Circulation

LETTER TO THE EDITOR

Letter by Carrizales-Sepúlveda et al Regarding Article, "Spectrum of Cardiac Manifestations in COVID-19: A Systematic Echocardiographic Study"

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To the Editor:

We read with great interest the recent publication by Szekely et al in which they prospectively studied 100 patients with confirmed severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection using echocardiography.[1] They found that among patients with coronavirus disease 2019 (COVID-19), the most common echocardiographic manifestation is right ventricular dilation in 39% of the patients, followed by left ventricular (LV) diastolic dysfunction in 16%, and LV systolic dysfunction in 10%.[1] In their cohort, 32% of the patients had a normal echocardiographic evaluation. Among their conclusions, the authors state that LV systolic dysfunction is uncommon in COVID-19.[1] To define LV systolic dysfunction, the authors used LV ejection fraction (LVEF), which is known to have potential limitations.[2] First, LVEF is only affected late in disease progression, so its sensitivity to detect subtle myocardial damage is low. Second, the authors point out that their subjects had a reduced LV chamber size compared with normal standard values.[1] It is known that LVEF is dependent on volume and pressure conditions and right ventricular dilation that compromises LV size could affect LVEF determination.[2] It is well known that the assessment of LV function using global longitudinal strain (GLS) measured by speckle tracking allows the detection of subtle, subclinical systolic dysfunction in several types of patients. Left ventricular GLS has been found to be affected in critically ill patients irrespective of LVEF and has been related to a worse prognosis.[3] Recently, right ventricular longitudinal strain was used to detect early dysfunction in patients with COVID-19 and found to be a powerful predictor of mortality.[4] Unfortunately, LV GLS has only been described in a few patients with COVID-19.[5] Therefore, we raise the following questions: Could LV GLS have been impaired in this population (those with a normal echocardiogram or with right ventricular dilation or diastolic dysfunction), and could this have an effect on prognosis? Although acquisition of images for GLS can be challenging in this subset of patients, it could definitely provide valuable information for the evaluation of subjects with COVID-19. Meanwhile, we commend the authors for this read and for the valuable information offered in this time of need.

ARTICLE INFORMATION

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Disclosures

None.

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REFERENCES

1. Szekely Y, Lichter Y, Taieb P, Banai A, Hochstadt A, Merdler I, Gal Oz A, Rothschild E, Baruch G, Peri Y, et al. Spectrum of cardiac manifestations in COVID-19: a systematic echocardiographic study. *Circulation.* 2020;142:342–353. doi: 10.1161/CIRCULATIONAHA.120.047971
2. Cikes M, Solomon SD. Beyond ejection fraction: an integrative approach for assessment of cardiac structure and function in heart failure. *Eur Heart J.* 2016;37:1642–1650. doi: 10.1093/eurheartj/ehv510
3. Orde S, Huang SJ, McLean AS. Speckle tracking echocardiography in the critically ill: enticing research with minimal clinical practicality or the answer to non-invasive cardiac assessment? *Anaesth Intensive Care.* 2016;44:542–551. doi: 10.1177/0310057X1604400518
4. Li Y, Li H, Zhu S, Xie Y, Wang B, He L, Zhang D, Zhang Y, Yuan H, Wu C, et al. Prognostic value of right ventricular longitudinal strain in patients with covid-19. *JACC Cardiovasc Imaging.* 2020:3423
5. Vera-Pineda R, Francisco Carrizales-Sepulveda E, Camacho-Ortiz A, Nuzzolo-Shihadeh L, Cruz-Ramos F, Ordaz-Farias A, Benavides-Gonzalez MA, Carranza-Villegas G. Echocardiographic characteristics of subjects with COVID-19: a case series. *Cardiol Res.* 2020;11:260–265. doi: 10.14740/cr1084