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## Letter to the Editor

### Therapeutic Strategy for Patients with Coronavirus Disease 2019 During Left Ventricular Assist Device Supports

#### To the editor:

Patients with cardiovascular comorbidities, including advanced heart failure, are at higher risk of mortality and morbidity associating with coronavirus disease 2019 (COVID-19). In that context, I raise several questions about report of Singh et al,<sup>1</sup> presenting a patient who suffered from COVID-19 during durable left ventricular assist device (LVAD) support. Patients with mechanical support may be at risk and challenge clinicians in new ways if infected with the virus.

First, implementation of prone positioning is recommended in patients with severe acute respiratory distress syndrome to improve oxygenation,<sup>2</sup> but the authors did not perform such a procedure. Can the authors expand on their concerns about the safety and efficacy of such a procedure in patients with LVADs?

Second, severe COVID-19 infection might further worsen right ventricular function during LVAD support owing to increased afterload on the right ventricle. When should clinicians assess right ventricular function and how should it be managed?<sup>3</sup>

Finally, venovenous extracorporeal membrane oxygenation may be considered for severe respiratory failure including COVID-19 infection.<sup>4</sup> I would like to know

whether the authors would consider such an intervention in patients with LVADs and severe COVID-19 infection.

#### Declaration of Competing Interest

None.

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#### References

1. Singh R, Domenico C, Rao S, Urgo K, Prenner S, Wald J, et al. Novel coronavirus disease 2019 in a patient on durable left ventricular assist device support. *J Card Fail* 2020. <https://doi.org/10.1016/j.cardfail.2020.04.007>.
2. Munshi L, Del Sorbo L, Adhikari NKJ, Hodgson CL, Wunsch H, Meade MO, et al. Prone position for acute respiratory distress syndrome. A systematic review and meta-analysis. *Ann Am Thorac Soc* 2017;14:S280–8.
3. Estep JD. Noninvasive assessment of hemodynamics in left ventricular assist device patients: echocardiographic accuracy and clinical outcome implications. *JACC Cardiovasc Imaging* 2019;12:1132–4.
4. Hartman ME, Hernandez RA, Patel K, Wagner TE, Trinh T, Lipke AB, Yim ET, et al. COVID-19 respiratory failure: targeting inflammation on VV-ECMO support. *ASAIO J* 2020. <https://doi.org/10.1097/MAT.0000000000001177>.

<https://doi.org/10.1016/j.cardfail.2020.04.014>