Cardiogenic shock: A cardiac emergency requires cardiac leadership

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PII: S0870-2551(25)00345-2

DOI: https://doi.org/doi:10.1016/j.repc.2025.11.004

Reference: REPC 2508

To appear in: *Revista Portuguesa de Cardiologia*

Received Date: 4 November 2025

Accepted Date: 6 November 2025

Please cite this article as: Ferreira J, Carvalho RF, Cardiogenic shock: A cardiac emergency requires cardiac leadership, *Revista Portuguesa de Cardiologia* (2025), doi: https://doi.org/10.1016/j.repc.2025.11.004

Title: Cardiogenic shock: A cardiac emergency requires cardiac leadership

Título: Choque cardiogénico: uma emergência cardíaca que requer liderança da cardiologia

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Cardiogenic shock (CS) is a life-threatening condition that carries persistently high mortality, despite advances in supportive therapies. The growing use of extracorporeal membrane oxygenation (ECMO), especially in hospitals lacking specialized cardiac intensive care, is transforming CS management. Although increased access to mechanical circulatory support (MCS) offers new opportunities, it highlights important concerns: the need for rigorous clinical oversight, thoughtful patient selection, and optimal timing in this complex, time-sensitive syndrome.

In recent years, the use of ECMO by non-cardiac intensivists has grown, particularly as a rescue strategy or in intensive care units where veno-venous (VV) ECMO programs have been adapted for veno-arterial (VA) support. This change has been largely driven by the rapid expansion of VV-ECMO capacity during the COVID-19 pandemic. Many centers have now repurposed these resources for VA-ECMO—often in cases of CS—without integrated cardiology involvement. Consequently, VA-ECMO is increasingly being initiated by non-cardiology intensivists, sometimes in settings lacking timely access to coronary revascularization or invasive hemodynamic monitoring.

This development is concerning, given that recent randomized controlled trials consistently fail to show a mortality benefit for VA-ECMO in CS. The ECLS-SHOCK trial (Thiele et al.) (1), the largest to date, found no improvement in 30-day mortality with early VA-ECMO compared to standard care in infarct-related CS. Similarly, Ostadal et al. (2) reported no survival advantage with early ECMO initiation in patients with rapidly deteriorating or severe CS. These findings are reinforced by an individual patient data meta-analysis of four randomized trials (3), which concluded that VA-ECMO did not reduce 30-day mortality. It was also associated with increased rates of major bleeding and vascular complications.

The growing gap between clinical practice and the current evidence base underscores a critical issue: CS is not only a hemodynamic emergency—it is a complex cardiac emergency. Effective management often requires timely revascularization, detailed interpretation of comprehensive cardiac imaging and invasive hemodynamics, and thoughtful selection of targeted MCS devices such as microaxial flow pump, intra-aortic balloon counterpulsation, or VA-ECMO. These complex decisions are best made by cardiology-led multidisciplinary teams with specialized skills in cardiac imaging, interventional cardiology, heart surgery, advanced heart failure, and electrophysiology.

Consensus statements from leading cardiology societies support the implementation of structured shock team models, centered in cardiac intensive care units (4,5). These multidisciplinary models have been associated with improved outcomes by standardizing triage, enabling rapid revascularization in infarct-related CS, and guiding stepwise MCS escalation tailored to each patient's underlying condition and hemodynamic profile. In this context, the active involvement of cardiologists is not optional—it is essential to delivering timely, evidence-based care in CS.

Organizational models for advanced intensive cardiac care must prioritize the optimization of care through hyperspecialized cardiology teams (6), as generalist approaches, even when supported by advanced technologies, are insufficient. Delivering this level of care requires the highest standards. Young cardiologists must be encouraged to embrace this fascinating and demanding field, but for their expertise to be fully exercised, adequate structural support is essential.

We call for healthcare systems and policymakers to:

- Recognize that VA-ECMO alone is not a solution to CS;
- Require multidisciplinary shock team involvement in all cases of CS requiring MCS;
- Establish cardiac intensive care as a recognized subspecialty.

In summary, effective CS management requires specialized cardiology expertise. Following expert-driven, cardiology-based care models represents the most rational and evidence-informed approach to improving outcomes in this critically ill population.

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