Extra Corporeal Membrane Oxygenation (ECMO) for Primary Graft Dysfunction following Heart Transplantation: A Single Centre Experience

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OBJECTIVES

Immediate postoperative complications including primary graft failure, right ventricular failure and respiratory dysfunction after heart transplant are associated with high morbidity and mortality.

Extra Corporeal membrane oxygenation (ECMO) can be successfully used to wean patients from cardiopulmonary bypass who are otherwise unsalvageable.
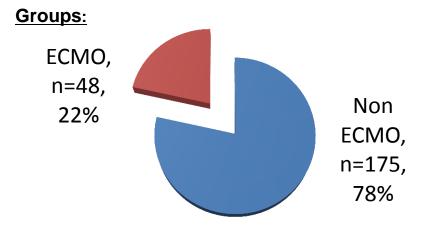
The aim of our study was to retrospectively review our centre's experience using this strategy.

METHODS

Between May-2006 and July-2017, 227 adult heart transplants were performed in 226 patients.

We compared donor and recipient variables, and post-operative outcomes between patients requiring and not requiring ECMO.

RESULTS

Groups:

ECMO, n=48, 22%

Non ECMO, n=175, 78%

4 patients were excluded as ECMO was not for primary graft dysfunction and these were salvage ECMOs.

The mean duration of ECMO support was 6 ($\pm$ 2.57) days.

Demographics:

Donor and recipient demographic variables including age, height, weight, BMI, mean ischaemic time were similar between the groups.

Length of stay:

Mean ITU length of stay was 36.8 $\pm$ 36.4 days in ECMO group vs 13.5 $\pm$ 13.5 days in non-ECMO group (p<0.001).

Mean In-hospital stay was 53.7 $\pm$ 43.8 days in ECMO group vs 33.4 $\pm$ 20.4 days in non-ECMO group (p<0.001).

Complications:

ECMO patients developed

- more renal failure (85% vs 39%, p<0.001)
- more postoperative bleeding (81% vs 18%, p<0.001),
- had a higher re-exploration rate (79% vs 19%, p<0.001), and
- higher rate of infection (73% vs 37%, p<0.001)

As compared with the non-ECMO group.

Survival:

	ECMO	Non ECMO	P value
30 day survival	41/48 (80.4%)	171/175 (98.3%)	<0.001
1 year survival	35/48 (70%)	167/175 (97.1%)	<0.001
Survival (days) (Median ± IQR)	639 ± 1401	1326 ± 1845	NA
Survival (days) (Mean ± SD)	905.2 ± 948.2	1689.3 ± 1219.2	<0.001

CONCLUSIONS

Using ECMO for PGD after Heart Transplant can:

- Salvage almost 3/4th of patients
- Reasonable Long term survival

But leads to:

- Long ITU and In-Hospital stay
- High rate of complications

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