Commentary: Leveling up the evidence!

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Disclosures: Author has nothing to disclose with regard to commercial support.

Received for publication Aug 1, 2019; accepted for publication Aug 1, 2019; available ahead of print Oct 13, 2019.

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J Thorac Cardiovasc Surg 2020;159:731

0022-5223/\$36.00

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<https://doi.org/10.1016/j.jtcvs.2019.08.011>

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Central Message

There is an increasing body of evidence pointing toward the routine use of ex vivo lung perfusion for marginal donor lungs.

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I read with great interest the article “Outcomes of Marginal Donors for Lung Transplantation After Ex Vivo Lung Perfusion: A Systematic Review And Meta-analysis,” published by Nakajima and colleagues¹ in this issue of the *Journal*. It provides a summary of published evidence comparing outcomes of marginal donor lungs pretreated by ex vivo lung perfusion (EVLP) to outcomes of standard donor lungs preserved by static cold storage. A total of 8 studies with nearly 1200 patients met the inclusion criteria and served as the basis for a meta-analysis. The central message of this work is that EVLP-treated marginal lungs perform equally well as standard donor lungs.

To the best of my knowledge this is the first meta-analysis of ex vivo lung perfusion. The fact that this analysis was published in the *Journal of Thoracic and Cardiovascular Surgery* highlights the high reputation that the *Journal* currently enjoys in the lung transplant community.

Performing EVLP for marginal lungs has 2 major advantages: First, it serves as an additional safety net, allowing lungs to be observed under “near physiologic” conditions for 4 to 6 hours.² Second, there is emerging evidence that the perfusion itself can improve damaged grafts and render them into a transplantable state.^{3,4} Especially the first indication—the use of EVLP as a safety net—has lately gained increasing importance. Most transplant centers nowadays accept marginal donor lungs on a routine basis. In the clinical reality, however, it is often unclear how marginal donor lungs can be in order to still to be used safely for transplantation. We have recently shown that organs that had previously been rejected by 2 or more transplant centers for quality reasons can often be used without hampering long-term outcome.⁵ The use of EVLP to determine the true functional quality of such grafts adds an important tool in the armamentarium of lung transplant surgeons. Another example is the use of donation-after-circulatory-death lungs from donors with a prolonged time between withdrawal of life-sustaining treatment and arrest. Potential graft damage resulting from prolonged warm ischemic times can be examined

during EVLP, and often those lungs turn out to be acceptable for transplantation.⁶

The growing evidence of EVLP emphasizes the central place of this technique in contemporary lung transplantation. This meta-analysis performed by the Tokyo group¹ is highly relevant. It provides high-level evidence favoring the use of EVLP for marginal donor lungs. Compared with static cold storage, EVLP platforms are extremely costly, but they facilitate the use of organs otherwise lost for the organ pool. Analyses such as that of Nakajima and colleagues¹ provide indispensable arguments when discussing the costs of an EVLP program with hospital authorities and management boards.

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