Autonomic dysfunction post--acute COVID-19 infection

Data continue to emerge about both the short- and long-term complications associated with severe acute respiratory syndrome coronavirus 2 infection (coronavirus disease 2019 [COVID-19]). Clinics have been created to treat COVID-19 “long haulers” who often report persistent symptoms including those related to autonomic dysfunction that can mimic postural orthostatic tachycardia syndrome (POTS) and inappropriate sinus tachycardia (IST). Desai et al (https://doi.org/10.1016/j.hrcr.2021.11.019) reported the long-term outcomes and management of 11 patients who were diagnosed with COVID-19 infection and autonomic dysfunction. The majority (82%) were women with a mean age of 46.0 ± 18.0 years. The most common persistent symptoms were fatigue, palpitations, chest pain, and dyspnea. All patients had a normal echocardiogram. Eight patients underwent ambulatory cardiac monitoring and 2 underwent tilt-table testing. Two patients were diagnosed with POTS, 2 with IST, and others with a variant that did not meet criteria for either. Medical therapy, in addition to compression stockings and increasing salt intake, was used in 9 patients. Five patients received β-blockers (2 were intolerant). Among those patients who were intolerant, one was treated with pindolol and the other with ivabradine. One patient was treated with midodrine and others with anti-inflammatory agents. In a follow-up survey, 80% treated with a β-blocker reported improved or resolved symptoms. The patient treated with midodrine also reported improvement in symptoms. In those patients who subsequently received a vaccine, there were no worsening symptoms. In patients with persistent symptoms of autonomic dysfunction after COVID-19 infection, β-blocker therapy may improve symptoms in addition to supportive measures. Fortunately, in most patients symptoms improve with time and treatment.

Theophylline to treat prolonged paroxysmal complete atrioventricular block without conduction disorder or structural heart disease after COVID-19 infection: A case report

Multiple cardiac manifestations of coronavirus disease 2019 (COVID-19) have been reported and include both tachy- and bradyarrhythmias. High-grade atrioventricular (AV) block may be an early or initial manifestation of COVID-19. There are case reports of both resolution and persistence of conduction system dysfunction, which can make clinical management of these patients challenging. Hondo et al (https://doi.org/10.1016/j.hrthm.2021.12.020) shared a case of a 43-year-old man with a history of hypertension who presented with dyspnea and tested positive for COVID-19. An admission electrocardiogram was normal. He was initiated with a combination of remdesivir and dexamethasone by intravenous infusion. After 4 days of remdesivir administration, he was found to have paroxysmal complete AV block up to 5 seconds. Cardiac magnetic resonance imaging did not show signs of myocarditis. A temporary transvenous pacemaker (VVI mode at 40 beats/min) was inserted, and remdesivir therapy was discontinued. On day 13, beyond the anticipated influence of remdesivir, a marked increase in adenosine responsive paroxysmal AV block (20 times per day) was observed. He was initiated with 200 mg of oral theophylline twice daily, which decreased the frequency of these events. One week later, the temporary pacemaker was removed. An implantable loop recorder was placed for long-term continuous monitoring. Paroxysmal AV block was noted only at night while he was sleeping, which prompted the diagnosis and treatment of sleep apnea. This case shows the potential utility of theophylline in patients with a prior normal electrocardiogram and paroxysmal AV block in patients who require time for conduction system recovery after COVID-19 infection.

Pulsed field ablation of the cavitricuspid isthmus using a multispline-electrode pulsed field ablation catheter

Pulse field ablation (PFA) is an emerging tool for atrial fibrillation (AF) ablation that may have tissue selective properties that may lower the risk of untoward collateral injury. It is not known whether technology will work well for other rhythms commonly found during AF ablation, such as typical atrial flutter (AFL). Ruwaldt et al (https://doi.org/10.1016/j.hrthm.2021.12.009) shared a case of a 67-year-old man who underwent AF ablation. Ablation was performed using the 12-F multispline electrode catheter Farapulse (Farapulse, Inc., Menlo Park, CA) for pulmonary vein isolation. During the procedure, AF organized to typical atrial flutter. As the patient had underlying complete heart block, the Farapulse catheter was then used to treat AFL in the “flower” configuration. AFL terminated during ablation and bidirectional block along the line verified after 5 separate kilowatt pulses. This is the first case report of this catheter being used for typical AFL after AF ablation. The safety and utility of AFL treatment with PFA will be determined in future studies.