Preface

Transesophageal echocardiography (TEE) has a well-established history of utility in cardiac operating rooms, allowing the diagnosis of cardiac anatomical and physiological pathologies while also directing the surgical treatment. However, the notion that cardiac surgery is the only situation where perioperative care is improved by the use of TEE is simply outdated. The advances and increased availability of TEE, along with the portability of transthoracic echocardiography (TTE), have propelled both modalities into the non-cardiac realm. Whether in the emergency department, intensive care unit, or operating room in high-risk surgical patients, echocardiography’s ability to monitor cardiac function, assess response to interventions, and quickly diagnose causes of hemodynamic instability have made it a necessary basic skill for practicing physicians in this era of medicine.

Utilizing both two-dimensional echocardiography and Doppler imaging, through color flow Doppler and quantitative spectral Doppler, numerous causes of hemodynamic compromise that warrant immediate intervention may be identified. Recognizing myocardial ischemia, pericardial tamponade, left ventricular outflow obstruction, severe valvular abnormalities, hypovolemia, venous air embolism, and pulmonary emboli can directly affect patient management and outcomes. By providing direct visualization of cardiac structures and function in real time, echocardiography can enable any trained practitioner to competently assess a patient who is experiencing hemodynamic compromise or may be at risk of compromise, both in an emergent and in a perioperative setting.

The editors of this textbook had a vision to share their enthusiasm and educate interested practitioners regarding the utility of basic echocardiography in everyday practice. We, along with the contributing authors who are all established as excellent and respected echocardiography instructors, set out to create an easily approachable and well-illustrated text set as a resource to learn the principles of perioperative echocardiography, evaluation of cardiac anatomy in a context outside of the cardiac operating room, and integration of such findings into current clinical practice. While numerous comprehensive echocardiography textbooks exist, this text differs by offering a unique perspective of utilizing echocardiography by
non-cardiac anesthesiologists. Therefore, advanced cardiac operating room topics such as determinations for valvular repair versus replacement are omitted. Instead, there is a distinct emphasis on identifying normal versus abnormal anatomic and physiologic states, commonly encountered perioperative pathologies, and emergent causes of hemodynamic instability.

This book aims to serve as a guide and provide a framework for the readers as they are introduced to the application of TEE. Understandably, there is often fear and frustration observed when learning a new task such as TEE. The gentle approach of the authors within the context of echocardiography for non-cardiac surgery helps to allay those fears and minimize the frustration that often comes with learning a new skill set. It is also important to remember that a multimodal approach to learning echocardiography is key, including echocardiography simulation and repetitive hands-on application during patient care.

In addition to helping the practitioner who is seeking to implement the use of TEE into their clinical practice, this text is intended as an aid for those who are seeking basic certification in echocardiography, including passing the Basic PTEeXAM®. Each chapter in this book is designed to address the core competencies that are tested in the basic exam and prepare the practitioner for the basic certification. In addition to being a valuable and practical guide to obtaining certification, we hope that this textbook becomes a successful resource for the application of echocardiography into your clinical practice.

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