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CONTEMPORARY TRANSCATHETER INTERVENTIONS IN ADULT CONGENITAL HEART DISEASE

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In 1966, William Rashkind performed the first balloon atrial septostomy on a patient with transposition of the great arteries,[1] and on that fateful day, the field of congenital and pediatric interventional cardiology was born. Since then, the complexity and capability of the discipline has grown explosively with the advent of balloon aortic and pulmonary valvuloplasty,[2] device closure of atrial and ventricular septal defects and patent ductus arteriosus, and the Melody® transcatheter pulmonary valve solution[3] (Medtronic, Inc., Minneapolis, MN).

The successes of Rashkind's cardiac surgical colleagues over the last 50 years has given rise to a population of nearly 1.3 million adult congenital heart patients in the United States.[4] Since this population is expected to grow by 5% annually, the sustained cardiovascular care of such a heterogeneous and complex group of patients will require ongoing evolution as physicians continue to learn how best to treat them. Likewise, the role of transcatheter intervention continues to evolve and grow as an adjunct to cardiac surgery in managing mechanical issues—especially in patients who conceivably live well into their 70s or 80s when just 50 years ago they may not have survived their first year.

Because each patient is unique in pathophysiology, surgical repair, comorbidities, and postsurgical pathophysiology, there are few medical devices that have been approved specifically for the treatment of congenital heart disease. As such, the practice of transcatheter congenital intervention is characterized by continuous on-the-fly innovation—adapting catheters, wires, and devices from other disciplines and applications and building new devices.

In this issue of the *Methodist DeBakey Cardiovascular Journal*, we focus on the depth and breadth of transcatheter interventions in congenital heart disease. Drs. Balzer, Forbes, Holoshitz, Kenny, Tarui, and colleagues present a number of unique innovations that characterize the field's rapid evolution. The use of novel 3-dimensional imaging techniques both before and during catheter intervention is described by Fagan and colleagues to optimize complex interventions. Finally, Bergersen and colleagues discuss the unfathomably complex task of defining standards of quality in the heterogeneous field of congenital interventions. While few of our readers likely care for adult patients with congenital heart disease on a regular basis, we hope that this issue will serve to stimulate curiosity, innovation, collaboration, and awareness of this rapidly growing medical need.

References

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