Myocardial Viability: A Clinical and Scientific Treatise

Vasken Dilsizian, Editor

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This book is a scholarly addition to the literature of myocardial viability. Dr. Dilsizian assembled a list of 27 contributors who authored 18 chapters. It appears that the authors not only were asked to summarize progress to date but also were encouraged to speculate on future directions.

The book is divided into 5 sections. In the Introduction, Dr. Dilsizian skillfully notes many of the issues in subsequent chapters. The second section, Basic Concepts and Mechanisms, focuses on stunning, hibernation, and ischemic preconditioning. Vascular Biology and Cellular Physiology includes information on experimental models for study of viability, the cardiac biochemistry of essential fuels for the heart, a discussion of nitric oxide and energetics, and a discussion of cellular electrophysiology. Advances in Functional Imaging features chapters on SPECT methods for study of regional and global ventricular function, myocardial contractile reserve as seen by echocardiography, and a discussion of the timing of myocardial salvage based on the results of clinical trials. Perfusion, Metabolism, and Cell Membrane Integrity includes chapters addressing ^{201}T1, ^{99m}Tc-labeled drugs, PET, and the potential of nuclear MRI.

Myocardial viability can be defined by the presence of sarcolemmal integrity, mitochondrial and other organelle integrity, preserved perfusion, metabolism, or contractile reserve. A functional definition might be the potential for improved myocardial contractility in an asynergic region after revascularization. In several chapters the authors detail the cellular morphology and the accuracy of clinical diagnostic tests for viability. The basic science information nicely complements the clinical data. The metabolic chapters show the dynamic nature of understanding viability.

As one would expect in a book edited by a nuclear cardiologist, there are excellent, comprehensive summaries of all radionuclide approaches. In addition, there are 2 chapters that provide an excellent, balanced treatment of the echocardiographic literature. The chapter on nuclear MRI includes high-resolution images and summarizes the accomplishments to date in this emerging field.

Two chapters gave me some difficulty. The chapter about fatty acid imaging is rather detailed, as is necessary for this topic; it shows the complexities of understanding the area, given several variables. Perhaps a future edition will provide illustrations to enhance the discussion. Those who do not study ion channels may find the chapter regarding channels, ischemia, and stunning a bit complicated because of its highly detailed discussion on these interrelations as well as on intercellular communication. However, the detail given is appropriate for the complexity of the topic.

The book is hardbound with a handsome cover. Although some of the illustrations might have been more useful in color, illustration quality is excellent in almost all cases. As one would expect, most illustrations are from prior journal articles; however, additional figures were made specifically for this book. The chapters also provide extensive references to the recent literature.

This volume is an important, useful collection of up-to-date data and provides insight into new directions in the field. It will be a very useful addition to the library of nuclear medicine physicians, cardiologists, and cardiothoracic surgeons as well as of cardiac and cellular physiologists.

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