

Risk factors for development of endocarditis and reintervention in patients undergoing right ventricle to pulmonary artery valved conduit placement
Read at the 95th Annual Meeting of the American Association for Thoracic Surgery, Seattle, Washington, April 25-29, 2015.

[Mery, C.M.^a](#), [Guzmán-Pruneda, F.A.^a](#), [De León, L.E.^{a,b}](#), [Zhang, W.^c](#), [Terwelp, M.D.^d](#), [Bocchini, C.E.^e](#), [Adachi, I.^a](#), [Heinle, J.S.^a](#), [McKenzie, E.D.^a](#), [Fraser, C.D., Jr.^a](#)

^aDivision of Congenital Heart Surgery, Texas Children's Hospital, Michael E. DeBakey Department of Surgery, Baylor College of Medicine, 6621 Fannin St MC19345H, Houston, TX 77030, United States

^bTecnológico de Monterrey Medical School, Monterrey, México

^cOutcomes and Impact Service, Texas Children's Hospital, Houston, TX, United States

Abstract

Objective To determine the incidence and risk factors for endocarditis and reintervention in patients undergoing placement of right ventricle-to-pulmonary artery valve conduits. **Methods** All right ventricle-to-pulmonary artery valved conduits placed between 1995 and 2014 were included. Freedom from endocarditis, reintervention, and replacement were analyzed using the Kaplan-Meier method and parametric survival regression models. **Results** A total of 586 patients underwent placement of a total of 792 valved conduits, including 289 (36%) pulmonary homografts, 121 (15%) aortic homografts, 245 (31%) bovine jugular grafts, and 137 (17%) porcine heterografts. There were 474 (60%) primary placements and 318 (40%) replacements. The median duration of conduit follow-up was 7 years; 23 conduits developed endocarditis at a median of 5 years after surgery. The use of bovine jugular grafts was the sole significant risk factor associated with endocarditis (hazard ratio, 9.05; 95% confidence interval, 2.6-31.8 compared with homografts). The hazard was greater for bovine jugular grafts compared with the other conduit types and increased with time; however, bovine jugular grafts were associated with a lower risk for reintervention ($P < .0001$) and replacement ($P = .0002$). Factors associated with greater risk of both reintervention and replacement were younger age and smaller conduit size. In addition, a diagnosis of truncus arteriosus was associated with a greater risk for replacement ($P = .03$). **Conclusions** Bovine jugular grafts are associated with a significantly greater risk of late endocarditis but with lower reintervention rates compared with other valved conduits. The risk of endocarditis and durability must be balanced during conduit selection. Antibiotic prophylaxis and a high index of suspicion for endocarditis are warranted in patients with bovine jugular grafts. © 2016 The American Association for Thoracic Surgery.

SciVal Topic Prominence

Topic: [Heart Valves](#) | [Transplantation, Homologous](#) | [Pulmonary Valve](#)

Prominence percentile: 83.720

Author keywords

bovine jugular vein; conduit; Contegra; endocarditis; Hancock; heterograft; homograft; right ventricular outflow tract

Indexed keywords

EMTREE medical terms:	Adolescent; adult; agealpha hemolytic Streptococcus; aorta stenosis; arterial trunk; balloon dilatation; bovine; cardiovascular risk; child; Conference Paper; endocarditis; false aneurysm; female; follow up; Hancock valve prosthesis; heart valve replacement; homograft valved conduit; human; major clinical study; male; methicillin susceptible Staphylococcus aureus; pig; priority journal; prosthetic valved conduit; pulmonary valve; pulmonary valved conduit; reoperation; right ventricle to pulmonary artery conduit; xenograft valved conduit; adverse effects; allograft; animal; bioprosthesis; blood vessel prosthesis; blood vessel transplantation; comparative study; device removal; devices; disease free survival; Endocarditis, Bacterial; heart valve prosthesis; heart valve replacement; heart ventricle; infant; Kaplan Meier method; microbiology; middle aged; mortality; newborn; pathophysiology; preschool child; prosthesis design; prosthesis failure; pulmonary artery; reoperation; retrospective study; risk factor; time factor; Transposition of Great Vessels; treatment outcome; xenograft; young adult
EMTREE drug terms:	antiinfective agent
MeSH:	Adolescent; Adult; Age Factors; Allografts; Animals; Anti-Bacterial Agents; Bioprosthesis; Blood Vessel Prosthesis; Blood Vessel Prosthesis Implantation; Cattle; Child; Child, Preschool; Device Removal; Disease-Free Survival; Endocarditis, Bacterial; Female; Heart Valve Prosthesis; Heart Valve Prosthesis Implantation; Heart Ventricles; Heterografts; Humans; Infant; Infant, Newborn; Kaplan-Meier Estimate; Male; Middle Aged; Prosthesis Design; Prosthesis Failure; Pulmonary Artery; Reoperation; Retrospective Studies; Risk Factors; Swine; Time Factors; Transposition of Great Vessels; Treatment Outcome; Young Adult

Chemicals and CAS Registry Numbers:

Anti-Bacterial Agents

Device tradename:

Contegra, Medtronic, United States, Hancock bioprosthetic valved conduit, Medtronic

Manufacturers:

Device manufacturer:

Medtronic;

Medtronic, United States

- **ISSN:** 00225223
- **CODEN:** JTCSA
- **Source Type:** Journal
- **Original language:** English
- **DOI:** 10.1016/j.jtcvs.2015.10.069
- **PubMed ID:** [26670191](#)

- **Document Type:** Conference Paper
- **Publisher:** Mosby Inc.