

EP News: Case Reports

T. Jared Bunch, MD

From the Division of Cardiovascular Medicine, Department of Internal Medicine, University of Utah School of Medicine, Salt Lake City, Utah.

COVID-19 infection unmasking Brugada syndrome

The phenotype of Brugada syndrome is associated with a decrease in the sodium current and can manifest with sudden death in previously healthy individuals. Many triggers have been described, including fever, alcohol intake, and medications that cause sodium channel blockade. Coronavirus disease 2019 (COVID-19) most commonly presents with fever and a cough. Chang et al (doi: <https://doi.org/10.1016/j.hrcr.2020.03.012>) shared a case of a 49-year-old Bangladeshi man without a significant medical history who presented after an episode of syncope and fever. In the emergency department, ST elevation prompted urgent echocardiography and coronary catheterization, which were normal. During overnight observation, the patient's temperature spiked to 102°F, with electrocardiographic (ECG) changes consistent with a type 1 Brugada pattern, and he tested positive for COVID-19, prompting respiratory isolation. With defervescence, his ECG changes improved. He experienced no in-hospital arrhythmias. He was discharged home for quarantine, with a life vest and, once cleared from an infectious standpoint, consideration of an implantable cardioverter-defibrillator. Knowledge of the direct association with Brugada phenotype expression and syncope is helpful, particularly as the pandemic is studied across broad populations and in Brugada syndrome-prevalent regions.

An algorithm for managing QT prolongation in COVID-19 patients treated with either chloroquine or hydroxychloroquine in conjunction with azithromycin: Possible benefits of intravenous lidocaine

Pharmacological approaches to reduce morbidity and mortality with COVID-19 are actively being sought. In a small case series, a combination of azithromycin and hydroxychloroquine has shown to reduce detection of COVID-19 compared with hydroxychloroquine alone. Both drugs can prolong the QT interval and increase the risk of torsades de pointes (TdP). Mitra et al (doi: <https://doi.org/10.1016/j.hrcr.2020.03.016>) shared a case of a 66-year-old woman with a history of rheumatoid arthritis, pulmonary fibrosis, and asthma taking chronic methotrexate and oral and inhaled steroids. She presented with a 2-week history of an upper respiratory infection and was found to be hypoxic with widespread ground-glass opacities on pulmonary computed tomography. COVID-19

was confirmed. Within 48 hours, she developed profound respiratory failure and required intubation with adrenergic support. She was initiated with intravenous (IV) azithromycin and 3 days later hydroxychloroquine, which was discontinued after 1 dose because of a corrected QT (QTc) interval of 620 ms. One hundred milligrams of IV lidocaine was given, followed by a repeat 12-lead ECG, that revealed a shortening of the QTc interval to 550 ms. Hydroxychloroquine was reinitiated with IV lidocaine. This approach, with supportive IV lidocaine therapy, allowed use of both azithromycin and hydroxychloroquine, but unfortunately the patient died despite therapy. Drugs such as lidocaine and mexiletine that block the I_{Na-L} channel and late sodium current can shorten the QT interval in patients with TdP and acquired long QT syndrome. This case highlights this approach to assist in the management of patients with COVID-19 in which therapy is restricted due to acquired long QT syndrome.

Atrioesophageal fistula post-atrial fibrillation ablation managed with an esophageal stent followed by surgical repair

Atrioesophageal fistula is a devastating and frequent moribund complication of atrial fibrillation ablation. In patients who present on full anticoagulation or present with sepsis and/or multi-organ failure, there may be a role of palliation with a stent to allow improvement before definitive surgical treatment. Benhayon et al (doi: <https://doi.org/10.1016/j.hrcr.2020.03.007>) shared a case of a 44-year-old man who underwent pulmonary vein isolation. Thirty-five days after ablation, he presented with fever, chest pain, dyspnea, and recurrent arrhythmia. The next day the patient became incoherent and developed septic shock, and brain magnetic resonance imaging showed numerous bilateral acute infarcts with hemorrhagic conversion. An atrioesophageal fistula was suspected, but due to hemorrhagic conversion of his strokes, he was judged to be at very high risk for surgery that required anticoagulation. Palliative stenting was performed as an alternative. During the esophageal stent deployment, air embolized into the right coronary artery, resulting in a ventricular fibrillation arrest. Resuscitation was successful with a balloon pump, epinephrine, and amiodarone. The patient's clinical status improved and 17 days poststenting; the patient was discharged to an inpatient rehabilitation center. Later he underwent an elective repair of a residual atrioesophageal fistula. He was discharged home 22 days later without neurological sequelae and returned to work 9 months after the event. This case highlights an approach of temporary stenting for an atrioesophageal fistula to allow clinical improvement, followed by definitive surgical treatment.

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