A case of novel coronavirus (COVID-19)-induced viral myocarditis mimicking a Takotsubo cardiomyopathy

As the number of patients inflicted with COVID-19 continues to increase, more is learned about the cardiovascular manifestations of the disease. The disease can cause severe systemic stress resulting in respiratory and hemodynamic failure. Takotsubo cardiomyopathy is reversible left ventricular apical ballooning typically mediated by severe stress in the absence of significant coronary artery stenosis. Khalid and colleagues (HeartRhythm Case Rep doi: https://doi.org/10.1016/j.hrcr.2020.05.020) share a case of a 76-year-old woman who was admitted to the intensive care unit owing to acute respiratory failure secondary to COVID-19 infection. An initial echocardiogram showed an ejection fraction (EF) of 55%. Owing to shock, she was started on norepinephrine and was also treated with tocilizumab, intravenous immunoglobulin, ceftriaxone, cefdinir, and ceftazidime. Two repeat echocardiograms, 1 performed after transfer to a larger intensive care unit, showed severe left ventricular dysfunction (EF: 20%–30%) with multiple regional wall motion abnormalities and apical ballooning. She was diagnosed with a non–ST elevation myocardial infarction and treated with enoxaparin, with clinical treatment directed by a presumptive diagnosis of viral myocarditis. After treatment with tocilizumab and systemic stabilization her EF normalized, with improvement in regional wall abnormalities. During this period of convalescence, her high-sensitivity troponin levels decreased from 503 ng/L to 418 ng/L. Her IL-6 levels also decreased, from 781.46 mg/L to 171.82 mg/L. This case illustrates stress-mediated cardiomyopathy in the setting of COVID-19 infection with shock and highlights the significant inflammatory response associated with cardiac injury.

Temperature monitoring with an implantable loop recorder in a patient with presumed COVID-19

The high virulence and infectivity rates with COVID-19 have prompted a large shift in the use of remote and virtual technologies to manage patients with cardiovascular diseases. Some cardiac implantable electronic devices have the ability to measure temperature along with heart rate and activity and remotely communicate these diagnostics. Whittington and colleagues (HeartRhythm Case Rep doi: https://doi.org/10.1016/j.hrcr.2020.05.024) share a case of an elderly woman who was implanted with a BIOMONITOR III (Biotronik Inc, Lake Oswego, OR) following a cerebrovascular accident. In addition to arrhythmia data, the device provides trends of temperature, activity, and mean heart rate with activity and rest. In March of 2020, her husband was diagnosed with COVID-19. On March 23, the patient contacted emergency services and her device recorded a sharp increase in temperature. The device-recorded temperature trended upwards from an average of 36.8°C over 5 days to a recording of 38.4°C on the day she noted a fever. Other markers of an active infection also changed, including an elevation in heart rate trends and a decrease in activity. Her fever and infection symptoms improved at home over a 7-day period. Although this is a unique situation and use of the device, this case highlights multisensor technology and the ability to use the data in a more comprehensive remote evaluation of the patient.

Left bundle branch pacing by standard stylet-driven lead: Preliminary experience of two case reports

Patients exposed to frequent right ventricular pacing are at risk of developing pacing-induced cardiomyopathy. The 2 approaches for physiologic pacing to lower this risk are His-bundle pacing and deep septal left bundle branch (LBB) pacing. The former approach is most successful with specific systems; however, the latter may be approachable with currently available technologies. Zanon and colleagues (HeartRhythm Case Rep doi: https://doi.org/10.1016/j.hrcr.2020.06.005) describe a technique using a traditional pacemaker lead inserted into a deep septal location to pace the left bundle using a delivery catheter. They first perform unipolar mapping of the Hisian area and septum with an alligator clip on the back end of the pacemaker lead support by a Selectra 3D delivery catheter (Biotronic, Lake Oswego, OR). Once the target region is found, the lead is manually rotated over an extended helix. Before the sheath is removed, contrast is injected to confirm a deep septal location and mapping of the left bundle can also be performed. The authors described successful LBB pacing in 2 cases. Similar to His-bundle pacing, lead longevity with LBB is unclear compared to more traditional pacing systems. These cases are important, as prior reports have used the Medtronic 3830 4F lead with a fixed helix. This technique provides a new tool to consider when these leads are not available or are cost prohibitive.

Address reprint requests and correspondence: Dr T. Jared Bunch, Department of Internal Medicine, Division of Cardiovascular Medicine, University of Utah School of Medicine, 30 North 1900 East, Room 4A100, Salt Lake City, UT 84132. E-mail address: jared.bunch@hsc.utah.edu.