FUNCTION OF SURGICALLY IMPLANTED REPLACEMENT PULMONARY VALVES IN ADOLESCENTS: A PROPENSITY-ADJUSTED COMPARISON OF BIOPROSTHETIC VALVES AND VALVED HOMOGRAFT CONDUITS

ACC Moderated Poster Contributions
McCormick Place South, Hall A
Sunday, March 25, 2012, 9:30 a.m.-10:30 a.m.

Abstract Category: 27. Congenital Cardiology Solutions: Pediatric
Presentation Number: 1135-126

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Background: Data comparing the function of various pulmonary valve replacements (PVR) in adolescents are sparse. New transcatheter therapies, including transcatheter pulmonary valves (TPV), exist and their utilization may be informed by this data.

Methods: We performed a retrospective review including baseline and operative data with cross-sectional follow-up on adolescents aged 10 to 21 years who underwent PVR placement (N=254). We compared homograft conduits (N=84) and bioprosthetic pulmonary valves (BPV) (N=170) in terms of freedom from dysfunction (right ventricular outflow tract (RVOT) obstruction >50 mmHg or ≥moderate pulmonary regurgitation) and reintervention.

Results: Median follow-up was 4.4 years. Freedom from dysfunction was 72±4% at 5 years and 48±8% at 10 years. Freedom from reintervention was 90±3% at 5 years, 67±5% at 10 years and 47±8% at 15 years. No differences in dysfunction or reintervention were noted between the cohorts (Figure 1). Younger age, smaller PVR Z-score, prior homograft conduit, and higher preoperative RVOT gradient were associated with shorter freedom from dysfunction; younger age, smaller PVR Z-score and more recent operation were associated with shorter freedom from reintervention.

Conclusion: Adolescents with RVOT disease represent an important age group as many undergo PVR. New transcatheter therapies have potential to significantly impact them. Our study provides data for current surgical options to help inform decisions as long-term TPV data emerge.