

Although the clinical justification for LV venting is mounting, its physiologic basis is undeniable, that is, LV wall tension, a major determinant of myocardial oxygen consumption is directly related to recovery of function after an ischemic insult.

As we continue to struggle with those patients who are unable to wean off pump or who fail in the immediate postoperative period, we must apply all reasonable, evidence-based approaches to their care, leaving no stone unturned. The data from Mariscalco and colleagues¹ suggest at least one stone still remains relatively undisturbed.

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Commentary: Greater loss with central extracorporeal membrane oxygenation

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Swift establishment of mechanical hemodynamic support is undoubtedly the strongest salvage procedure for patients with postcardiotomy cardiogenic shock (PCS) refractory to maximal medical management.¹ Nevertheless, reported mortality rates after venoarterial extracorporeal membrane oxygenation (VA-ECMO) therapy, the most widely used mechanical support for PCS reported in the literature, have been discouraging, ranging from 50% to 75%.^{2,3} Regrettably, arguments for the best approach for VA-ECMO remain inconclusive, particularly regarding whether



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CENTRAL MESSAGE

The question of central or peripheral venoarterial extracorporeal membrane oxygenation (VA-ECMO) for postcardiotomy shock requires an individualized approach. However, peripheral VA-ECMO may be associated with more favorable outcomes when feasible.

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to establish ECMO through central or peripheral cannulation. The uncertainty surrounding this issue may be attributed to the paucity of data comparing outcomes between central and peripheral VA-ECMO. However, no randomized controlled trials will be available in the near future, given the disparate and exigent clinical conditions under which ECMO is performed for PCS.

In this issue of the *Journal*, Giovanni and colleagues evaluate the impact of impact of VA-ECMO cannulation strategy in the face of PCS using multicenter data from January 2010 to March 2018.⁴ The authors are to be commended for their efforts in gathering a large number of patients with PCS (n = 781) from 19 cardiac surgical centers to overcome the rare incidence rate (0.5%~1.5%), as well as their rigorous analyses and timely study. Their adjusted analyses revealed that compared with central VA-ECMO, peripheral VA-ECMO was associated with lower risks of in-hospital mortality, reoperation for bleeding, and transfusion of more than 9 red blood cell units. These results were supported by a systematic review of the literature covering a total of 2491 individuals treated with VA-ECMO for PCS. The pooled prevalence of early mortality was 66.6%, and pooled unadjusted risk ratio analysis showed lower early mortality in patients undergoing peripheral cannulation compared with those undergoing central VA-ECMO in the meta-analysis. In addition, their results were further verified by sensitivity analyses.

As the authors note, central VA-ECMO favors better cardiac unloading provided by an antegrade flow, as well as easy access for left ventricular venting, although the higher risks of bleeding, stroke and infections are not negligible drawbacks. On the other hand, a peripheral VA-ECMO offers faster establishment of mechanical support and multiple advantages, such as ability to close the sternum, less bleeding, and early extubation. Meanwhile, potentially sub-optimal venous drainage and left ventricular unloading, as well as greater risks of limb ischemia, are known drawbacks of peripheral VA-ECMO.⁵ In light of this issue, it is

regretful that the authors could not include the inflow direction of VA-ECMO in their analyses. In the peripheral VA-ECMO group, the impact of antegrade vital organ perfusion from axillary arterial cannulation might differ from the that of retrograde flow from the femoral artery. In addition, because the study contains inevitable bias, such as multi-institutional VA-ECMO protocols, unmeasurable confounders might have significantly influenced the results, even with the doubly robust estimations to reduce measurable confounders. Moreover, a lack of information on whether the decision to leave the chest open or closed in the central VA-ECMO group may be a slight weakness in this well-designed study.

Despite these limitations, the results of this study derived from a large dataset with an effort to reduce confounders provide important information to guide decision making in serious clinical conditions.⁴ Importantly, the decision to perform central or peripheral VA-ECMO should be based on an individualized approach; however, it seems reasonable to first consider peripheral VA-ECMO whenever possible in the absence of any further evidence suggesting disagreement with the results presented in this study.

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