



Minimalist Strategy for Transcatheter Aortic Valve Replacement



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Abstract

Transcatheter Aortic Valve Replacement (TAVR) had become a novel and secure procedure to treat aortic stenosis that had become more accepted over the years; the approach and different types of device improve the life expectancy, diminish the complications and costs in public health. Along with the improvement in technology the minimalist approach had gain popularity to ameliorate the overall patient health.

Introduction

Back in April 16 2002, after several years of design and research, Alain Cribier for the first time performed a Transcatheter Aortic Valve Replacement (TAVR) in a 75 year-old male to treat his Severe Aortic Stenosis (SAS) [1], the patient had several comorbidities that contraindicate the surgical treatment, an estimated ejection fraction of 12% and cardiogenic shock by the moment of the procedure. This was the first case reported in the literature of the success in this treatment and represents a milestone in the new era of transcatheter therapy.

After this successful procedure there been a bludgeoning in the creation of different companies, the Percutaneous Valve Technologies created by Cribier and cols, subsequently merge with Edwards Life sciences by 2004, the Core Valve came up by the same year and few years latter fuse with Medtronic. This type of procedure became carefully studied and several clinical trials had exhibit good results, but it was until the 5-year Partner-I (A and B) [2] trial that enough evidence were gather to indicate TAVR could be an option for the treatment for SAS in patients with high surgical risk or contraindicated for surgery.

Over the years the technology improved and new device came up which in turn improve the results and simplify the procedure; by the year 2016 the Partner-II [3] and in 2017 the Surtavi trial [4,5] established that TAVR could be used in intermediate risk patients by STS this allowed that the FDA authorized Edwards Life sciences and Medtronic to initiate a new trial to compare TAVR vs Surgical Aortic Valve Replacement (SAVR) in low risk patients extending the procedure indication, currently on going. At this moment the

procedure in a TAVR had been dramatically simplify avoiding the use of general anesthetic, ventilatory support, trans esophageal echocardiogram, surgical approach, balloon dilatation, etc, this led to the concept of the minimalist strategy.

The minimalist strategy emerged as a premise in the TAVR treatment focus mainly in simplify the procedure and made it less invasive, which in turn lead to diminish the complications, comorbidities, hospitalization costs. Principal key points to accomplish this are:

- Sedation and local anesthetics which eliminate the necessity of mechanical ventilation and in consequence the possibility of respiratory tract infection,
- Avoid the urinary catheter and central venous catheter that diminish the chance of nosocomial infections,
- Complete percutaneous access with preclosure as a main hemostatic technique,
- Pacemaker leading through jugular vein to prevent any cardiac conduction disease,
- Abstain from balloon predilatation to decrease the odds of stroke,
- No pacing except for those patient that were implanted with a balloon-expanded valve that diminish the ventricular blunting,

Trans thoracic echo-cardio graphic surveillance to guaranty the success of the procedure instead of trans esophagic

echocardiography. With this strategy we can conclude that the TAVR procedure had exhibited a decrease in the complication related to the procedure, intra hospitalary infections, improvement in patient discharge times and diminish of the costs.

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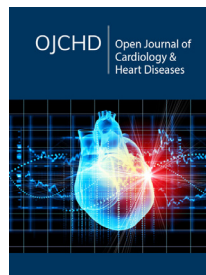
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