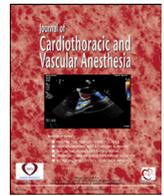


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Letters to the Editor

Intra-aortic balloon pump as a vent in VA-ECMO; lower risk, but beware



To the Editor,

I read with great interest the recent expert review in which the authors discussed left ventricular (LV) decompression strategies in patients supported by venoarterial extracorporeal membrane oxygenation (ECMO).¹ Left ventricular decompression is essential for the prevention of increased LV pressure with ensuing stasis, left atrial distention, pulmonary edema, pulmonary hemorrhage, ventricular arrhythmias, and LV and aortic root clot formation.² The LV venting strategies vary by institution, but usually begin with modification of ECMO flows, pharmacologic interventions on preload, contractility and afterload, and changes in positive end-expiratory pressure.³ If these methods are unsuccessful, other interventions may be necessary to avoid the complications of LV distention.³ Of particular interest and controversy as a venting strategy is the intra-aortic balloon pump (IABP). As stated by the authors, the IABP is placed through a small arteriotomy, is rapidly deployable, and has the added benefit of not being intraventricular.⁴ The IABP is a potentially ideal method of mechanical LV decompression in patients who have mechanical aortic valves or LV thrombus burden, situations in which Impella use is contraindicated.^{5,6}

It is important to remember that some intrinsic LV function must be present for the IABP to provide support. This contrasts to transvalvular LV assist devices (ie, Impella), which do not require intrinsic myocardial function to decompress the LV. This is especially important in a patient supported by venoarterial-ECMO, because an IABP will give the appearance of pulsatility on an arterial pressure waveform regardless of whether the aortic valve is opening.⁷ Thus, it is important to be vigilant for increases in pulmonary capillary wedge pressure, pulmonary edema, and ventricular arrhythmias as clues for insufficient venting. One method of quickly deciding if the aortic valve is opening is very briefly setting the IABP to standby and examining the arterial pressure waveform for pulsatility.⁷ If the arterial pressure waveform is flat with the IABP on standby, and the patient is otherwise optimized, suspicion should be high for inadequate venting of the LV (or impending worsening LV failure), and echocardiographic assessment should be considered with the IABP active to assess

for aortic valve opening, LV stasis, and aortic root thrombus. Importantly, if the aortic valve is only opening with IABP use, it may be wise to upgrade support to avoid further myocardial decompensation and subsequent LV stasis.

Declaration of Competing Interest

None.

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Correlations of Before and After Event Echocardiographic Parameters with Troponin and BNP in Hospitalized COVID-19 Patients With Cardiovascular Events



To the Editor:

Right and left ventricular (RV and LV, respectively) dysfunction was found to be significantly related to adverse