



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

**COMPARATIVE EVALUATION OF TWO SURGICAL TECHNIQUES FOR PEDIATRIC HEART  
TRANSPLANTATION: IS THE BICAVAL APPROACH BETTER?**

ACC Poster Contributions

Georgia World Congress Center, Hall B5

Tuesday, March 16, 2010, 9:30 a.m.-10:30 a.m.

---

Session Title: Transplantation and Other Advanced Cardiac Therapies in Children

Abstract Category: Pediatric Cardiology

Presentation Number: 1281-401

---

Authors: *Liwen Tang, Thomas J. L'Ecuyer, Sanjeev Aggarwal, children's hospital of michigan, detroit, MI*

**Background:** The optimal atrial anastomotic surgical technique for orthotopic heart transplantation in the pediatric population is yet unclear. Our study was to compare clinical characteristics and outcomes between two groups of pediatric heart transplant recipients who underwent the biatrial and bicaval surgical approaches, using a national database.

**Methods:** The United Network for Organ Sharing (UNOS) database was reviewed to identify 3814 first time pediatric heart transplant recipients between 1993 and 2008. Recipients were classified into two groups: bicaval and biatrial. SAS software was used for statistical analyses.

**Results:** There were 2690 recipients who underwent the biatrial techniques and 1124 recipients who underwent the bicaval technique for orthotopic heart transplantation. Recipients were significantly younger in the biatrial group (5.8 yrs  $\pm$  6.1) than in the bicaval group (7.5 yrs  $\pm$  6.1), ( $p < 0.001$ ). Gender distribution was similar in both groups (44% and 42% females in the bicaval and biatrial group respectively). The bicaval group had a higher proportion of African-Americans recipients than the biatrial group (22% vs. 16%;  $p < 0.001$ ) and of a primary diagnosis of cardiomyopathy (62% vs. 50%,  $p < 0.001$ ). Fifty-one percent of the bicaval group required pre-transplant inotropic support, compared to only 47% of those in the biatrial group ( $p = 0.004$ ). There were no significant differences between the two groups in the requirement of ECMO or ventilator support pre-transplant. The biatrial group had a significantly longer ischemic time (3.66 hrs  $\pm$  1.4 vs. 3.55 hrs  $\pm$  1.2,  $p = 0.03$ ). There was no difference between groups in post-transplant length of hospital stay, need for permanent pacemaker, dialysis, ventilatory support or episodes of infection.

**Conclusions:** The group which underwent the bicaval technique was significantly older, had a preponderance of cardiomyopathy and required pre-transplant inotropic support significantly more often. Interestingly, the biatrial group had a longer ischemic time while other post-transplant outcomes were similar between groups. Whether these data reflect a true therapeutic superiority of the bicaval technique remains to be determined.