



ACC.14

TCT@ACC-12 | Innovation in Intervention

A482

JACC April 1, 2014

Volume 63, Issue 12



Congenital Heart Disease

RISK FACTORS FOR SUDDEN DEATH IN CHILDREN WITH CARDIAC ALLOGRAFT VASCULOPATHY

Moderated Poster Contributions

Hall C

Sunday, March 30, 2014, 3:45 p.m.-4:00 p.m.

Session Title: Congenital Heart Disease: Arrhythmias and Sudden Death in Congenital Heart and Pediatric Patients

Abstract Category: 10. Congenital Heart Disease: Pediatric

Presentation Number: 1237M-360A

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Background: Cardiac allograft vasculopathy (CAV) is a frequent cause of late mortality in pediatric heart transplant patients. Many do not survive to retransplantation, and a subset die suddenly. This study evaluates factors associated with sudden death (SD) in pediatric patients with CAV.

Methods: This is a single center retrospective review of all pediatric patients transplanted from 1984 to 2012 who died or were retransplanted due to CAV. The CAV diagnosis was made by coronary angiography, explant pathology, or autopsy. Demographics, episodes of rejection, cardiac catheterization and echocardiographic data, time to CAV and death, and cause of death were compared in SD patients to those dying of heart failure.

Results: Of the 54 patients with CAV, 40 died or underwent retransplantation (RT), and 14 are alive. Three patients were excluded for noncardiac or unknown causes of death. Of the 37 patients who met inclusion criteria, 9 patients (24%) died suddenly. The other 28 patients died of heart failure (12/28 patients) or were retransplanted (16/28 patients). The SD and the heart failure death/RT groups did not differ in age at transplant, episodes of cellular or antibody mediated rejection, or time to CAV or death. Systolic function was better in the SD group with a median ejection fraction of 62% (range 50-70%) versus 50% (range 24-75%) in the heart failure death/RT group ($p<0.05$). Hemodynamics also differed, with a median right ventricular end diastolic pressure of 8 mmHg (range 3-16 mmHg) in the SD group versus 14 mmHg (range 4-24 mmHg) in the heart failure death/RT group ($p<0.02$), and a median pulmonary capillary wedge pressure of 9 mmHg (range 4-16 mmHg) in the SD group versus 13.5 mmHg (range 7-27 mmHg) in the heart failure death/RT group ($p<0.04$). B-type natriuretic peptide (BNP) levels before death or retransplantation were lower in the SD group with a median of 260 pg/ml (range 81-953 pg/ml) versus a median of 1081 pg/ml (range 207-5258 pg/ml) in the heart failure death/RT group ($p<0.02$).

Conclusions: Sudden death occurred in 24% of CAV associated patient or organ deaths. The SD patients were more likely to have normal hemodynamics and a lower BNP. Normal hemodynamics are not reassuring in the setting of CAV.