

Outcome of rescue heart transplantation in paediatric congenital heart disease patients – single centre results

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Introduction: A subset of children undergoing surgery or intervention for CHD remain unwell despite optimal conventional management and cannot be discharged from hospital. Some of these can be considered for cardiac transplant. We define transplant in this group of patients as 'rescue transplant' (RT), describe the outcome of RT for CHD and compare this to other CHD patients undergoing transplant (nRT group).

Methods: Retrospective analysis of the records of children with CHD who underwent cardiac transplantation in our centre between January 2012 and November 2017.

Results: Rescue transplant accounted for 19 out of 49 CHD transplants (39%). Fourteen had undergone palliative or redo surgery (8 single ventricle palliations, 2 coronary procedures; 2 LVOTO relief; 2 other surgeries) and 5 had undergone interventional procedures. RT recipients tended to be younger than nRT patients (median 1.5 vs 6 years, $p=0.074$) and of lower weight (median 7.6 vs 16.5 kg, $p=0.005$), with no significant difference in gender or anatomical classification. At the time of transplant, 47% of the RT group were on VAD/ECMO vs 13% of the nRT group ($p=0.009$) and more were ventilated (79% vs 27%, $p<0.005$). Post-transplant ECMO was required in 47% of the RT group vs 23% of the nRT group ($p=0.08$).

RT patients stayed longer in PICU (median 55 vs 24 days, $p=0.001$) and more required renal replacement therapy (58% vs 30%, $p=0.05$) and tracheostomy (53% vs 23%; $p=0.036$). Neurological injury (26% vs 3%, $p=0.017$), parenteral nutrition (47% vs 0%, $p<0.005$), chylothorax (32% vs 3.3%; $p=0.006$) and abdominal surgery (16% vs 0%; $p<0.005$) were all more frequent in the RT group. No significant difference in overall survival was observed (RT 88.9% vs nRT 93.1% at 1 month, 77% v. 89.5% at 1 year, $p=0.106$).

Conclusions: Despite requirement for high levels of support going into transplant, RT can be carried out with acceptable survival in patients with CHD. However, this group of patients accumulate considerable morbidity which should be taken into account when counseling parents and planning resource allocation.