

Response to “The Use of Extracorporeal Membrane Oxygenation in Clinical Practice” Letter to Editor

Harrison Lang¹, Mitchell Milanuk¹, John Brady², Karin Trujillo¹, Elizabeth Lyden³, and HelenMari Merritt Genore¹

¹University of Nebraska Medical Center College of Medicine

²University of Pittsburgh Medical Center

³University of Nebraska Medical Center

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Abstract

This is a response to the Letter to Editor received regarding the article “Outcomes of Non-Cardiotomy Patients Requiring Postoperative Extracorporeal Membrane Oxygenation.”

Dear Dr Harky:

Thank you for your inquiry regarding our manuscript¹. Our retrospective database captures all ECMO patients from 2006 through Jan 2017. Postoperative ECMO for non-cardiotomy patients has been a recent endeavor and includes 20 perioperative patients supported over a six-year period (2010-2016). These patients were compared with ELSO outcomes and within our own database (practices/selection criteria are most similar within our institution).

We agree it is difficult to make recommendations about decisions for support based on a small cohort of orthotopic liver transplant (OLT) patients, including the referenced case series of eight patients with 38% survival (2/4 VV and 1/4 VA survived hospitalization)². Cannulation ranged from 0 to 180 days after transplantation. Our manuscript focused only on perioperative support, occurring within index hospitalization, with median time to support 0 days. This may represent a different *type* of patients, as the initial postoperative period includes unique hemodynamic challenges.

Two other OLT reports include 32 and 18 patients². These larger *VV-only* cohorts report 15% and 44% survival. It is unclear how close in proximity of OLT support was initiated. Within The smaller 8 patient case series blends VA and VV support: overall survival was 3/8 patients (25% VA and 50% VV). In our small experience, perioperative salvage ECMO for OLT has been unsuccessful (0/4).

Our manuscript addresses demographic and preoperative characteristics of the smaller subgroups. We do also discuss the type of ECMO utilized.

OLT: Indications were “cardiac arrest (n = 2), intraoperative cardiogenic shock (n = 1), and postoperative respiratory failure (n = 1). Two patients required VA-ECMO in the setting of ECPR, one patient required VV-ECMO, and one patient fell into the “Other” category as they were supported with RVAD with VV in-line oxygenator.”

Thoracic: “Indications were. . . respiratory failure (n 8) and cardiogenic shock (n 2). Three patients required VA-ECMO, six patients required VV-ECMO, and one patient fell into the “Other” category.” We do not have intraoperative details prior to ECMO initiation.

We agree the use of either VA or VV ECMO represent distinct underlying disease processes. The PNC-ECMO and control cohorts were divided into VA and VV ECMO before comparing short and long-term survival rates between the cohorts.

Each case is considered uniquely via multidisciplinary approach with discussion between primary surgeon and anesthesiologist, cardiothoracic surgeon, intensivist, nurses, perfusionists and the patient/family. A team-based approach to difficult situations is essential; we agree this improves outcomes³. Likewise, a quality conference occurs at regular intervals to discuss ECMO mortalities and morbidities in an interprofessional setting.

In closing, we agree completely that further studies are needed to define which postoperative patients may benefit. Our manuscript is meant to add to the body of literature available, not to provide guidelines. Thank you for your insightful points and reflections.

References:

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3. Na SJ, Chung CR, Choi HJ, et al. The effect of multidisciplinary extracorporeal membrane oxygenation team on clinical outcomes in patients with severe acute respiratory failure. *Ann Intensive Care.* 2018;8(1):31. 2018 Feb 27. doi:10.1186/s13613-018-0375-9