-ray was negative for an acute infiltrate. ECG demonstrated sinus tachycardia with new anterior ST elevations, reciprocal inferior ST depression and up trending cardiac markers. Emergent coronary angiography revealed normal coronaries and echocardiogram (ECHO) demonstrated infiltrative appearance suggesting acute myocarditis.

Decision-making: The patient quickly deteriorated into cardiogenic shock requiring multiple vasopressors and intubation. ECG demonstrated global ST elevation and widening QRS with high sensitivity troponin T 5,810 and BNP 19,054. ECHO demonstrated LVEF 30%. Synchronized cardioversion and amiodarone did not improve rhythm or blood pressure. The patient was placed on extracorporeal membrane oxygenation for 10 days with mechanical ventilation, continuous veno-venous hemodialysis, vasopressors and steroids. Cardiac MRI demonstrated LVEF 45% and diffuse interstitial expansion consistent with inflammatory myocarditis which was confirmed with right heart catheterization and biopsy. The patient was successfully treated with temporary mechanical circulatory support. Increasing troponin, worsening ST changes and systolic dysfunction led to cardiogenic shock with respiratory and hemodynamic collapse. Two mechanisms of injury have been proposed: 1) direct myocyte injury by macrophage migration from the lungs 2) indirect injury due to the inflammatory processes initiated by the immune response/cytokine storm.

Conclusion: COVID-19 affects several organ systems and commonly leads to respiratory failure. Based on literature review, fulminant myocarditis is not a common complication of COVID-19. A high degree of suspicion with close monitoring of cardiac biomarkers, ECG changes and ECHO is required for early diagnosis and treatment.