396 PERIOPERATIVE OUTCOMES OF NEW RAPID-DEPLOYMENT AORTIC VALVE REPLACEMENT WITH THE EDWARDS INTUITY VALVE SYSTEM

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BACKGROUND: The recent emergence of new rapid-deployment valves could reduce the mean cross-clamping time and average bypass time in complex combined procedures and could facilitate minimally invasive access. The aim of this study was to evaluate perioperative results of the EDWARDS INTUITY valve implantation in aortic position in patients who underwent aortic valve replacement (AVR) by minimally invasive access or with concomitant procedure.

METHODS: Between January 2011 and December 2014, 45 patients underwent aortic valve replacement with prosthesis INTUITY at Montréal Heart Institute. The surgical approach was median sternotomy in 29 cases of concomitant surgery (65%) and minimally invasive way in 16 isolated AVR (35%).

RESULTS: AVR was conducted successfully in all cases. The mean age of patients was 70 ± 7.6 years. The preoperative EuroSCORE II was 3.23 ± 3.3% and 86% (n = 36) of patients were male. Concomitant procedures included coronary bypass surgery in 23 patients (51%), a ring expansion (2%), two ascending aorta replacements (4%), one aortic plasty with pericardial patch (2%), and a tricuspid annuloplasty (2%). Six patients (13%) had a previous cardiac surgery. In isolated AVR, average bypass time and mean clamping time were 67.4 ± 15.9 and 48.9 ± 16.8 min, respectively. In concomitant procedures, mean bypass time and cross-clamping time were 75.8 ± 28.2 and 90.8 ± 45.1 min, respectively. There was no 30-day mortality. The mean postoperative transthoracic gradient was 12.5 ± 4.3 mmHg. Postoperative effective orifice area was 2.0 ± 0.5 cm2. One case (2%) of mild paravalvular leak occurred. All patients were in NYHA functional class I or II / IV after surgery. The implantation of a permanent pacemaker was required in 6 patients (13%). Three (6%) patients had bleeding requiring reoperation, and five patients (11%) developed acute renal failure. The average length of ICU stay was 2.2 ± 1.8 days.

CONCLUSION: The mean bypass time and cross-clamping time were acceptable for isolated AVR or in combined procedures. The Edwards Intuity valve demonstrates good hemodynamic results. However, future studies allowing comparison with other sutureless valve as well as long-term durability and safety are mandatory.

397 NOVEL TRANSCATHETER MITRAL VALVE REPLACEMENT FOR NATIVE MITRAL REGURGITATION

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OBJECTIVE: Mitral regurgitation (MR) is the most common valvular disease. Patients are under-treated, especially in the elderly and patients poor left ventricular function. Development of a less invasive transcatheter mitral valve replacement (TMVR) is rapid and may become a viable option for high-risk patients.

METHODS: The Tiara TMVR prosthesis is a nitinol self-expanding, bovine pericardial based mitral valve that can be delivered tranapically. Four high-risk surgical patients with severe native MR and anatomically not ideal for MitraClip implant were treated with the Tiara prosthesis under Canadian Special Access Program. Table 1 showing patient demographics and pre-implant echo data.

RESULTS: Successful implantations were carried out in all patients under echocardiographic and fluoroscopy guidance. No intraoperative complications were encountered and there were no 30-day mortality. Excellent hemodynamic performance of the mitral prostheses by echo was noted, with a low transvalvular gradient and no left ventricular outflow tract obstruction. No significant paravalvular leak (PVL) was detected in any patient. One early (day 69) and a late (5 month) death were seen.

CONCLUSION: Transapical transcatheter mitral valve replacement is technically feasible and can be performed safely. Early
prosthesis hemodynamic performance is excellent. Early clinical outcomes in these extreme risk patients were acceptable. TMVR may play an important role in the treatment of MR.

Table 1

<table>
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<th>#</th>
<th>Age/Gender</th>
<th>Etiology</th>
<th>NYHA/Class</th>
<th>Comorbidities</th>
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<td>3</td>
<td>CRF, Failed MitralClip</td>
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<td>3</td>
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</table>

398 TRANSCATHETER MITRAL VALVE-IN-VALVE IMPLANTATION: THE VANCOUVER EXPERIENCE

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BACKGROUND: There is a large group of patients with failed mitral bioprosthesis that have a high operative risk for conversion reoperation. There is a growing need for a less invasive procedure to help treat this population. Transapical mitral valve-in-valve was first described in 2009 with minimal mortality and acceptable hemodynamics in small series. We report on the Vancouver experience for transapical mitral valve-in-valve implantation to date.

METHODS: Forty-five consecutive patients from 2007-2015 in a single centre (St. Paul’s Hospital, Vancouver, Canada) underwent transapical mitral valve-in-valve implantation. All patients had previous mitral valve replacement with biological valve prosthesis and were evaluated by a multidisciplinary heart team. The indications for reoperation followed Canadian Cardiovascular Society guidelines for mitral valve surgery. Edwards balloon expandable valve and Ascendra transapical delivery system were used in all cases. Baseline characteristics, mortality, morbidity and hemodynamics were recorded.

RESULTS: Patients were elderly (mean age of 81 years ± 6) and high-risk for conventional reoperative surgery (Society of Thoracic Surgeons score 12.1 ± 6.8). The size of the original mitral bioprosthesis was 23-33 mm. The 30-day mortality was 2.2% (1/45). The preoperative mitral valve mean gradient was 11.6 mmHg and discharge mean gradient was 7.7 mmHg. All patients had none or trace perivalvular regurgitation at discharge.

DISCUSSION: Transapical mitral valve-in-valve implantation can be performed with acceptable mortality and morbidity in a high risk population and favorable hemodynamics.

399 OUTCOMES OF TEVAR FOR ACUTE TRAUMATIC RUPTURE; RATIONAL AND IMPLICATIONS IN DEVELOPING SPECIFIC IMAGING GUIDELINES FOR FOLLOW-UP

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BACKGROUND: Thoracic endovascular aortic replacement (TEVAR) is widely used for the treatment of traumatic aortic rupture (TAR). Patients with TAR are often young thus require multiple 3-phase chest tomography (CT) with the risk of radiation induced neoplasia owing to cumulative radiation.

OBJECTIVE: This study proposes to evaluate the outcomes of TAR patients treated by TEVAR and propose specific guidelines for CT imaging follow-up for TAR-TEVAR patients.

METHOD AND RESULTS: Thirty-nine acute TAR patients were treated by TEVAR and followed prospectively in a dedicated aortic clinic between 2001 and 2014. Patients were followed using a 3 phase CT imaging protocol according to current TEVAR follow-up guidelines. The mean follow-up time was 55.2±43.2 months; 5.6±3.2 CT/patients. Mean patient age was 43.9±18.9 years old; 25% under age 35. TEVAR procedural success rate was 100%. Type of TEVAR was Talent in 12 pts (30.7%), Captivia in 10 pts (25.6%), Cook in 4 pts (10.2%) and Valiant in 13 pts (33.3%). Eighteen pts required coverage of left subclavian artery. No neurologic complications occurred in the perioperative period. Three pts died postoperatively (7.7%); one pt secondary to an aortobronchial fistula on postoperative day 65, one pt secondary to multi organ failure and another pt secondary to a head trauma. Three pts required late carotid-subclavian bypass at 1.0, 2.1 and 4.6 years postoperatively. No late death occurred. Five years survival was 82.8%. One patient developed an endoleak nine years after surgery owing to a distal bare stent aortic perforation and was treated by distal TEVAR extension. No aneurysmal sac was identified at FU. No patient developed an aortic problem on another aortic segment. A mean radiation dose of 1306.83 ± 347.26 mGy/cm was registered during triphasic CT scans. An imaging field limited to the TEVAR with a single enhanced contrast phase allowed to decrease the radiation dosage by 77.6% with the same clinical information.

CONCLUSION: TEVAR for acute TAR provides excellent midterm results especially with current TEVAR generations. Although lifelong imaging follow-up is mandatory, the interval between CTs may be widened to 18-24 months. Furthermore cumulative radiation may be significantly lessened by a single phase CT limited to the TEVAR field.