Editorial Comment

New Treatments, New Complications. . .and New Solutions

Richard Heuser,* MD, FACC, FACP, FESC, FSCAI
Chief of Cardiology, St. Luke's Medical Center
Professor of Medicine, University of Arizona
College of Medicine, Phoenix, Arizona

Transcatheter aortic valve implantation (TAVI) is a new alternate to conventional surgery in high risk patients [1,2]. There has been much discussion of vascular complications, as well as embolic complications associated with these procedures. We look forward to the availability of our sheath-in-sheath product which we feel will reduce both the vascular complications as well as bleeding associated with this procedure [3]. There are several embolic protection devices that are in development that also look promising to reduce the incidence of subclinical as well as clinical stroke associated with the TAVI procedure.

Sarkar et al. bring up another dark side to the TAVI procedure which is embolization of the prosthetic valve. Using off the shelf technology, they cleverly were able to manage their patient effectively. Others have warned us about these embolic complications [4]. We have been involved with snare development for a number of years [5]. Several of these products are already on the market (Expro Elite™ and Micro Elite™, Vascular Solutions, Minneapolis, MN). Unfortunately, no snare can deal with several aspects of the TAVI procedure that are difficult to manage. Sharp, protruding metal can damage the aorta when pulled with a snare or other capture devices whether in the arterial or venous system. If an embolic protection device is present in the aorta and the prosthetic valve embolizes, there might be a reason to want to remove the device. Unfortunately, this device as well as other devices used to treat structural heart disease, once deployed cannot easily be removed in the vascular system. We have developed a specific snare for similar problems described by the Italian group. Cleary, technology needs to address this problem so valves can be safely removed in patients who present with similar problems. We have worked on some technology to address this issue.

As we continue to search for ways to less invasively treat patients with valvular or structural heart disease, we will sometimes find ourselves confronted with new problems. Medical advances in the 21st Century will not only result in real breakthroughs, but real challenges. The interventionist needs to be able to not only think on his or her feet, but if necessary figure out a new solution with a new device.

REFERENCES

1. Leon MB, Smith CR, Mack M, Miller DC, Moses JW, et al. Transcatheter aortic-valve implantation for aortic stenosis in patients who cannot undergo surgery. N Engl J Med 2010;363:1597–1607.
2. Thomas M, Schymik G, Walther T, Himbert D, Lefevre T, et al. A European registry of transcatheter aortic valve implantation using the Edwards SAPIEN valve. Circulation 2010;122:62–69.
3. Catheter Introducer System. Patent 7,166,088, January 23, 2007.
4. Tay ELW, Gurvitch R, Wijeysinghe N, et al. Outcome of patients after transcatheter aortic valve embolization. J Am Coll Cardiol Interv 2011;4:228–234.
5. Small Diameter Snare. Patent 6,554,842, April 29, 2003.

Conflict of interest: Nothing to report.

*Correspondence to: Richard Heuser 555 N. 18th Street, Suite 300, Phoenix, AZ 85006. E-mail: rheuser@phoenixheartcenter.com

Received 11 February 2012; Revision accepted 13 February 2012

DOI 10.1002/ccd.24365
Published online 20 March 2012 in Wiley Online Library (wileyonlinelibrary.com).