

# Trends in TEVAR

Over the last decade, there have been significant developments in the endovascular management of thoracic aortic pathology. This has led to an expansion in use of the technology and increased ambition among endovascular practitioners, especially in treating disease in the aortic arch. This rapid increase in the uptake of thoracic aortic interventions has occurred despite a lack of randomized clinical trials; this stands in direct comparison to the management of the infrarenal aorta, for which we have clear, evidence-based practices and defined management pathways. There has also been a growing realization that thoracic intervention is not without significant risk of complications, both in the short and long term.

There are, of course, major differences between the management of the infrarenal and thoracic aortas. First, we are faced with a wide spectrum of disease, including trauma, acute aortic syndrome, and aneurysmal disease. Each poses different challenges in terms of timing and the nature of intervention, as well as different levels of risk to the patient.

Second, the arch of the aorta is a particularly challenging environment for endovascular therapies, largely related to the extreme hemodynamic forces encountered. Access, stent deployment, security of fixation, and conformability to the aorta are all a magnitude greater than those experienced in the management of the infrarenal aorta. Stent manufacturers have met some of these challenges with lower-profile delivery devices, which are designed for accurate and atraumatic stent deployment. Stent grafts are more conformable than previous iterations and more robust in terms of fixation and resistance to migration.

More recently, branched devices are emerging for deployment in the arch with preservation of arch branch vessels. These are not widely available, leading others to rely on chimney and related techniques. Although the results of both techniques may challenge outcomes achievable with open surgery, concerns remain for periprocedural risks and long-term durability. Extensive manipulation of devices in the aortic arch may subject patients to aortic trauma and neurological risks, which must be mitigated for such techniques to gain widespread support.

In this month's issue of *Endovascular Today*, we have asked world leaders in the field of thoracic endografting to give reviews and personal observations relating to specific topics recognized as the major challenges in this exciting field. With continued investment in the technologies and the accumulation of long-term data

on outcomes, we can expect these views to develop over the coming years.

For now, we engage with the perspectives of multiple interventionists who are active in this field. Stephen W. K. Cheng, MD, argues that arch debranching is the best treatment modality for aortic arch aneurysms, while Armando C. Lobato, MD, PhD, et al make a case for chimney and sandwich techniques in patients at high risk for open repair. In our Ask the Experts features, we ask interventionists how they address uncomplicated type B dissections and chronic type B dissections with aneurysmal enlargement. In his article, Michael D. Dake, MD, suggests an algorithmic approach for treatment of type B pathology.

Stephan Haulon, MD, PhD, et al review branched arch devices on the horizon for total endovascular repair of the aortic arch. Benjamin O. Patterson, PhD, MRCS, and Matt M. Thompson, MD, FRCS, discuss the value of TEVAR trials, while Vincent Rimbau, MD, PhD, et al review the published data for endovascular therapy in the ascending aorta. Ali Azizzadeh, MD, and Joseph Dubose, MD, FACS, FCCM, emphasize the need for a grading system to direct practice algorithms for blunt thoracic injury treatment. Santi Trimarchi, MD, PhD, et al discuss penetrating aortic ulcers and intramural hematomas. Sharif H. Ellozy, MD, advises on how to reduce the incidence of complications by using neurologic protection during TEVAR.

To round out the content of this issue, we include a column from Katharine L. Krol, MD, FSIR, FACR, on coding changes for 2015.

We hope that you enjoy the perspectives presented in this issue of *Endovascular Today*. ■



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