Overview of Advances in Transcatheter Aortic Valve Implantation

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Abstract

In recent years, transcatheter aortic valve implantation (TAVI) has been shown to be a valid option of treatment for patients with severe aortic stenosis requiring valve therapy. Initially shown to be equivalent to surgical aortic valve replacement (SAVR) in prohibitive and high surgical risk patients, TAVI gradually expanded to intermediate and lower risk patients, the devices have evolved and improved with lower delivery profile and improved sealing to prevent paravalvular leak along with various techniques such as transcaval, transaxillary and transcarotid, enabling percutaneous treatment in challenging anatomies. In addition, additional devices were developed to improve patient safety by stroke prevention during the procedure and bleeding prevention during access closure. These advances in TAVI procedure were translated to improved patient outcome with superiority of TAVI over SAVR in low-risk patients and expansion of TAVI indication to challenging anatomies and lower risk patients.

Introduction

Transcatheter aortic valve implantation (TAVI) has been shown to be a valid option of treatment for patients with severe aortic stenosis requiring valve therapy. Initially shown to be equivalent to surgical aortic valve replacement (SAVR) in prohibitive and high surgical risk patients, TAVI gradually expanded to intermediate and lower risk patients, the devices have evolved and improved with lower delivery profile and improved sealing to prevent paravalvular leak along with various techniques such as transcaval, transaxillary and transcarotid, enabling percutaneous treatment in challenging anatomies. In addition, additional devices were developed to improve patient safety by stroke prevention during the procedure and bleeding prevention during access closure. These advances in TAVI procedure were translated to improved patient outcome with superiority of TAVI over SAVR in low-risk patients and expansion of TAVI indication to challenging anatomies and lower risk patients.