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Video game ventricular tachycardia: The “Fortnite” phenomenon

Recommendations are available to guide participation in competitive sports and activities of patients with arrhythmogenic cardiac conditions. However, certain situations that occur within an increasingly virtual world can lead to significant emotional and social stress and mimic traditional adrenergic activities. Nash et al (HeartRhythm Case Rep 2020;6:313–317, doi:https://doi.org/10.1016/j.hrcr.2020.02.007) share 2 cases of life-threatening ventricular tachycardia (VT) associated with strong emotional responses that were provoked while playing a video war game, in both cases Fortnite. The first case was a 9-year-old previously healthy boy who became upset when his Fortnite character was eliminated and subsequently experienced an out-of-hospital cardiac arrest. He was successfully resuscitated and had a normal structural and electrical cardiac workup. Follow-up ambulatory Holter monitoring showed complex ventricular ectopy with multiple runs of polymorphic VT, and genetic testing led to a diagnosis of catecholaminergic polymorphic VT. The second case was a 16-year-old boy with a history of idiopathic out-of-hospital cardiac arrest at which time he received an implantable cardioverter defibrillator (ICD). A prior genetic study had not identified any pathologic variants. One week after hospitalization for treatment of the cardiac arrest, he experienced an ICD shock while playing Fortnite. ICD interrogation showed a rapid-onset monomorphic VT at 260 bpm, with appropriate therapy that converted him to sinus rhythm. These cases highlight the potential of these types of video games to provoke a significant emotional and physiologic response and thus serve as triggers in patients vulnerable to adrenergic-mediated arrhythmias.

Syncope as the presenting symptom of COVID-19 infection

As the number of global cases of COVID-19 continues to increase, so do the described symptoms associated with infection and our understanding of them. Symptom severity can range significantly from none/mild to severe with unstable progression. Although most people complain of a fever, cough, shortness of breath, anosmia, and ageusia, cardiovascular symptoms that manifest very early have been reported. As the number of global cases of COVID-19 increases, physicians are seeing a subset of patients presenting with syncope as a systemic symptom of COVID-19. All of these patients had a pacemaker or ICD. Device function was normal in all patients, and no arrhythmias that would account for their syncope were detected. The presence of significant structural heart disease or pulmonary embolism was excluded in all patients. Of interest, 4 of the 5 patients were treated with an angiotensin-converting enzyme inhibitor before admission. The vasodepressor effect of this medication coupled with systemic inflammation from an autoimmune or cytokine-mediated response may have been an underlying mechanism, as some of the patients continued to have periods of presyncope and dizziness with hypotension in a normal heart rhythm. Another possibility is autonomic dysfunction and reflex syncope as a systemic symptom of COVID-19 infection. Despite an unclear understanding of the mechanisms, this case series helps to define the spectrum of presentation symptoms in patients infected with COVID-19.

Occlusion tool software for pulmonary vein occlusion verification in atrial fibrillation cryoballoon ablation to avoid the use of contrast injection

Pulmonary vein isolation (PVI) remains the primary objective of atrial fibrillation ablation procedures. Both cryothermal and radiofrequency energy sources traditionally have been used for PVI, with large randomized trials showing similar comparative efficacies and safety. In most trials, cryoballoon-based ablation decreases procedural time compared to radiofrequency ablation but traditionally has required fluoroscopy and venography to guide the catheter. Cauti et al (HeartRhythm Case Reports doi:https://doi.org/10.1016/j.hrcr.2020.05.011) share the case of a 61-year-old man with symptomatic atrial fibrillation that was refractory to medical therapy. A left atrial posterior wall and pulmonary vein map was rendered using a circular mapping catheter (Medtronic Achieve) and the KODEX-EPD mapping system (EPD Solutions). The mapping catheter was inserted in each pulmonary vein, the cryoballoon was inflated, and an occlusion tool software was activated. This software measures baseline impedance measurements derived from the circular mapping catheter and the inflated balloon. A permanent lesion is more likely with an impedance of at least 2000 Ω measured by the electrode. Lesser values measured can prompt repositioning of the balloon without fluoroscopy to enhance lesion creation efficacy. With this system, the operators made a 3-dimensional map, inserted the catheter into the pulmonary veins, and dynamically verified occlusion of the vein during cryoballoon balloon therapy. This integrated system is a step toward narrowing the gap of radiation exposure between cryoballoon and radiofrequency ablation.