A Multicenter International Survey of Renal Supportive Therapy during ECMO: The Kidney Intervention During Extracorporeal Membrane Oxygenation (KIDMO) Group.

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Introduction

Literature on Renal Support Therapy (RST) during ECMO is limited to single center experiences. This study's goal was to obtain background data from worldwide centers regarding RST practices during ECMO support.

Methods

A cross-sectional survey of center practices with regards to RST during ECMO. The study was carried out with IRB approval via electronic survey using REDCap Survey (Vanderbilt University School of Medicine, Nashville TN). The 29 question survey was distributed to medical directors via the ECLSNet ListServe (eclsnet@rufus.origenbio.com).

Results

- 65 of 210 international ELSO centers responded
  - 80% were US sites,
  - 4.6% were Canadian,
  - 10.8% were European
  - 4.6% were from Australia or New Zealand
- 94% of centers reported caring for neonatal or pediatric patients but only 40% cared for adults on ECMO.
- 46% of centers reported both cardiac and respiratory indications for ECMO, 27.7% reported cardiac support only, 24.6% reported respiratory support only.
- Nephrology was the most common author of RST prescription (63%) as compared to critical care, and was significantly different ($p<0.001$) between US centers (83%) and non-US centers (11%).
- Renal Support Therapy
  - 23% reported not using any RST during ECMO
  - 21.5% only used an in-line hemodiafilter
  - 50.8% only used a RST machine connected to the ECMO circuit
  - 4.6% used both methods.
- The predominant clearance method utilized was convective (SCUF 43% + CVVH 18%) and was dependent upon RST interface (in-line filter vs machine).
- Treatment or prevention of fluid overload (FO) was the most frequent indication for RST reported comprising 59% of the cohort.
- Indication for RST varied by center location (Figure 1) and by indication for support (Figure 2)

Indications for RST by Institution Location

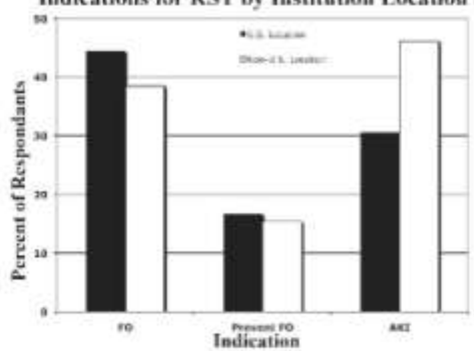

Figure 1. There was a non-significant trend ($p>0.05$) toward non-US centers reporting acute kidney injury (AKI) as the primary indication for RST.

RST Indication by Predominant ECMO Indication

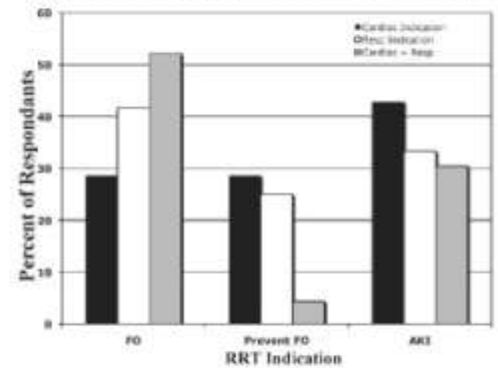

Figure 2. RST indication differed by indication for ECMO with AKI predominating (42%) in the group on ECMO for cardiac

Results

- 25% of centers do not use RST during ECMO despite a 50% prevalence of AKI on ECMO by current definitions.
- Fluid overload is the predominant indication for RST during ECMO in this cohort, with AKI most prominent in non-US centers and those performing primary cardiac support.
- Nephrology is the primary author of RST prescriptions worldwide but most markedly in US centers.

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