

## ONLINE SUPPLEMENT

Online Table 1. Patient Characteristics and Association with Mortality by Phase

Variable	Mean±SD or %	Early Phase		Constant Phase	
		HR	P-value	HR	P-value
RVPAS vs. MBTS	51% vs 49%	0.58	.002	1.64	.32
<b>Prenatal</b>					
Prenatal Diagnosis	77%	.87	.45	1.89	.38
Fetal intervention	2.7%	-	-	-	-
<b>Birth</b>					
Gestational Age, weeks	38.2±1.6	.89	.030	0.65	<.001
Gest. Age < 37 weeks	12%	2.31	<.001	3.61	.028
Apgar at 1 min	7.6±1.6	0.94	.21	.0.997	.94
Apgar at 5 min	8.6±0.8	.85	.07	0.89	.61
Birth weight, kg	3.10±5.41	0.59	.001	0.69	.42
Birth weight<2.5 kg	14%	2.10	<.001	2.13	.21
Birth weight<1.5 kg	0.4%	2.96	.29	18.4	.006

Table 1, continued.

Variable	Mean±SD or %	Early Phase		Late Phase	
		HR	<i>P</i> - value	HR	<i>P</i> - value
<b>Demographic</b>					
Male	62%	0.81	.22	2.04	.25
Hispanic	19%	1.06	.88	0.58	.68
White race	80%	0.80	.27	0.68	.50
SES score, U.S. census (per 5-point decrease)	0.05±5.08	1.27	.006	0.88	.57
<b>Anatomy</b>					
HLHS	88%	0.60	.019	1.90	.54
Aortic atresia, Mitral atresia	38%	0.93	.69	1.14	.81
Aortic atresia, Mitral stenosis	25%	1.22	.49	0.44	.40
Aortic stenosis, Mitral stenosis	12%	0.32	.008	2.22	.19
Any aortic atresia	62%	1.07	.70	0.53	.25
Obstructed PV drainage	3.5%	4.30	<.001	Not estimable	

Table 1, continued.

Variable	Mean±SD or %	Early Phase		Late Phase	
		HR	P-value	HR	P-value
Total anomalous pulmonary venous return	1.6%	2.09	.33	8.25	.27
Ascending aorta diameter, mm	3.15±1.75	0.87	.018	1.07	.56
Genetic syndrome ( <b>yes</b> vs. no)	5%	1.48	.45	7.91	.001
Genetic syndrome ( <b>unknown</b> vs. no)	32%	3.30	<.001	2.78	.049
Non-syndromic abnormality ( <b>yes</b> vs. no)	19%	0.77	.43	2.02	.22
Non-syndromic abnormality ( <b>unknown</b> vs. no)	32%	3.00	<.001	2.89	.05
<b>Pre-Norwood Echo</b>					
Patent aortic valve	42%	0.88	.35	1.66	.28
ASD mean Doppler gradient, mmHg	5.0±3.0	1.02	.55	0.97	.69

Table 1, continued.

Variable	Mean±SD or %	Early Phase		Late Phase	
		HR	P-value	HR	P-value
Fractional area change	0.35±0.09	2.07	.49	0.63	.91
LV present	69%	0.95	.77	1.26	.68
Moderate/severe tricuspid regurgitation	12%	1.24	.42	2.54	.13
Moderate/severe mitral regurgitation	4%	0.41	.29	.008	.58
Moderate/severe aortic valve regurgitation	0.8%	0.10	.54	~0	0.40
<b>Pre-operative</b>					
Median highest Lactate, mmol/L (IQR)	3.1 (2.5, 4.5)	1.06	.018	0.84	.26
Mechanical ventilation	48%	1.73	.002	0.97	.95
Pre-Norwood apnea	14%	1.34	.18	0.94	.89

Table 1, continued.

Variable	Mean±SD or %	Early Phase		Late Phase	
		HR	P-value	HR	P-value
Pre-Norwood shock	2.6%	-	-	-	-
Pre-Norwood respiratory failure	13%	1.09	.76	3.02	.045
Pre-Norwood metabolic acidosis	5.7%	1.05	.99	0.69	.97
Pre-Norwood cath intervention	5.1%	2.24	.005	0	.95
# Pre-Norwood cath intervention [median (IQR)]	0.07±0.32 [0 (0,0)]	2.24	.005	~0	.95
Pre-Norwood non-cardiac surgery	1.5%	0.53	.69	4.55	.19
Pre-Norwood any surgery	2.0%	-	-	-	-
#Pre-Norwood total surgeries [median (IQR)]	0.02±0.17 [0, (0,0)]	1.21	.61	1.42	.75

Table 1, continued.

Variable	Mean±SD or %	Early Phase		Late Phase	
		HR	P-value	HR	P-value
Pre-Norwood complications	28%	1.57	.011	1.14	.80
#Pre-Norwood complications [median (IQR)]	0.58±1.23 [0 (0,1)]	1.16	.003	0.91	.71

SD = standard deviation; HR = hazard ratio

RVPAS = right ventricle to pulmonary artery shunt; MBTS = modified Blalock-Taussig Shunt; SES = socioeconomic score; HLHS = hypoplastic left heart syndrome; ASD = atrial septal defect

**Online Table 2. Results Summary for Cardiac Transplant Risk Factors with univariate *P*-value <0.2, and for Shunt Type**

Variable	Transplant Mean±SD	No Transplant or % (n)	Hazard Ratio	95% CI	<i>P</i> - value
N	19	530			
RVPAS vs. MBTS	63% (12)	51% (269)	1.43	(0.56, 3.63)	.45
Male vs. female	42% (8)	63% (332)	0.42	(0.17, 1.04)	.06
Percentage in census tract below federal poverty level	7.6±7.2	13.1±12.4	1.31 per 5% increase	(0.96, 1.80)	.09
HLHS	74% (14)	88% (467)	0.33	(0.19, 0.55)	.03
HLHS with AS/MS	5% (1)	21% (109)	0.18	(0.02, 1.36)	.10
HLHS with AS/MA	11% (2)	3% ( 15)	4.05	(0.94, 17.5)	.06
Total anomalous pulmonary venous connection	5% (1)	2% ( 8)	6.03	(0.80, 45.6)	.08
Pre-Norwood moderate/severe tricuspid regurgitation	32% (6)	11% ( 59)	3.86	(2.29, 6.18)	.006
Pre-Norwood RV %area change	30±9	35±8	1.43 per 5-unit decrease	(1.09, 1.85)	.009
Total number of pre- Norwood surgeries*	0.11±0.46	0.02±0.15	4.21	(1.30, 13.7)	.017

\*Includes 1 subject with atrial septectomy and bilateral pulmonary artery bands; 2 subjects with bowel surgery; 1 extracorporeal membrane oxygenation; 1 exploratory laparotomy; 1 choanal atresia and stent placement; and 1 tracheoesophageal fistula repair

AS = aortic stenosis; CI = confidence interval; HLHS = hypoplastic left heart syndrome; MA = mitral atresia; MBTS = modified Blalock-Taussig

Shunt; MS = mitral stenosis RV = right ventricular; RVPAS = right ventricle to pulmonary artery shunt;

ACCEPTED MANUSCRIPT