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## **Exchange Of Extracorporeal Membrane Oxygenation Cannulas for Hemodialysis Catheters in Children Requiring Renal Replacement Therapy**

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**Exchange Of Extracorporeal Membrane Oxygenation Cannulas for Hemodialysis Catheters  
in Children Requiring Renal Replacement Therapy**

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**Other authors/contributors involved in the project:** James A. Fraser, Shai Stewart, Derek Marlor, Tolulope Oyetunji, Douglas Rivard, John Daniel

**IRB Number: 2372**

**Describe role of Submitting/Presenting Trainee in this project (limit 150 words):**

Lead research fellow in the project, data collection, data analysis, writing, and editing.

**Background, Objectives/Goal, Methods/Design, Results, Conclusions limited to 500 words**

**Background:**

Pediatric patients requiring extracorporeal membrane oxygenation (ECMO) can require renal replacement therapy even after decannulation. However, data regarding transition from ECMO cannulation to a hemodialysis catheter in pediatric patients that will require maintenance hemodialysis is not currently available.

**Objectives/Goal:**

We aim to describe the outcomes of venous ECMO cannula exchange for hemodialysis catheters in children requiring renal replacement therapy to promote vein preservation.

**Methods/Design:**

Patients  $<18$  years old who had an ECMO cannula exchanged for a hemodialysis catheter during decannulation at a tertiary care children's center from January 2011-September 2022 were identified. Data was collected from the electronic medical record. Descriptive statistics were performed with categorical variables reported in percentages and continuous variables reported as medians with interquartile ranges (IQR).

**Results:**

A total of 10 patients were included. The cohort was predominantly male (80.0%, n=8) with a median age of 1 day (IQR 1.0, 24.0). All ECMO cannulations were veno-arterial in the right common carotid artery and internal jugular vein. The median time on ECMO was 8.5 days (IQR 6.0,15.0). One patient had the venous cannula exchanged for a tunneled hemodialysis catheter during decannulation, two were transitioned to peritoneal dialysis and seven had the temporary hemodialysis catheter converted to a tunneled catheter by Interventional Radiology (when permanent access was required) at a median time of 10 days (IQR 8.0, 12.5). Of these 7 patients, 28.6% (n=2) developed catheter-associated infection within 30 days of replacement, with one requiring catheter replacement. Transient bloodstream infection occurred in 10.0% (n=1) within 30 days of ECMO cannula exchange.

### **Conclusions:**

Venous ECMO cannula exchange for a hemodialysis catheter in children requiring renal replacement therapy after decannulation is possible as a bridge to a permanent hemodialysis or peritoneal catheter if renal function does not recover, while supporting vein preservation.