

## Early ECMO overcomes primary graft dysfunction after heart transplant

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**Funding Acknowledgement:** Type of funding source: None

**Introduction:** Primary graft dysfunction (PGD) is the main cause of early mortality after heart transplantation. Despite affecting approximately 7–8% of all recipients, the etiology and optimal treatment of this condition remains unknown. Extracorporeal membrane oxygenation (ECMO) is a key treatment modality, however optimal timing of initiation has not been established.

**Methods:** A single-institution retrospective study was conducted. Between January 2003 and October 2019 a total of 13 recipients experienced PGD treated with ECMO. At the beginning of 2016, our institution adopted an early ECMO policy, with PGD patients placed on ECMO prior to leaving the OR at the time of transplant. Patients were stratified into pre-2016 (n=5) and post-2016 (n=8) cohorts. Outcomes including duration of support, ICU and total hospital stay, Ejection Fraction (EF), need for vasoactive or inotropic medication, in-hospital survival, 1-year survival, and complications were analyzed.

**Results:** Among the pre-2016 and post-2016 cohorts there was no difference in duration of ECMO, ICU stay, and total hospital stay. The average time from release of cross-clamp to initiation of ECMO was 8.04 vs 3.05 hrs in each cohort, respectively (p=0.02). In all patients, ECMO resulted in a reduction in the need for vasopressors and inotropes as assessed by the vasoactive inotrope score. LVEF normalized within the first 5 days of therapy for all patients and was sustained after decannulation. Complication rates among cohorts were similar with respect to bleeding, stroke, infection, and need for permanent dialysis. When compared to the post-2016 cohort, the pre-2016 cohort demonstrated significantly worse in-hospital (75% vs 100%, p=0.04) and 1-year (69% vs 100%, p=0.02) survival.

**Conclusions:** Early initiation of ECMO results in decreased mortality for PGD after heart transplant without an increased risk of complications.