Extracorporeal membrane oxygenation as a bridge to lung transplantation is about more than just surviving

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In his blog post, “When Life Is About More Than Just Survival,” Tom Eggebrecht,¹ author of the paperback *Fully and Creatively Alive: How to Live a More Joyfully Fulfilling Life*, writes about people who successfully pursued their passions and followed their dreams in many and various ways. We quote from this post¹: “There’s nothing like Florida mornings. They teem with life. Every morning when I ride my bike on our local trail I get to observe the beautiful sunrise. I see the mist rising off of the open fields. And I get to ride through lush green woods filled with banyan trees, palms, and deep green vegetation. It’s the time of day when the wildlife is waking up. I see hawks, turkeys, squirrels, rabbits, snakes, egrets, osprey, and even an occasional alligator. What strikes me every morning is that all the birds and animals are waking up simply to survive another day. It reminds me that for us human beings life is so much more than simply trying to survive.”

Extracorporeal membrane oxygenation (ECMO) is increasingly being used as a bridge to lung transplant (LTx) in patients who deteriorate from hypercapnic and/or hypoxic respiratory insufficiency or from right heart failure with pulmonary hypertension.² ECMO facilitates early ambulation (Figure 1) and may mitigate detrimental intensive care unit complications, including weakness, delirium, and ventilator-associated pneumonia.³ Outcome in patients put on ECMO support as a bridge to LTx³⁻⁵ or as a rescue therapy for primary graft dysfunction after LTx⁶ is typically defined in terms of survival and pulmonary function. Little is known, however, about the impact of receiving ECMO support on patients’ physical and mental well-being.

In this issue of the *Journal*, Kolaitis and coworkers⁷ compared the health-related quality of life and depressive symptoms in 17 patients on ECMO support as a bridge to LTx with those of 48 patients hospitalized at the time of

A pair of healthy donor lungs on their way to a happy recipient. (Copyright D.V.R.)

Central Message

Candidates successfully bridged on ECMO to first lung transplant have comparable survival to those without ECMO and also similar improvements in health-related quality of life and depressive symptoms.

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transplant but not on ECMO support and with those of 124 transplant candidates who were called in from home. One-year survival (97%) was the same in all groups. Quality of life and depressive symptoms significantly improved from pre-LTx to post-LTx within all groups. Importantly, patients on ECMO support reached similar patient-reported outcomes to those of patients without ECMO. Kolaitis and coworkers⁷ therefore concluded that patients in need of ECMO to survive the waiting period for a suitable organ should not be precluded from this rescue therapy.

Apart from one other study with comparable conclusions reported by the Groningen Lung Transplant Group, which used a visual analog scale for assessment of quality of life,⁸ the study of Kolaitis and coworkers⁷ is a unique report. This is the largest study to date on patient-reported outcomes after ECMO. Kolaitis and coworkers⁷ are to be applauded for the excellent survival obtained in this high-risk population. Their results should reassure intensivists, cardiothoracic surgeons, and allied health professionals that their efforts to keep these critically ill patients alive in the intensive care unit for days and weeks is worthwhile, not only in terms of survival but also with respect to their patients’ post-LTx quality of life.

ECMO as a bridge to LTx is about more than just surviving. It is about hoping to ride a bike again to observe the beautiful sunrise.

FIGURE 1. A 26-year-old transplant candidate with end-stage cystic fibrosis at the University Hospitals Leuven (Leuven, Belgium) ambulating on awake venovenous extracorporeal membrane oxygenation support while awaiting a healthy donor lung offer.

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