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Cardiovascular complications in COVID-19



To the Editor,

We read the article by Long et al. titled “Cardiovascular complications in COVID-19” published in the recent issue of *American Journal of Emergency Medicine* with immense interest [1]. We commend the authors on identifying Coronavirus Disease 2019 (COVID-19) associated cardiovascular complications including myocarditis, myocardial infarction, cardiomyopathy, dysrhythmias and venous thromboembolic events. However, we would like to highlight other possible cardiac complications which may also be observed with this disease.

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) causing COVID-19 has been detected within the pericardial fluid of patients by real-time reverse transcriptase polymerase chain reaction assay [2]. Inflammation from direct cytotoxicity or immune-mediated effects have been thought as the cause of COVID-19 related pericarditis and pericardial effusion; an individual case presenting with severe left ventricular dysfunction from a large pericardial effusion resulting in cardiac tamponade with progression to cardiogenic shock requiring venoarterial extracorporeal membrane oxygenation (VA-ECMO) but with subsequent fortunate recovery has been recently reported [3].

In addition, the COVID-19 pandemic has affected a large proportion of the world, and individuals may be susceptible to emotional and physical stress which may predispose them to COVID-19-related Takotsubo (stress) cardiomyopathy. Recently the first case within the United States was reported in a middle aged COVID-19 positive female who presented with signs and symptoms indistinguishable from a ST-elevation myocardial infarction with progression to cardiogenic shock but with rapid myocardial improvement without coronary revascularization or Q-waves on electrocardiogram consistent with the aforementioned pathology [4]. In addition, a recent prospective study which evaluated echocardiograms in 1216 patients with COVID-19 found Takotsubo cardiomyopathy to be present with 2% of the population [5].

In summary, COVID-19 is associated with significant cardiovascular complications which may also include pericarditis, pericardial effusion and Takotsubo (stress) cardiomyopathy. Further larger studies are required to evaluate this association.

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Declaration of Competing Interest

The authors have no conflict of interest to declare.

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