Like a phoenix: The rise of an extracorporeal membrane oxygenation program

Jacob A. Klapper, MD

From the Division of Cardiothoracic Surgery, Duke University Medical Center, Durham, NC.

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Address for reprints: Jacob A. Klapper, MD, Division of Cardiothoracic Surgery, DUMC 3954, Durham, NC 27710 (E-mail: Jacob.klapper@duke.edu).

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Todd and colleagues¹ present a thorough description of their comprehensive extracorporeal membrane oxygenation (ECMO) program for the bridging of patients to lung transplantation. The development of their program was the result of a collaborative effort by a team of physicians, perfusionists, and supporting staff in which each individual was involved in developing an understanding of ECMO. In addition, strong lines of communication were designed to coordinate and deploy ECMO in an efficient manner. As a result, their program, in 1 calendar year, bridged 12 patients from venovenous or venoarterial circuit to lung transplant with 100% 1-year survival and excellent functional status.

The authors very clearly lay out what they believed to be the key elements to their success. Aside from the aforementioned, they maintained strict criteria for selecting patients for an ECMO bridge. Commendably, the authors also recognize areas for improvement. For instance, 9 of 12 patients, despite ECMO, required continuous sedation for air hunger and no patient was able to ambulate during ECMO. In addition, they experienced higher rates of venous thrombotic events in these patients, which although of not great consequence in these 12 individuals, could represent a problem in the future as they expand their program.

The real value of this article is that it provides an exemplary framework for adopting a new treatment approach. I was impressed by how this group developed a cohesive team. It also reminded me that success is a hard thing to predict. In most cases, multiple peripheral forces, beyond the individuals involved, coalesce to produce remarkable results. History is marked by these moments when things just come together and there is a flourish of productivity. It is easy, for instance, to say that the Golden State Warriors are champions who have changed the game because the squad consists of 2 of the greatest shooters of the past half-decade, and a third player who, at 7-ft tall, is as graceful and nimble an athlete as has ever existed. All true, but it was also readily apparent that their victory was the result of strong leadership, mutual respect, and a common goal. Likewise, the success of the program

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Central Message

The use of extracorporeal membrane oxygenation is an increasingly valuable tool to bridge patients to transplant. A well-designed program and a dedicated team are essential to achieving desired outcomes.

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described in this article is the result of a coalescence of a number of factors that included not only talented clinicians, but also buy-in and support from the institution, the availability of new technology (ie, the Avalon cannula; Maquet Cardiovascular, LLC, Wayne, NJ), and the geographic location of their program.

The weakness of this article is that its results, although impressive, are not a dramatic departure from what others have reported.^{2,3} In addition, the authors do not provide insight into how we overcome certain ECMO-related limitations (ie, failure to ambulate and persistent sedation requirements). Nevertheless, this group will undoubtedly continue to contribute to the field, and I anticipate that their team, like the Warriors, may help change the game.

References

1. Todd E, Roy S, Hashimi A, et al. Extracorporeal membrane oxygenation as a bridge to lung transplantation: a single-center experience in the present era. *J Thorac Cardiovasc Surg*. 2017;154:1798-809.
2. Javidfar J, Brodie D, Iribarne A, Jurado J, Lavelle M, Brenner K, et al. Extracorporeal membrane oxygenation as a bridge to lung transplantation and recovery. *J Thorac Cardiovasc Surg*. 2012;144:716-21.
3. Hoopes C, Kukreja J, Golden J, Davenport DL, Diz-Guzman E, Zwischenberger JB. Extracorporeal membrane oxygenation as a bridge to pulmonary transplantation. *J Thorac Cardiovasc Surg*. 2013;145:862-7.