



End Organ Recovery and Survival with the QuadroxD Oxygenator in Adults on Extracorporeal Membran Oxygenation

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Author(s)

Joshua K. Wong, Vei Shaun Siow, Hitoshi Hirose, Pawel Karbowski, Joseph Miessau, Michael Baram, Matthew DeCaro, Harrison T. Pitcher, Nicholas C. Cavarocchi

ABSTRACT

Introduction: Extracorporeal Membrane Oxygenation (ECMO) is used in selected patient with cardiogenic and/or re- spiratory shock. We report our experience with standardized management protocols and the application of the Qua- droxD oxygenator with a centrifugal pump to maximize end-organ recovery and improve survival. **Methods:** This is an Internal Review Board (IRB) approved, single institution retrospective study of end-organ recovery and survival in pa- tients who required ECMO for cardiogenic and/or respiratory shock between July 2010 and June 2011. **Results:** Sixteen patients (median age: 46 years) were initiated on either Venous-Arterial (VA) or Venous-Venous (VV) ECMO. Cardiogenic shock, acute respiratory distress syndrome (ARDS) and a combined respiratory and cardiogenic compromise were the primary indications for ECMO in 8 (50%), 5 (31%) and 3 (19%) patients respectively. The median time on ECMO was 8 days (range: 4 - 26 days). Twelve patients (75%) were successfully weaned off ECMO, of which four (25%) were bridged to a ventricular assist device (VAD) and eight (50%) were weaned to recovery. All eight patients (100%) that were weaned to recovery and two patients (50%) that were bridged to a VAD were successfully discharged from the hospital, resulting in a discharge rate of 63%. There was an improvement in pre- vs. post-ECMO AST (449 IU/L vs. 63 IU/L, $p < 0.05$) in 5 patients (31%) with liver injury; serum lactate (9.1 mmol/L vs. 1.9 mmol/L, $p < 0.05$) in 8 patients (50%); and PaO₂/FiO₂ ratio (87 to 161, $p = 0.01$) in 10 patients (62%) with ARDS. Patients with evidence of pulmonary edema ($n = 8$, 50%) and ARDS ($n = 8$, 50%) on chest X-ray showed radiographic evidence of complete resolution. Renal function was preserved in 15 patients (94%). **Conclusion:** ECMO using the QuadroxD oxygenator and a centrifugal pump, coupled with standardized management protocols is beneficial in carefully selected patients. Improvement or maintenance of end-organ function is associated with successful bridge to device therapy and/or increased survival.

KEYWORDS

Extracorporeal Membrane Oxygenation; Adults; End-Organ Recovery; Mechanical Circulatory Support

Cite this paper

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