

Contemporary Catheter-Based Structural Heart and Vascular Access Closure Options



Thus far, 2019 has been an incredible year in the ongoing growth and evolution of transcatheter therapies for structural heart and valvular disease. Results from recent trials are continuing

to push the envelope forward for future expanding indications for existing transcatheter devices, and several early feasibility studies, both in United States and outside the United States, have reported exciting results for the future of innovative technologies in the mitral and tricuspid valve repair space. As our field of structural heart disease continues to evolve, I invite our readers to take a deep dive into the excellent reviews on the topics covered in this issue of *Cardiac Interventions Today*.

First, Saurabh Sanon, MD, and D. Scott Lim, MD, provide an update on left atrial appendage occlusion that summarizes the available data to date, pre- and periprocedural imaging techniques, and occlusion devices. John T. Saxon, MD, and Adnan K. Chhatriwalla, MD, then look at the current status of transcatheter paravalvular leak closure, including a review of available devices and procedural techniques for the aortic and mitral anatomy. Finally, Francesco Dipasquale, MD; Sebastiano Immè, MD; and Marco Barbanti, MD, discuss the anatomic features, symptoms, and syndromes of patent foramen ovale (PFO), as well as evidence from PFO closure trials and current treatment options.

Next, we move to our focus on vascular access closure. The minimally invasive nature of catheter-based interventions has paved the road for its success as a valid alternative to (conventional) surgical techniques and eventually the strategy of first choice for various coronary and structural heart interventions. Arguably, transcatheter aortic valve replacement (TAVR) represents the quintessential example to underscore the potential of catheter-based techniques as it now covers the entire risk spectrum of patients with severe aortic stenosis who require an aortic bioprosthesis. Safe and reliable vascular access is a cornerstone of the success of transcatheter techniques. Transradial access has surpassed the femoral approach as the default strategy for coronary interventions. Conversely, the common femoral artery remains the route of first choice for structural heart interventions that require large-bore arterial access.

Over this last decade, major steps forward were set in terms of preprocedural planning (implementation of CT three-dimensional assessment), femoral access techniques

(eg, ultrasound guidance), device profile and sheath technology (eg, recollapsible sheaths), and arteriotomy closure technology (from sutures to patch- or plug-based devices). We welcome a new generation of physicians to the interventional cardiology community and the adoption and implementation of catheter-based interventions is being embraced by an increasing number of physicians. An in-depth overview is therefore timely.

This section begins with an overview of various large-bore closure techniques and devices by Stephen Keane, MD; Liesbeth Rosseel, MD; Darren Mylotte, MD, to ensure minimal vascular access site complications. Amir Kaki, MD, and M. Chadi Alraies, MD, continue on the topic of large-bore access with a review of vascular access and closure considerations when larger percutaneous devices are needed for various procedures, including mechanical circulatory support and transcatheter aortic valve replacement, and techniques to achieve the best possible outcomes.

Next, we have an article by Francesco Costa, MD, and Renato Scalise, MD, summarizing mechanisms and applications of currently available radial artery compression devices. Maarten P. van Wiechen, MD, and Nicolas M. Van Mieghem, MD, conclude this topic with a tutorial-style article on ultrasound-guided access techniques that help ensure optimal closure and postprocedural results.

In addition to these featured topics, we also have a fascinating variety of additional articles. In our Techniques department, Mohamad Alkhouli, MD, provides a step-by-step guide for incorporating intracardiac echocardiography for PFO closure.

In our Today's Practice column, Ginger Biesbrock, PA-C, discusses ways that cardiovascular programs can improve new patient access and appointment availability for existing patients, which in turn will increase overall patient volume and satisfaction with the care received.

Finally, we interviewed Rebecca T. Hahn, MD, about the current data and future directions for tricuspid regurgitation therapies, the development of interventional echocardiography as a new subspecialty, and more.

We hope you enjoy the full range and depth of the important therapies and techniques discussed in this issue of *Cardiac Interventions Today*, and we welcome your feedback and suggestions. ■

Rahul Sharma, MD, FACP, FACC, FSCAI
Nicolas M. Van Mieghem, MD, PhD, FACC, FESC
Guest Chief Medical Editors