

SUPPLEMENTAL DIGITAL CONTENT 2

Table 1. Study Participant Cardiac Lesion Type by RACHS Scores

Heart Defect /Surgery	No
RACHS category 1 (n = 9)	
Atrial septal defect	3
Atrial septal defect and PAPVR	3
Aortic coarctation (> 30 days)	1
PAPVR	1
PAPVR and AP collaterals	1
RACHS category 2 (n = 24)	
VSD	7
Pulmonary valve stenosis	3
Aortic coarctation	3
Total anomalous venous return > 30 days	3
Tetralogy of fallot	2
Atrial septal defect, primum	1
Double inlet & outlet left ventricle, pulmonary stenosis	1
Subaortic stenosis	1
Aortic coarctation, heart block	1
VSD, pulmonary valve stenosis	1
LPA sling, vascular ring, common atrium	1
RACHS category 3 (n = 20)	
Complete or transitional AVCD	8
Transposition great arteries	5
Double outlet right ventricle	2
Pulmonary insufficiency, severe	2
Pulmonary stenosis, RVPA conduit	1
Infected RVPA conduit, replacement	1
Subaortic stenosis, ventriculotomy	1
RACHS category 4 (n = 5)	
Hypoplastic or interrupted aortic arch	3
Transposition great arteries and VSD	1
Truncus arteriosus	1

AP = aortopulmonary; AVCD = atrioventricular canal defect; LPA = left pulmonary artery sling; PAPVR = partial anomalous venous return; RACHS = risk adjusted classification for congenital heart surgery; RVPA = right ventricular to pulmonary artery; VSD = ventricular septal defect.

Table 2. Preoperative 25OHD Status: Simple and Multivariate Linear Regression

Characteristic	Unadjusted Estimate (95% CI)	<i>p</i> -value	Adjusted [*] Estimate (95% CI)	<i>p</i> -value
Under 2 months	-15.9 (-29.6, -2.3)	0.02	-15.9 (-29.6, -2.3)	0.02
Preoperative MP	-18.3 (-1.8, 34.8)	0.03	8.9 (-15.8, 33.6)	0.47
Male	6.0 (-6.0, 17.9)	0.32	-	-
Age (months)	0.001 (-0.13, 0.14)	0.99	-	-
Weight (kg)	0.05 (-0.47, 0.56)	0.86	-	-
WFA ratio	-1.1 (-3.8, 1.6)	0.43	-	-
WFL score	2.1 (-2.3, 6.6)	0.33	-	-
Season				
Fall	-5.7 (-31.2, 19.7)	0.65	-	-
Winter	-10.1 (-34.8, 14.7)	0.42	-	-
Spring	0.4 (-24.6, 25.4)	0.98	-	-
Nonwhite parents	-3.5 (-12.9, 19.9)	0.67	-	-
Genetic syndrome	10.5 (-4.0, 24.9)	0.15	9.3 (-4.7, 23.3)	0.19
RACHS 3 /4	-0.5 (-12.6, 11.6)	0.94	-	-
Vitamin D < 400 IU	-0.5 (-13.1, 12.0)	0.93	-	-

* After controlling for age under 2 months, no additional variable improved model prediction and was independently statistically significant. Only variables with $p < 0.2$ in simple linear regression were investigated as part of the multivariate analysis.

25OHD = 25 hydroxyvitamin D; CI = confidence interval; IU = international unit; MP = methylprednisolone; RACHS = risk adjusted classification for congenital heart surgery; WFA = weight for age; WFL = weight for length.

Table 3. Postoperative 25OHD Status: Simple Linear Regression

Characteristic	Estimate	95% CI	<i>p</i> -value
Preoperative 25OHD	3.39	1.80, 49.8	0.0001
Under 2 months	-3.44	-6.05, 12.95	0.47
Preoperative MP	-11.73	-23.14, -0.36	0.04
Male	-0.64	-7.27, 8.56	0.87
Age (in months)	0.11	0.03, 0.19	0.01
Weight (kg)	0.38	0.06, 0.70	0.02
WFA ratio	-9.85	-27.7, 8.0	0.27
WFL z score	-0.84	-3.7, 2.0	0.55
Season			
Fall	5.9	-10.8, 22.5	0.48
Winter	7.4	- 8.9, 23.7	0.36
Spring	4.0	-12.4, 20.3	0.63
Nonwhite parents	2.38	-8.26, 13.0	0.65
Genetic syndrome	5.19	-14.64, 4.25	0.27
RACHS lesion 3 or 4	-2.10	-5.85, 10.04	0.60
Had CPB	-20.3	-34.49, -6.15	0.006
Surgery time	-0.19	-0.33, 0.30	0.91
CPB time	-1.98	-0. 81, 0. 17	0.20
Cross clamp time	-0.49	-0.12, 0.22	0.17
Prime volume per kg	-0.46	-7.29, -1.85	0.001
Total OR fluid per kg	0.048	-0.136, 0.058	0.42

25OHD = 25 hydroxyvitamin D; CI = confidence interval; CPB = cardiopulmonary bypass; MP = methylprednisolone; OR = operating room; RACHS = risk Adjusted classification for congenital heart surgery; WFA = weight for age; WFL = weight for length.

Table 4. Postoperative Catecholamine Administration: Simple Logistic Regression

Characteristic	Odds Ratio	(95% CI)	<i>p</i> -value
Preoperative 25OHD	0.87	0.66 - 1.15	0.32
Postoperative 25OHD	0.43	0.22 - 0.84	0.01
Under 2 months	0.98	0.26 - 3.80	0.98
Preoperative MP	1.40	0.26 – 7.09	0.67
Male	1.29	0.41 -4.00	0.66
Age (in months)	0.97	0.95, 1.00	0.07
Weight (kg)	0.85	0.73, 1.00	0.04
WFA ratio	0.60	0.04 – 8.65	0.70
WFL score	1.66	1.03, 2.69	0.04
Season			
Spring	0.23	0.02 -2.37	0.17
Summer	0.43	0.05, 3.80	0.75
Fall	0.64	0.07, 5.61	0.62
RACHS lesion 3 or 4	0.48	0.156 – 1.48	0.20
CPB time	1.09	1.01 - 1.17	0.04
Cross clamp time	1.18	1.05 - 1.34	0.008
Prime volume per kg	1.06	1.01 - 1.12	0.014
Total OR fluid per kg	1.04	1.02 – 1.04	0.015

25OHD = 25 hydroxyvitamin D; CI = confidence interval; CPB = cardiopulmonary bypass; MP = methylprednisolone; OR = operating room; RACHS = risk adjusted classification for congenital heart surgery; WFA = weight for age; WFL = weight for length.

Table 5. Postoperative Fluid Intake: Simple Linear Regression

Characteristic	Estimate	(95% CI)	<i>p</i> -value
Preoperative 25OHD	-9.24	-28.10 , 9.62	0.33
Postoperative 25OHD	-46.93	-72.44 , -21.43	0.0005
Under 2 months	67.50	-30.32 , 165.31	0.17
Preoperative MP	96.94	-20.53 , 214.40	0.11
Male	25.92	-57.55 , 109.39	0.54
Age (per month)	-2.06	-2.83 , -1.29	0.0001
Weight (per kg)	-7.58	-10.57 , -4.59	0.0001
WFA ratio	-95.89	-286.21 , 94.43	0.32
WFL score	13.97	-14.78 , 42.71	0.33
Season			
Spring	-73.75	-243.86 , 96.35	0.39
Summer	12.74	-153.93 , 179.40	0.88
Fall	57.06	-111.14 , 225.26	0.49
No genetic syndrome	-20.27	-122.53 , 81.99	0.69
RACHS lesion 3 or 4	-27.55	-55.88 , 110.99	0.51
Surgery time	0.004	-0.05 , 0.06	0.87
CPB time	2.96	-2.32 , 8.24	0.27
Cross clamp time	7.94	0.39 , 15.49	0.04
Prime volume per kg	4.37	1.48 , 7.26	0.004
Total OR fluid per kg	1.08	0.02 , 2.15	0.05

25OHD = 25 hydroxyvitamin D; CI = confidence interval; CPB = cardiopulmonary bypass; MP = methylprednisolone; OR = operating room; RACHS = risk adjusted classification for congenital heart surgery; WFA = weight for age; WFL = weight for length.