Review of: "Fluids, Vasopressors and Inotropes to Restore Heart-Vessels Coupling in Sepsis: Treatment Options and Perspectives"

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Potential competing interests: No potential competing interests to declare.

The authors present their approach regarding the use of fluids, vasopressors, and inotropes in septic shock. One approach in the recent decades has been to apply very standardized bundles to these patients, which certainly has some value. On the other hand, the authors highlight the complexity of this syndrome, which puts a “one bundle fits all” approach in question.

I would like to summarize the major topics and add some additional thoughts:

1. The magnitude of the fluid deficit might vary considerably from patient to patient depending on the individual course of disease and the comorbidities (diarrhea, vomiting, insufficient fluid intake, preexisting edema, etc.). Therefore, it seems justified to estimate the fluid deficit and monitor the refilling individually (e.g., by vena cava sonography).
2. The magnitude of capillary leak also affects fluid therapy. Approaches to maximize macrocirculation by increasing preload can lead in these cases to tissue edema, which impairs microcirculation.
3. The magnitude of vasodilatation/vasoplegia is the third component. Adding vasopressors too early while the fluid deficit is still the major factor might impair perfusion. On the other hand, when shock persists after an initial fluid bolus, the authors cite recent studies that support the early addition of a vasopressor.
4. The authors also cite concepts to add low doses of a second vasopressor such as vasopressin early to treat severe vasoplegia synergistically instead of maximizing one vasopressor with its potential side effects.
5. The use of inotropes is, from my point of view, also very controversial. Many patients with septic shock are old, have cardiovascular comorbidities such as CHD, and develop tachycardia or tachyarrhythmia during septic shock. Adding an inotrope in this setting can increase tachycardia, arrhythmia, and/or myocardial ischemia and therefore worsen cardiac function. There are no high-quality studies supporting the use of inotropes in these settings. We use inotropes here almost never.

The manuscript might benefit from language editing. The literature, especially about inotropes, is somewhat outdated.