EDITORIAL

The challenges and pitfalls of treating cardiogenic shock with venoarterial extracorporeal membrane oxygenation

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Venoarterial extracorporeal membrane oxygenation (VA ECMO) is licensed for providing temporary circulatory support in patients presenting with cardiogenic shock. In most cases, it serves as a bridge to recovery, to a ventricular assist device, or to a heart transplant. More recent data have shown a potential use for ventricular assist devices in patients with massive pulmonary embolism, accidental deep hypothermia, and sudden cardiac arrest refractory to conventional resuscitation.[1-3] There have also been some studies on the potential use of VA ECMO in patients with severe SARS-CoV-2 infection.[4] It is noteworthy that, despite a growing number of indications for the use of extracorporeal support in critical patients with severe heart failure, sufficient scientific evidence for its efficacy is still lacking. Thus, patients who may benefit from VA ECMO, especially when conventional management has failed, must be identified due to a high risk of potential side effects that could increase mortality rates.[5]

In the current issue of *Polish Archives of Internal Medicine* (*Pol Arch Intern Med*), Celińska-Spodar et al[6] presented a retrospective review of their tertiary center's experience with VA ECMO. The study included almost 200 patients treated between 2013 and 2018. Despite the limitations associated with a single-center retrospective study, this article provides valuable insight into the current applications of VA ECMO. The authors analyzed the potential influence of numerous pre- and postimplantation factors on mortality in the population of difficult-to-treat patients requiring temporary circulatory support due to cardiogenic shock. The mortality rates during ECMO support slightly exceeded 40%, which is in line with the Extracorporeal Life Support Organization registry data. Furthermore, the authors assessed the mortality rates after 6 months and 1 year and showed that they had increased to 65.2% and 67.2%, respectively. The authors also described the most prevalent complications of VA ECMO at their center, which were bleeding, infection, neurologic injury, and limb ischemia, at their center. They also identified multiorgan failure as the most decisive risk factor for in-hospital mortality.

There is an urgent need to obtain data on the use of VA ECMO in the population of patients with cardiogenic shock from high-quality prospective randomized studies, but the execution of trials in this high-risk population remains a particular challenge. While the scientific community should ensure that evidence meets defined standards, primary evidence occasionally needs to be drawn from registries and patient outcome analysis. Because this study featured the largest sample size in Eastern Europe and a long observational period, it may aid the decision making of clinicians and medical policy makers.

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