Retrospective Study on Outcomes of Veno-Venous and Veno-Arterial Extracorporeal Membrane Oxygenation

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BACKGROUND
• Extracorporeal Membrane Oxygenation (ECMO) is a form of partial heart-lung bypass that provides support for critically ill patients with severe yet potentially reversible respiratory and/or cardiac failure
• ECMO is a supportive therapy that allows time for recovery of lung and/or heart function by directly oxygenating and removing CO₂ from the patient’s blood
• ECMO provides direct respiratory support via veno-venous (VV) ECMO or cardiorespiratory support via veno-arterial (VA) ECMO

OBJECTIVE
• This study analyzes the survival at discharge of patients treated with VV and VA-ECMO at the Lehigh Valley Health Network from 2013-2017

METHODS
A retrospective review of all VV and VA-ECMO patients recorded from 2013-2017 at the Lehigh Valley Health Network. The study included 112 VV-ECMO cases and 92 VA ECMO cases, including patients who underwent extracorporeal cardiopulmonary resuscitation (ECPR)
• Electronic hospital records were reviewed for demographic, etiology, and outcome information
• Data collection and analysis focused on survival rates after ECMO support was provided

OUTCOMES

RESULTS
• Patients treated with VV-ECMO show a survival rate of 63% while patients treated with VA-ECMO show a survival rate of 43%, the majority of whom were discharged to rehab
• LVHN experienced a 5% increase in VV-ECMO survival, a 9% increase in VA-ECMO survival, and an 11% increase in the survival of VA-ECMO patients that did not undergo ECPR

CONCLUSIONS
• Increase in survival rates for both VV and VA-ECMO cases suggests that greater experience with ECMO may lead to greater patient survival over time
• ECPR patients who experienced cardiac arrest likely contributed to the lower survival rate in VA-ECMO patients
• Overall results of ECMO continue to demonstrate the importance of this life saving technology and service
• Future research should investigate how LVHN ECMO case volumes and outcomes compare to other ECMO centers across Pennsylvania

References