Intermediate-Term Results of Extracorporeal Membrane Oxygenation Support Following Congenital Heart Surgery

Syed M. Peer1; Dominic A. Emerson1; John P. Costello1; Michael K. Shu1; David Zurakowski3; Richard A. Jonas1; John T. Berger2; Dilip S. Nath1

1. Cardiovascular Surgery, Children's National Medical Center, Washington, DC, United States.
2. Critical Care Medicine and Cardiology, Children's National Medical Center, Washington, DC, United States.
3. Departments of Anesthesia and Surgery, Boston Children's Hospital, Boston, Harvard Medical School MA, United States.

Background/Hypothesis:
There is considerable data regarding in-hospital results of congenital heart surgery patients requiring post-cardiotomy extracorporeal membrane oxygenation (ECMO) support; however there is limited information on mid-term outcomes.

Materials and Methods:
- Single institutional retrospective review
- 25 consecutive post-cardiotomy ECMO patients surviving to hospital discharge
- January 2003 to June 2008

Primary endpoint:
- Survival at last follow-up

Secondary endpoints:
- Neurological deficits
- Renal injury
- Respiratory failure
- Unplanned cardiac re-interventions
- Unplanned hospitalizations
- Postoperative medical technology dependence
- Systemic Ventricular Function at follow up

Results:
- Kaplan-Meier Survival Curve Based on 25 Patients (1 death at 6 months post surgery)
- Median age at ECMO: 4 months
- Median follow up: 3.3 years (Interquartile Range: 1.2-5.9 yrs).
- Patient survival: 95% at 3 years (95% CI: 90%-100%)

Secondary End Points:
- Neurological Deficits
- Respiratory Failure
- Unplanned Cardiac re-interventions
- Unplanned Hospitalizations
- Renal Failure
- Normal SV function
- Mild-Moderate SV dysfunction

Conclusion:
Intermediate-term post-cardiotomy ECMO patient survival encouraging
Neurological impairment and unplanned cardiac re-interventions remain significant concerns