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Congenital Cardiology Solutions

INTERSTAGE READMISSIONS AFTER THE NORWOOD PROCEDURE: A REPORT FROM THE NATIONAL PEDIATRIC CARDIOLOGY QUALITY IMPROVEMENT COLLABORATIVE

Moderated Poster Contributions
Poster Sessions, Expo North
Sunday, March 10, 2013, 9:45 a.m.-10:30 a.m.

Session Title: Congenital Cardiology Solutions: Congenital Heart Surgery
Abstract Category: 13. Congenital Cardiology Solutions: Pediatric
Presentation Number: 1205M-135

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Background: The National Pediatric Cardiology Quality Improvement Collaborative (NPC-QIC) captures data regarding interstage (IS) care processes and outcomes after the Norwood operation. The rates of IS hospital readmission, center variation and risk factors for readmission are not known. The purpose of this study was to utilize NPC-QIC data to explore these issues.

Methods: NPC-QIC registry data between 2009 and 2012 were analyzed for all patients who underwent stage 2 palliation or experienced an IS mortality. Outcomes included any IS readmission with length of stay > one day. To adjust for varying IS duration we calculated: 1) IS Readmission Rate (IRR) = Total # readmissions/total # IS days, and 2) IS Readmission Hospitalization Fraction (IHF) = Total # readmitted hospital days/total # IS days. Independent risk factors were evaluated for any readmission, IRR and IHF, and included patient specific factors (e.g. initial palliation) and discharge processes. IRR and IHF were compared using Kruskal-Wallis tests. Chi-square tests were used to compare rates.

Results: Of 344 infants, 190 (55%) had at least one IS readmission. Cyanosis (24.3%) and feeding problems (23.3%) were the most common indication for readmission. IS mortality was 10.4% for patients with no readmissions, and 7.9% for patients with any readmissions (p=0.42).

	Any Readmission (%)	Median IRR (IQR)	Median IHF (IQR)
Overall (n=344)	55%	0.71 (0-1.4)	1.9 (0-10.5)
Initial Palliation			
Norwood with BT Shunt (n=117)	57%	0.71 (0-1.8)	3.0 (0-18.3)
Norwood with RV-PA Conduit (n=199)	51%	0.58 (0-1.3)	1.3 (0-8.1)
Hybrid Norwood (n=28)	75% p=0.013 vs RV-PA	1.20 (0.3-2.1) p=0.01 vs RV-PA	5.15 (0.8-18.4) p=ns
Discharge Factors			
Written nutrition plan at discharge			
Yes (n=319)	54%	0.68 (0-1.5)	1.6 (0-0.5)
No (n=21)	76%	0.93 (0.6-1.4)	4.8 (1.9-12.7)
	p=0.048	p=0.31	p=0.11
Discharge on Tube Feeds			
Yes (n=195)	55%	0.74 (0-1.6)	2.1 (0-10.7)
No (n=149)	56%	0.61 (0-1.3)	1.7 (0-9.4)
	p=0.88	p=0.51	p=0.75
Discharged with Home Surveillance			
Yes (n=302)	55%	0.73 (0-1.5)	1.9 (0-10.1)
No (n=41)	54%	0.56 (0-1.3)	1.6 (0-10.5)
	p=0.84	p=0.57	p=0.94
Friday/Saturday Discharge			
Yes (n=90)	52%	0.61 (0-1.43)	2.4 (0-17.3)
No (n=254)	56%	0.73 (0-1.5)	1.8 (0-9.0)
	p=0.5	p=0.60	p=0.87

Conclusions: IS Readmissions are frequent. Hybrid stage 1 palliation and absence of a written nutrition plan at discharge are independent risk factors for increased IS readmissions.