



Letter to the Editor

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Left-ventricular diastolic dysfunction in coronavirus disease: opening Pandora's box!

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As I read through the articles featured in a recent issue of the *Korean Journal of Anesthesiology* [1,2] that outlined the perioperative implications of coronavirus disease (COVID-19), I felt motivated to highlight the importance of COVID-19-related left-ventricular (LV) diastolic dysfunction (LVDD) in the management of this predisposed subset, particularly since the cardiovascular consequences of COVID-19 continue to be ardently discussed [3].

A systematic echocardiographic evaluation of 100 COVID-19 patients with a mean age of 66 years by Szekely et al. [4] revealed a 16% incidence rate of LVDD despite a preserved LV systolic function in as high as 90% of their patients. In addition to subclinical ventricular relaxation impairment given the advanced age of the patients and comorbidities such as systemic hypertension, the conglomeration of factors specific to COVID-19, such as systemic inflammatory milieu, endothelial dysfunction, microvascular thrombosis, arrhythmias, disturbed ventricular cross-talk (owing to the concomitant right ventricular dysfunction resulting from pulmonary hypertension), and myocardial oxygen supply-demand perturbations, can contribute significantly to LVDD, with a subsequent accentuated potential to culminate in heart failure with a preserved ejection fraction (HFpEF) [3,4].

Moreover, the use of high positive end-expiratory pressure (PEEP), which is quite commonly employed while ventilating hypoxemic COVID-19 patients, can result in an attenuated cardiac output in addition to the already impaired ventricular filling in HFpEF. This observation is supported by Chin et al. [5], who elaborated on progressive deterioration in LV lusitropy with the application of high PEEP in patients with pre-existing LV relaxation abnormalities. In addition, the underlying cardiopulmonary interactions present unique challenges in weaning mechanically ventilated patients with coexistent LVDD [3,5].

An improved comprehension of the likelihood of an altered diastology in COVID-19 patients is pivotal in staging a more well-directed management approach wherein targeted echocardiographic surveillance, cardiac biomarkers, and combined heart-lung ultrasound and inodilators can assist in the overall management of this critically ill cohort.

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Conflicts of Interest

No potential conflict of interest relevant to this article was reported.

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