



HEART FAILURE: AN ILLNESS AT THE JUNCTURE OF MOLECULAR MEDICINE AND NEW TECHNOLOGY

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As a way to introduce this issue of the *Methodist DeBakey Cardiovascular Journal*, I want to reflect on heart failure as a newly defined field in cardiovascular medicine and the great challenges we face in managing this disease. Heart failure is a discipline that continues to evolve. Within the last few years, the American Board of Internal Medicine recognized heart failure as a distinct subspecialty of Cardiology, requiring formal training and examination for certification. This has been a major step in defining the field for the future and in understanding that to master it requires a specific set of skills and knowledge.

The field of heart failure continues to evolve. As increasing numbers of patients develop heart failure, we are becoming more effective at treating acute cardiovascular conditions; at the same time, better medicines, devices, and access to transplantation provide us with unique opportunities for treatment.

Heart failure as a specialty encompasses basic concepts in molecular biology, physiology, and transitional medicine. Those of us who dedicate our careers to treating patients with heart failure recognize the important interface between medicine and surgery, and between treatment of the chronically ill and of the acute illness. It is an exciting field for research and practice in which physicians have the opportunity to deal with patients in the most humane way and use the most technologically advanced devices to reduce their suffering and improve their quality of life.

In this issue of the *Methodist DeBakey Cardiovascular Journal*, we take a detailed look at these issues. Drs. Bozkurt and Mann review

their approach to generate meaningful translational research. Two contributions address basic mechanisms in heart failure: Dr. Hamilton discusses the role of mitochondrial function in heart failure while Dr. Cordero and colleagues provide an in-depth discussion on how B cells might contribute to the progression of heart failure. The second set of articles examine the challenges in treating heart failure: Drs. Baher and Valderrabano address the treatment of ventricular tachycardia and, in particular, the use of interventional techniques; Drs. Shah and colleagues discuss standard and experimental strategies for treating peripartum cardiomyopathy; and Dr. Bhimaraj explores the use of hemodynamic monitoring devices and how they might impact the treatment of chronic heart failure patients. The third set of articles explore additional topics of importance: Dr. Rodriguez and associates present an overview of the new technology and scope of mechanical circulatory support that have made major contributions in the area of advanced refractory heart failure; Dr. Vrtovec highlights stem cell therapies and their potential to decrease cardiac remodeling; and Courtenay Bruce and colleagues review the ethical dilemmas surrounding patients treated with mechanical support when other organs fail.

The articles in this issue are intended to provide readers with a broad overview of the science and basic principles of heart failure and the exciting new devices being developed to treat this disease. Our challenge is to use this knowledge and technology in the most effective and humane way for the good of our patients.