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Comparison of Survival Indicators Between Myocardial Infarction Patients and Septic Patients Who Received Veno-Arterial Extracorporeal Membrane Oxygenation

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Published In/Presented At

Boinpally, N. Gallagher, K. Eisenhauer, A. Healy, M. Postko, K. Wu, J. K. (2018, Sep 14). Comparison of Survival Indicators Between Myocardial Infarction Patients and Septic Patients Who Received Veno-Arterial Extracorporeal Membrane Oxygenation. Poster Presented at: ELSO. Scottsdale, AZ.

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Comparison of Survival Indicators Between Myocardial Infarction Patients and Septic Patients Who Received Veno-Arterial Extracorporeal Membrane Oxygenation Treatment Niharika Boinpally, Kennedy Gallagher, Allison Eisenhauer, PA-C, Michael Healy, Kristina Postko, PA-C, James K. Wu, MD

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BACKGROUND

- A myocardial infarction (MI), also known as a heart attack, occurs when blood flow to the heart is stopped due to a blockage in a coronary artery.¹
- Sepsis is a potentially fatal complication of the body's inflammatory immune response to an infection – the inflammation can damage organ systems, causing them to fail.²
- Veno-arterial extracorporeal membrane oxygenation treatment is a form of partial cardiopulmonary bypass that can be used for support of cardiac function in MI and septic patients.³

OBJECTIVE

This study sought to determine survival indicators for VA-ECMO-treated MI and septic patients at the Lehigh Valley Health Network from 2013–2018

METHODS

Creation of Microsoft Excel database to collect and organize patient demographic and outcome information

Retrospective chart review of all VA-ECMO patients with either MI or Sepsis from 2013–2018 at Lehigh Valley Health Network

Analysis of 34 MI and 20 septic patients for a correlational study between indicators and survival

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OUTCOMES

Figure 1: Comparison of average initial lactate levels between septic patients who are deceased and those who are not



Figure 2: Comparison of average initial PT levels between septic patients who are deceased and those who survived



Figure 3: Comparison of average initial APPT levels between septic patients who are deceased and those who survived



Figure 4: Comparison of average initial pH levels between MI patients who are deceased and those who survived



Figure 5: Comparison of average initial PT levels between MI patients who are deceased and those who survived



Figure 6: Comparison of mortality rates between MI patients who underwent ECPR and those who did



RESULTS

- a higher mortality rate:
- elevated lactate levels
- higher mortality rate:
- Iower pH levels
- (ECPR)

CONCLUSION

- both septic and MI patients.
- patients.
- survival only in MI patients.
- patient groups.

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³Persico, N., Bourenne, J., & Roch, A. (2016). Veno-arterial extracorporeal membrane oxygenation for acute myocardial infarction-associated cardiogenic shock: can we predict survival before decision of implantation? Journal of Thoracic Disease, 8(9), 2331–2333. http://doi.org/10.21037/jtd.2016.08.91

Septic patients who exhibited any of the following demonstrated

elevated prothrombin time (PT)

elevated activated partial thromboplastin time (APTT)

MI patients who exhibited any of the following demonstrated a

elevated PT levels

administration of extracorporeal cardiopulmonary resuscitation

• PT served as a reliable indicator for determining outcomes in

Lactate levels and APTT served as indicators only in septic

• pH levels and the need for resuscitation were indicative of

• Future studies could look to investigate how these determined survival indicators compare to survival indicators in larger

²Azfar, M., Khan, M., & Khurshid, M. (2014). Fibrinogen at admission is an independent predictor of mortality in severe sepsis and septic shock. Critical Care, 18(Suppl 1), P209.



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