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

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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.

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

A retrospective review of all VV and VA-ECMO patients recorded from 2013 to 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).

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.

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

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