



Cardiac Dysfunction After Multiple Causes of Pediatric Brain Death

Xenia I Borbely MD¹, Vijay Krishnamoorthy MD¹, Ali Rowhani-Rahbar MD MPH PhD², Michael J Souter MB ChB¹, Monica S Vavilala MD¹
 University of Washington, Department of Anesthesiology and Pain Medicine¹ and Epidemiology²

Baseline Characteristics

	Cardiac Dysfunction (n=23)	No Cardiac Dysfunction (n=37)	p
Mean age (months)	118.3 ± 75.9	96.8 ± 83.1	0.67
Receiving vasopressors, n(%)	20 (86.7%)	28 (75.5%)	0.47
Mean EF (%)	37.6 ± 12.2	62.2 ± 5.3	<0.01
Hearts harvested for transplantation, n(%)	13 (56.5%)	31 (83.8%)	0.02
Cause of Brain Death, n(%):			
Traumatic brain injury	11 (47.8%)	15 (40.5%)	0.58
Anoxia	10 (43.5%)	21 (56.8%)	0.32
Stroke	1 (4.3%)	0 (0%)	0.38
Other	1 (4.3%)	1 (2.7%)	1.0

Background:

- The lack of adequate donor hearts for transplantation is a major problem
- Potential reversible cardiac dysfunction (CD) occurs in up to 42% of adults after brain death (BD)
- Prevalence in the pediatric population is unknown
- Knowledge of prevalence and natural course of CD after BD may help to improve screening and transplant practices

- Study aims:

- examine prevalence of CD among different etiologies of BD and its influence on organ harvest
- depict evolution of CD with serial TTE after BD

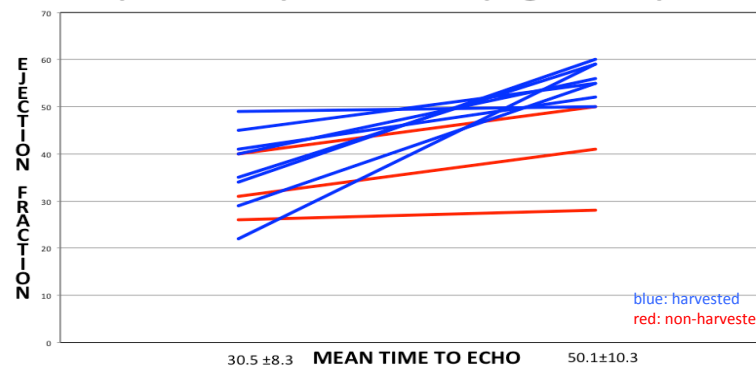
Methods:

- Cross-sectional study
- Database (Life Center Northwest) of pediatric organ donors diagnosed with BD between 01/ 2011 and 11/2013
- 60 pediatric donors (age ≤ 18 years) included with at least one transthoracic echocardiogram (TTE)
- CD defined as ejection fraction (EF) < 50% and/or presence of regional wall motion abnormalities

Results:

- Cardiac dysfunction was present in 23 (38%) patients
- Of 11 subjects with serial TTE, in 8 (73%) patients CD resolved over time, leading to organ harvesting
- No association between CD and particular causes of BD in regression analysis

EVOLUTION OF EF BETWEEN TTE 1 (lowest EF) AND TTE 2 (highest EF)



Conclusions:

- Prevalence of CD in the pediatric population is comparable to adult populations
- Serial TTE in patients with CD showed improvement of cardiac function in 73% of patients, leading to organ harvest for transplantation
- CD after pediatric BD should be studied in well-designed prospective studies, and findings may lead to an improvement in the number of hearts available for transplantation