

of LVD after the primary insult, the characteristics of which improve in a substantial proportion of patients over the following hours with conservative management.¹³ Where decompression is considered, the timing is also critical. Recent findings by Saku⁴ and by Esposito et al.⁵ suggest that infarct size may be reduced if unloading of the LV occurs earlier or is more complete. This further raises the question of whether use of a smaller device with partial decompression or a high-low device with the capacity for more complete decompression is more effective, allowing for associated risks. Whether these preliminary findings translate into a net clinical benefit from invasive LV decompression approaches will require larger, detailed, multicenter studies to explore the relationship among LVD, other hemodynamic parameters, and patient outcomes.

In evaluating the findings of Fiedler et al., other strategies for LV decompression must be considered.^{3,6,13} First-line medical therapies including diuretic, antiarrhythmic, vasodilator, and inotropic agents, often complemented by mechanical ventilatory strategies such as higher positive end-expiratory pressure and augmented fluid removal with hemofiltration, may be effective. Second-line alternatives include percutaneous and open strategies. Catheter-based techniques include intra-aortic balloon pump, atrial septostomy, TandemHeart, or pulmonary arterial catheter drainage. Surgical techniques include left atrium venting through a pulmonary vein, LV venting (transatrial or apical approaches), and surgically placed pulmonary artery or peripheral venous drainage vents. Unfortunately, to date, each of these techniques largely have been reported as retrospective studies in fairly heterogeneous populations, limiting meaningful comparisons.^{3,6}

Given the range of approaches available for LV decompression and the heterogeneous candidate population, a single treatment approach is unlikely to be optimal for all patients. The work by Fiedler et al. supports the premise that in the context of a broad range of cardiogenic shock settings, adding a percutaneous intraluminal transvalvular microaxial pump can be implemented safely, effectively achieves the desired goal of unloading the LV, and may improve patient-centered outcomes.

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<https://doi.org/10.1053/j.jvca.2018.08.020>

Biomarkers in Peripheral Vascular Surgery



To the Editor:

We read with great interest the article by Whittaker et al. in the *Journal of Cardiothoracic and Vascular Anesthesia*.¹ In this elegant observational study, the authors assessed the influence of perioperative serum magnesium and related electrolytes on cardiac and noncardiac morbidity and mortality in emergency peripheral vascular surgery.¹ They found that postoperative magnesium was independently predictive for 30-day mortality and cardiac morbidity.

The utility and timing of measuring biomarkers in patients undergoing vascular surgery has been controversial. Sandoval et al. evaluated the significance of troponin levels collected before the vascular surgery and daily for the first 72 hours or until discharge.² During the study period, serial perioperative troponin measurements were obtained and the peak postoperative troponin value was compared with the preoperative troponin value to derive the delta troponin I. They found that the presence of dynamic serial troponin concentration changes ≥ 0.01 mg/L resulted in increased use of antiplatelet agents and uptitration of heart failure therapies and statins in patients

undergoing vascular surgery. A study by Schouten et al. revealed that N-terminal brain natriuretic peptide has the ability to predict not only perioperative risk but also long-term cardiac risk in patients scheduled for vascular surgery.³ Therefore, we would be grateful if the authors have and would provide the data regarding the prognostic significance of perioperative troponin and N-terminal brain natriuretic peptide levels and their association with serum magnesium levels in peripheral vascular surgery patients.

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In Response to “Biomarkers in Peripheral Vascular Surgery”



To the Editor:

We write in response to the interesting comments provided by Çil et al. (unpublished) on our work published in the *Journal of Cardiothoracic and Vascular Anesthesia* earlier this year.¹

We recognize the work of Sandoval et al. in examining the influence of postoperative serum troponin levels postoperatively.² Other work also has recognized this potential predictive value for cardiac troponins in the vascular surgery population.^{3,4} Bolliger et al. was able to combine troponin with beta-natriuretic peptide to demonstrate an association with both cardiac morbidity and all-cause mortality.³

We were therefore acutely aware of the influence of these factors in the study design. However, these 2 measures do not form part of the routine panel of serum measurements taken perioperatively in our unit for peripheral vascular surgery. With a retrospective observational study, we were unable to change this during the study period. Therefore, participants with these results available were in a minority.

DOI of original article: <http://dx.doi.org/10.1053/j.jvca.2019.01.015>.

Where measurements were taken, this likely was done for 2 reasons. Firstly, many will have both cardiac troponin and Beta natriuretic peptide taken because of acute clinical need (they were being investigated for acute ischemic heart disease). Therefore, these results will carry significant bias because patients likely will be self-selected by having clinical signs of cardiac compromise prior to measurement.

Secondly, a small subgroup of patients included in our analysis were recruited concomitantly in a multicenter study ongoing in our unit where routine troponin levels were measured. The results from this analysis in this subgroup will be published in due time by the respective researchers. We do need authorization to publish these results in this subgroup in isolation.

For these reasons, we recognize the potential influence of these factors, but publishing the results in this study would not add to reliable evidence already available to the literature.

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<https://doi.org/10.1053/j.jvca.2019.01.018>

Relation Between Pre-existing Right Ventricular Dysfunction and Outcomes of Postoperative Cardiac Complications and Hospital Stay



To the Editor:

We read with great interest the article by Dr. Chou et al.,¹ in which they conducted a retrospective study that enrolled 108 patients who underwent nonemergent major vascular surgery, to illuminate the potential association between pre-existing right ventricular dysfunction (RVD) and postoperative cardiac complications and hospital stay time.

DOI of original article: <http://dx.doi.org/10.1053/j.jvca.2018.10.011>.