

Percutaneous Implantation of the Self-Expandable CoreValve in Patients with Severe Aortic Stenosis: The Technique

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Objectives: The prevalence of aortic stenosis increases with advancing age. Once symptoms occur the prognosis in patients with severe AS is poor. The current treatment of choice for these patients is surgical aortic valve replacement (AVR). However, in a large portion of patients, mainly the very elderly and those with major co morbidities, the surgical risk is considered extreme and thus, these patients are decline of surgery. Recently, a percutaneous alternative for surgical AVR has emerged and two percutaneous heart valves are available. In this report we will describe in details the percutaneous technique involved in the implantation of self-expandable CoreValve.

From September-November 2008, 15 patients underwent percutaneous AVR in two Israeli centers. Briefly, the technique was performed under general anesthesia with TEE guidance in 13/15 patients. A temporary pacemaker is inserted. Both groins are punctured initially, one with 6Fr sheath for the insertion of a pigtail catheter to the aortic root and a second with 18Fr for valvuloplasty and valve insertion. A 9Fr sheath is initially inserted and a ProStar closure device (Abbot Vascular) is introduced. A super-stiff 0.035 guide-wire is inserted into the left ventricle and an aortic valvuloplasty performed with a dedicated balloon (Numend 22 or 25 mm) under rapid ventricular pacing (150-200/min.). Then, the valve is introduced and positioned using markers and the aortic valve calcifications. The valve is gradually deployed under fluoroscopy and position is verified by repeated aortic root injections. The catheter is carefully withdrawn and removed. The arteriotomy is closed by the ProStar device and finally an angiogram of the 18Fr punctured artery is performed to exclude perforation or residual stenosis. Patients are admitted to CCU for 3-5 days to monitor for the nonoccurrence of complete AV block requiring permanent pacemaker.

Conclusions: Percutaneous aortic valve replacement is a promising technique that warrants a skillful multidisciplinary approach. New protocols are implemented in the cathlab and the ICCU to assure successful procedure.