A45.E433
JACC March 9, 2010
Volume 55, issue 10A

CONGENITAL CARDIOLOGY SOLUTIONS
(PEDIATRIC CARDIOLOGY AND ADULT CONGENITAL HEART DISEASE)

ESTABLISHMENT OF A DEDICATED SINGLE VENTRICLE PROGRAM REDUCES INTERSTAGE MORTALITY AND IMPROVES WEIGHT GAIN IN INFANTS WITH SINGLE VENTRICLE

ACC Poster Contributions
Georgia World Congress Center, Hall B5
Tuesday, March 16, 2010, 9:30 a.m.-10:30 a.m.

Session Title: Outcomes in Pediatric Cardiology
Abstract Category: Pediatric Cardiology
Presentation Number: 1280-393

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Background: Mortality between the first stage (S1) and second stage (S2) palliation for infants with single ventricle (SV) persists despite refinements in surgical and perioperative strategies. Our institution developed a single ventricle program (SVP), consisting of designated clinicians and nurse practitioners, with the aim at decreasing interstage death (ID).

Methods: The SVP began on September 1, 2007. A retrospective analysis was performed comparing SVP patients to neonates with SV undergoing S1 from January 1, 2004 to August 31, 2007 pre-SVP. Families enrolled in the SVP were given home pulse-oximeter monitors and weight scales. Close follow-up was achieved through a combination of outpatient visits and telephone calls. For this study, survival to S2 and average daily weight gain were evaluated as endpoints.

Results: 78 pre-SVP patients and 69 SVP patients were included. The pre-SVP and SVP groups had similar rates of hypoplastic left heart syndrome (44/78 vs 29/69, p=NS), unbalanced atrioventricular canal defect (25/78 vs 15/69, p=NS), and heterotaxy syndrome (22/78 vs 12/69, p=NS). At time of S1 palliation, pre-SVP and SVP patients had equivalent weights (p=NS). There were similar rates of atrioventricular valve repair (2/78 pre-SVP vs 5/69 SVP, p=NS) and pulmonary vein repair (13/78 pre-SVP vs 6/69, p=NS) at time of S1. There were 13 (16.7%) instances of ID in the pre-SVP group, and 4 (5.8%) in the SVP group (p=0.04). Cox regression identified enrollment in SVP (p=0.04), higher weight at S1 (p<0.01), and freedom from atrioventricular valve repair (p<0.01) as protective from ID. SVP patients were younger at S2 (157 days ± 50) compared to pre-SVP patients (198 days ± 79) (p=0.02) while weight at S2 was equivalent for pre-SVP (6.3kg ±1.5) and SVP patients (6.4kg ± 1.2) (p=NS). Growth rate for SVP patients was 22.5 grams/day ± 6.1 compared to 17.9 ±6.6 grams/day in pre-SVP patients (p<0.01).

Conclusions: Establishment of a SVP at our institution has resulted in improved survival to S2. While these infants go to S2 palliation at a younger age, their weight at S2 is equal to the previous era, secondary to improved rate of weight gain under the close monitoring available with the SVP.