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## Commentary: Vita ex machina— life from the machine

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It is no secret that the use of extracorporeal life support (ECLS) has increased dramatically. According to the Extracorporeal Life Support Organization registry, 463 centers performed 15,875 ECLS runs in 2019 compared with 115 centers that performed 1743 ECLS runs in 2000.<sup>1</sup> Several documents have been produced to guide the care of patients on ECLS on diverse topics from percutaneous mechanical circulatory support<sup>2</sup> to extracorporeal cardiopulmonary resuscitation,<sup>3</sup> blood transfusion,<sup>4</sup> and most recently the Coronavirus Disease 2019 pandemic.<sup>5</sup> These efforts represent critical junctures in the care of their respective populations, because without suitable guidance there can be no progress. Until now, however, there has been minimal guidance on the care of patients in postcardiotomy cardiogenic shock, which occurs commonly and in whom outcomes are generally poor without mechanical support.

The authors, representing the Extracorporeal Life Support Organization, European Association for Cardio-Thoracic Surgery, Society for Thoracic Surgery, and American Association for Thoracic Surgery, are to be congratulated for producing a comprehensive expert consensus document on postcardiotomy ECLS in adults.<sup>6</sup> This document discusses many aspects of preoperative, during, and post-ECLS care. Reasonable, well thought-out recommendations are provided for a variety of commonly encountered and a number of less commonly encountered—but no less important—scenarios. Although the

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### CENTRAL MESSAGE

Although stronger evidence and guidance are still needed in many areas, providers at all levels will benefit from this comprehensive handbook on postcardiotomy ECLS care.

procedure of initiating ECLS is often technically straightforward, it is in the multitude of perioperative possibilities, including reaching futility that the “art” of ECLS is truly found. Indeed, apart from the initial status at presentation, these are the elements that perhaps have the greatest bearing on a patient’s ultimate course. Individuals who are involved with ECLS at any level will benefit greatly by considering the many recommendations contained herein and applying them to their practice when able.

The difficulty with this document and with many areas of acute and critical cardiac surgical care is the relatively low level of evidence supporting most of the included statements. Although there is often a significant amount of anecdotal evidence on how best to manage these challenging patients, Level A evidence is sparse. This highlights the need for rigorous, prospective studies or randomized controlled trials in the population on ECLS. Acknowledging this can be difficult given these patients are critically ill and not easily recruited into randomized studies. Nonetheless, it remains incumbent on our field to perform well-designed studies in patients on ECLS and to report our findings. Only by these efforts will we be able to further improve the care that we provide standardized practices across the field and identify the areas most deserving of future initiatives.

ECLS in postcardiotomy patients has changed the field of cardiac surgery, yet there remain many unanswered questions regarding its use. This important *opus* serves as an essential document for our specialty, particularly with provision of the most up-to-date guidance for the use of valuable ECLS resources in the postcardiotomy patient. This

document will doubtless be considered required reading and, along with the *vade mecum*—or handbook—included in the supplementary materials, an invaluable resource for providers of postcardiotomy ECLS care across the globe.

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