Introduction

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This supplement reflects the experience and opinions of a group of experts on the treatment of diseases of the aorta, presented at the most recent Aortic Symposium in New York in May 2010. Some of the contributions are structured as state of the art monographs and others as scientific papers, as determined by their authors. Most of the contributors are acknowledged leaders in aortic surgery, but a few of the papers were chosen from submitted abstracts by the organizing committee as being of extraordinary interest. In-depth discussions followed each group of presentations: these discussions have been edited for clarity. It is the hope of the editors that what emerges from papers and discussions is an accurate reflection of the state of our current knowledge of how best to treat aortic disease.

With regard to the ascending aorta, we have learned more about the natural history of this disease, including the importance of genetics and smooth muscle cell modulation of aortic structure and function, as well as the possibility of modifying the natural history of aneurysmal disease by control of hypertension, beta-adrenergic blockade, and transforming growth factor beta-2 modulation, coupled with periodic surveillance with improving imaging modalities. From a therapeutic standpoint, the valve-sparing operation has come of age, and excellent results are achievable with a Bentall procedure in those in whom the valve cannot be fixed.

In procedures involving the arch, cerebral protection continues to be controversial, but good results—apart from the problem of atherosclerotic emboli—are possible with several methods. The long-term outcome of patients with disease of the arch is disappointing, however, owing to the frequent presence of extensive disease elsewhere in the

aorta. Hybrid techniques show promise in addressing extensive aneurysmal disease.

In the descending and thoracoabdominal aorta, repair continues to carry a high risk of both death and serious complications, particularly spinal cord injury and renal failure. Purely endovascular and hybrid approaches appear promising. A better understanding of what is required for spinal cord and renal protection during these procedures is gradually emerging. Given the impact of the extensive disease burden and the physiologic cost of intervention, there is emerging consensus in this patient population that comparison of treatment effectiveness from one study to another would be enhanced by routinely reporting 1-year mortality, and long-term survival should be compared with age- and sex-matched controls as a standard mortality ratio.

Acute aortic syndromes other than aortic dissection are still poorly understood in terms of pathogenesis, natural history, and appropriate treatment, but a start toward understanding them has been made. The role of stent grafting is still unclear in acute type A dissection and in chronic dissection, both type A and B. A consensus is emerging regarding the value of stent grafting in complicated type B dissection and traumatic aortic tear.

During the 22 years since these symposia began, very substantial advances have been made in understanding and treating aortic disease. Significant progress is evident in the past 2 years, but significant challenges remain. The editors wish to thank all the contributors to the symposium, both essayists and discussants, and are pleased and gratified by the opportunity to collaborate with The American Association for Thoracic Surgery and to publish this supplement in *The Journal of Thoracic and Cardiovascular Surgery*.

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