POST-CARDIOTOMY EXTRACORPORAL MEMBRANE OXYGENATION SUPPORT AFTER HIGH-RISK OPERATIONS IN ADULTS WITH CONGENITAL HEART DISEASE

Poster Contributions
Poster Hall B1
Saturday, March 14, 2015, 10:00 a.m.-10:45 a.m.

Session Title: High Risk Congenital Heart Population
Abstract Category: 10. Congenital Heart Disease: Adult
Presentation Number: 1117-322

Authors: Benjamin Acheampong, John Stulak, Joseph Dearani, Gregory Schears, Sudhir Kushwaha, Richard Daly, Jonathan Johnson, Mayo Clinic, Rochester, MN, USA

Background: Cardiac surgery in high-risk patients (pts) with adult congenital heart disease (ACHD) may require mechanical circulatory support (MCS) such as extracorporeal membrane oxygenation (ECMO) or intra-aortic balloon pump (IABP) in the post-operative period.

Methods: We reviewed records for all ACHD pts who required MCS following cardiotomy from 1/2001-12/2013.

Results: During the study period, 4,220 operations were performed in ACHD pts at our institution, of whom 25 (0.6%) required postoperative MCS (15 males; median age 41 yrs, range 19-75; median past sternotomies 2 [1-4]). Pre-operatively, mean systemic ventricular EF was 47% (range 10-66%); 68% of pts were in NYHA class IV heart failure. Underlying diagnoses included pulmonary atresia with intact ventricular septum (24%), tetralogy of Fallot (16%), Ebstein anomaly (12%), cc-TGA (12%), and septal defects (12%), with tricuspid atresia, truncus arteriosus and congenital valve abnormalities constituting the remaining diagnoses (24%). The most common operations performed were valvular operations with/maze (52%), Fontan conversion (20%), coronary bypass grafting with valvular operations (12%), and heart transplant (8%). Indications for MCS were left-sided (systemic) heart failure (32%), right-sided (sub-pulmonary) heart failure (24%), biventricular heart failure (36%), persistent arrhythmia (4%) and hypoxemia (4%). Both ECMO and IABP were used in 68% of pts, while 32% used ECMO only. The mean duration of MCS was 195.8 hrs (range 20-850). Common early morbidities included coagulopathy (60%), renal failure (56%) and arrhythmia (48%). Overall, 48% of pts survived to hospital discharge. All deaths were due to either multi organ failure or the underlying cardiac diagnoses, with one pt dying from overwhelming sepsis. Median available follow up for survivors was 38.5 months (max 106 months). New York Heart Association functional class was I/II in 6/9 (67%) late survivors in whom close follow up was available.

Conclusion: Following complex operations in high-risk ACHD pts, MCS may be required. Despite significant morbidity, nearly half of pts survive to hospital discharge with good functional status at late follow up.