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A Retrospective Analysis of the Outcomes of Extracorporeal Cardiopulmonary Resuscitation (ECPR)

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BACKGROUND

• Extracorporeal cardiopulmonary resuscitation (ECPR) is a form of veno-arterial extracorporeal membrane oxygenation (VA-ECMO) wherein the support is administered during cardiac arrest to externally sustain circulation
• Once it is determined that a patient undergoing cardiac arrest has the potential for recovery and eventual weaning, ECPR is utilized in attempt to increase survival to discharge, which is otherwise low with traditional cardiopulmonary resuscitation (CPR)
• ECPR is a temporary treatment to allow for a duration of cardiopulmonary rest due to anticipated system healing with time, yet is not a curative measure

OBJECTIVE

• As a single-center, retrospective chart analysis, this study aims to determine the overall outcomes of patients who underwent ECPR at Lehigh Valley Health Network from 2013-2017

METHODS

1. Creation of a database in Microsoft Excel to collect demographic and outcome information of patients
2. Categorization of patients undergoing VA ECMO and exclusion of those not for the purpose of ECPR
3. Analysis of 45 ECPR patient outcomes and correlational study with date-based cohorts
4. Consultation and comparison with previous studies to find support or refutation for findings

RESULTS

• With 29% (95%CI 16-42%) overall survival outcomes, LVHN is consistent with published survival rates
• There was a 14% increase in survival to discharge between the cohorts (Cohort 1: 2013-2015, Cohort 2: 2016-2017)
• All ECPR patients had been weaned by or on day 8 with the exception of two patients on day 24 and 26, which were converted to venovenous (VV) ECMO on day 8 and 2, respectively
• No correlation could be seen between days on ECPR and survival to discharge

CONCLUSIONS

• Though outcomes for ECPR patients are poor, the difference between cohorts shows that improvement is achievable
• Based on current duration of support data, patients should continue to be weaned, converted, or withdrawn from care by day 8 to avoid unnecessarily long durations
• Future studies should conduct correlational analyses between demographic or treatment based variables of ECPR and patient outcomes

References