474370 - ANESTHESIA FOR TRANS-CATHETER AORTIC VALVE IMPLANTATION: A CASE SERIES

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Purpose: Trans-catheter Aortic Valve Implantation (T-C AVR) has been offered, on a compassionate basis, to patients with symptomatic aortic valve (AV) stenosis deemed to be too high risk for surgery[1,2]. The procedure consists of two steps: an AV balloon valvuloplasty, followed by the deployment of a pericardial bioprosthesis. Both steps are carried out using rapid ventricular pacing to suppress left ventricular ejection. The native AV can be approached antegrade through the LV apex via a small thoracotomy [2] or retrograde through percutaneous access to the femoral artery[1]. General anesthesia is the standard of practice.

Clinical Features: Local REB approval was obtained for this study. From January to December 2007, 14 patients underwent T-C AVR at our institution. Patients' characteristics and outcomes are described in table 1. The Edwards SAPIEN trans-catheter aortic valve was used in all cases. The trans-femoral approach was performed by an interventional cardiologist in the cardiology suite. General anesthesia with a single lumen endotracheal intubation, large bore peripheral intravenous line, arterial line and double lumen central venous line was used. A temporary trans-venous wire was inserted for pacing. A fluid warmer and forced air warming blanket were used. After deployment of the valve patients were transferred to the operating room (OR) for surgical removal of the 24 F femoral sheath and repair of femoral artery. 4 patient were extubated in the OR, 2 patients within ours in the coronary care unit. The trans-apical approach was performed in the cardiovascular OR by a cardiac surgeon under standard cardiac anesthesia. The Swan-Ganz catheter was advanced after valve deployment. Temporary epicardial wires were inserted for pacing. A continuous flow cell-saver system was used. After transfer to the cardiovascular intensive care unit, mechanical ventilation was weaned as per institutional protocols.

Conclusion: T-C AVR, is a viable option in a subset of patients not previously considered for surgery. All patients can potentially need rescue open surgery at any time during the procedure. Expertise in cardiac anesthesia and knowledge of all technical aspects of the procedure is thus mandatory.

References: [1] Circulation 2007;116:755-763. [2] Circulation 2007;116[suppl]:I-240-I-245.

TAB. 1 PATIENTS CHARACTERISTICS AND OUTCOME

Approach	Trans-femoral	Tras-apical
Baseline Characteristics		
Number	7	7
Age y mean (range)	83.7 (68-93)	78.7 (73-81)
Female gender	2 (28)	6 (86)
Body Mass Index mean (range)	1.76 (1.6-2.10)	1.6 (1.42-1.85)
Previous CV surgery	3(42)	3 (42)
Severe COPD	0	5 (71)
CAD	6 (86)	4(57)
LV Grade 3-4	0	1 (14)
Predicted 30 days mortality* mean	19.69	20.45
Outcome		
Death 30 days	0	1(14)
Periprocedural Stroke	1 (14)	0
Valve embolization	0	1 (14)
Conversion to open procedure	0	1 (14)
RBC transfused >2 U	0	2 (28)
Re-thoracotomy for bleeding	0	1 (14)

Values are expressed as n (%)unless otherwise specified. *Logistic EuroSCORE