

Extracorporeal Membrane Oxygenation in Trauma Patients: Meaningful Outcomes After Survival?

Authors: Rebecca A. Saberi MD, Gareth P. Gilna MD, Eva M. Urrechaga MD, Alessia C. Cioci MD, Valerie J. Hart DO, Brandon M. Parker DO

Introduction: Extracorporeal membrane oxygenation (ECMO) is being increasingly used in the trauma population. Published experiences show favorable survival, however, the data is limited. This study describes our ECMO experience in trauma patients following survival to discharge.

Methods: A retrospective chart review of trauma patients at a level-one trauma center from January 2014 to April 2020 was performed to identify those treated with ECMO. Demographics, clinical characteristics, and outcomes were analyzed.

Results: Forty patients (88% male, mean age 27 ± 15 years) were treated with ECMO (87% venovenous) during their index admission following traumatic injury (58% blunt, 23% penetrating, 18% burn, 3% drowning). Mean injury severity score was 31 (± 11). Median time from injury to ECMO cannulation was 4 [2-7] days. Index mortality was 63% (n=25). Of those who survived to discharge (n=15), all were placed on ECMO for acute respiratory distress syndrome (93%) or cardiogenic shock (7%). Median time on ECMO was 10 [7-17] days and median hospital length of stay was 48 [36-131] days. More than half (67%) of patients were discharged home, compared to inpatient rehabilitation (27%) or long-term care hospital (7%). After discharge, 12 (80%) patients were seen in follow up clinic, none of which had long-term ECMO-related functional deficits. Overall readmission rate was 20% and none were readmitted for ECMO-related complications.

Conclusions: ECMO is as an important tool in the treatment of critically ill trauma patients. Patients who survive to discharge appear to have good functional outcomes, however, further research is indicated to understand long-term outcomes.