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TCT@ACC-i2 | innovation in intervention

A1938
JACC April 1, 2014
Volume 63, Issue 12

Valvular Heart Disease

LONG-TERM OUTCOMES OF A HYBRID APPROACH OF PERCUTANEOUS CORONARY INTERVENTION FOLLOWED BY MINIMALLY INVASIVE VALVE SURGERY

Oral Contributions
Room 152 B
Sunday, March 30, 2014, 9:15 a.m.-9:30 a.m.

Session Title: Valvular Heart Disease Year in Review
Abstract Category: 29. Valvular Heart Disease: Therapy
Presentation Number: 919-08

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Background: A sub-set of patients requiring coronary revascularization and valve surgery may benefit from a hybrid approach of percutaneous coronary intervention (PCI) followed by minimally invasive valve surgery (MIVS), rather than combined median sternotomy coronary artery bypass graft and valve surgery.

Methods: We retrospectively evaluated the outcomes of consecutive patients with coronary artery and valvular heart disease who underwent PCI followed by elective MIVS at our institution between February 2009 and July 2013. A Kaplan-Meier analysis was performed to estimate long-term survival.

Results: A total of 222 patients were identified, with a mean age of 74.6 ± 8.2 years (Table). PCI was performed for 1-, 2-, and 3-vessel disease in 81.5%, 12.2%, and 6.3% of the patients, respectively. Drug-eluting stents were used in 73.4% of the patients, and 70.3% were on dual anti-platelet therapy at the time of MIVS. Within a median of 38 days (IQR 18-65), 188 (85%) patients underwent primary and 34 (15%) patients underwent re-operative MIVS. The operative mortality was 3.6%. Clinical follow-up was available for 94.6% of the patients. At a mean follow-up period of 16.2 months, 4.2% of the patients had an acute coronary syndrome, and target-vessel revascularization was required in 1.9% of the cases. The survival rate at 1 and 4.5 years was 91.9% and 88.3%, respectively.

Conclusions: In a select group of patients, a hybrid approach of PCI followed by MIVS can be performed with excellent long-term outcomes.

Patients Baseline Characteristics	N=222
Age (years, mean ± SD)	74.6 ± 8.2
Male gender (%)	136 (61.3)
Hypertension (%)	209 (94.1)
Diabetes mellitus (%)	81 (36.5)
Cerebrovascular disease (%)	41 (18.5)
Peripheral vascular disease (%)	37 (16.7)
Ejection fraction (%, median, IQR)	55 (45-63)
Preoperative creatinine (mg/dL, median, IQR)	1.0 (0.9-1.2)
Percutaneous Coronary Intervention (PCI) Characteristics	
Drug eluding stent (%)	163 (73.4)
Bare metal stent (%)	56 (25.2)
Plain balloon angioplasty (%)	3 (1.4)
Single-vessel PCI (%)	181 (81.5)
Dual-vessel PCI (%)	27 (12.2)
Triple-vessel PCI (%)	14 (6.3)
Left anterior descending artery (%)	124 (55.9)
Proximal LAD (%)	58 (26.1)
Left circunflex (%)	66 (29.7)
Right coronary artery (%)	65 (29.3)
PCI to valve surgery time (days, median, IQR)	38 (18-65)
Preoperative dual antiplatelet therapy (%)	156 (70.3)
Minimally Invasive Valve Surgery (MIVS) Characteristics	
Cardiopulmonary bypass time (min, median, IQR)	110 (94-141)
Aortic cross clamp time (min, median, IQR)	83 (70-106)
Patients requiring intra-operative packed red blood cells (%)	121 (54.4)
Aortic valve replacement (%)	103 (46.4)
Mitral valve replacement (%)	50 (22.5)
Mitral valve repair (%)	32 (14.4)
Single valve (%)	185 (83.3)
Double valve (%)	37 (16.7)
Reoperation (%)	34 (15.3)
Conversion to median sternotomy (%)	1 (0.5)
Outcomes	
Total ICU length of stay (hrs, median, IQR)	45 (24-74)
Total hospital length of stay (days, median, IQR)	8 (6-10)
Patients requiring post-operative packed red blood cells (%)	103 (46.4)
Atrial fibrillation (%)	49 (22.1)
Cerebrovascular accident (%)	3 (1.4)
Reoperation for bleeding (%)	7 (3.2)
Acute kidney injury requiring hemodialysis (%)	6 (2.7)
Q wave myocardial infarction (%)	0 (0)
30-day Mortality (%)	8 (3.6)
All-cause Mortality at follow-up (%)	26 (11.7)
Clinical follow-up available (%)	214 (96.4)
Time to last follow-up (months, mean ± SD)	16.2 ± 12.5
Acute coronary syndrome (%)	9 (4.2)
Target vessel revascularization (%)	4 (1.9)
Cerebrovascular accident (%)	6 (2.8)
Hospitalization due to CHF, ACS, or bleeding (%)	17 (7.9)