Preface

The next two issues of *Annals of Cardiothoracic Surgery* (*ACS*) are dedicated to Robotic Heart Surgery. The breadth and depth of contemporary practice necessitates the division of the topic into two consecutive volumes. As Guest Editor, I am delighted to showcase the work of my colleagues from around the world, who are all experts in minimally invasive cardiac surgery. The expert editorial efforts of Christopher Cao, Hoda Javadikasgari and Kylie Cunningham were essential in shepherding this collaborative effort along towards successful completion.

Disruptive technology is often initially incapable of duplicating the gold standard results of a legacy platform. The evolution of medical innovations to not only compete with the prior standard but to supersede it in some way, is essential to gain foothold in an emerging market space. Importantly, identifying the ideal milieu for deployment of a new technology often requires strategic tradeoffs—deciding what it can or should be used for, and how rapidly it should be disseminated. This short summary encapsulates the narrative of the birth and maturation of robotic cardiac surgery.

Robotic technology has been increasingly utilized in the treatment of cardiovascular disease since its introduction in the late 1990s. It was initially conceived as a means of performing technically sophisticated procedures via minimal access incisions. The first robotic cardiac procedures in 1998 involved anastomosis of a left internal mammary bypass graft to the left anterior descending coronary artery. Subsequently, robotic technology has been used to perform mitral and tricuspid valve surgery, atrial fibrillation ablation procedures, and closure of atrial septal defect or patent foramen ovale. Totally endoscopic coronary artery bypass surgery has evolved from single vessel grafting to multivessel surgical revascularization. Robotic mitral valve repair is now routinely performed with an exquisite safety profile, delivering complete anatomic correction of all categories of mitral valve prolapse, regardless of disease complexity, making this procedure particularly appealing for asymptomatic patients with preserved left ventricular function. Compared to conventional sternotomy, robotic approaches have offered the advantages of reduced bleeding, extubation on the operating room table, shorter hospital length of stay, quicker return to normal activities, and a superior cosmetic result.

We are indebted to the pioneers of this field, particularly Professors Friedrich Mohr, Alain Carpentier, Didier Loulmet, Randolph Chitwood, Tomislav Mihaljevic, Wiley Nifong, Johannes Bonatti, Douglas Murphy, Leland Siwek, and Marc Gillinov. I am certain that you will find their insights helpful and I would like to thank each of them for sharing their personal insights in helping us to advance this important subspecialty within modern cardiac surgical practice.

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