

## Book Review

### *Comprehensive Intraaortic Balloon Counterpulsation, 2nd Edition*

Copyright 1993  
by Susan J. Quaal

Mosby-Year Book, Inc.  
11830 Westline Industrial Drive  
St. Louis, Missouri 63146  
(800) 426-4545

Price: \$36.95  
581 pages; 35 chapters in 6 parts  
24 contributors

This 2nd edition of the 1983 "classic" intraaortic balloon counterpulsation (IABC) text by Susan J. Quaal not only updates information on instrumentation, insertion techniques and timing, but also presents several new topics. Total quality management, IABC in the community hospital, pediatric and pulmonary artery IABC, and air transport of the patient on IABC are some of the additions to this edition. As Dr. S.D. Mouloupoulos points out in the Foreword, IABC continues to be the least traumatic of cardiac assist devices and the most commonly used. It is imperative for the clinician to be cognizant of the basic physiological principles underlying IABC and to be completely familiar with the technical aspects of providing this support. Susan Quaal's book succeeds in presenting a comprehensive knowledge base to accomplish this.

The book comprises 35 chapters arranged logically in 6 parts. Each chapter is extensively referenced. There is a detailed and complete index. The format makes this an ideal reference book as well as a text to be read in its entirety.

Part 1 (5 chapters) is aptly called "The Myocardial Pump." Cardiac anatomy and physiology are presented in a way that leads to a specific understanding of left heart function and failure. This is the primary prerequisite for comprehending the application and hemodynamics of IABC. The last chapter of this section reviews pharmacology for left heart failure. "The Myocardial Pump" should be required reading for anyone operating the intraaortic balloon pump (IABP).

The next logical step is taken in Part 2, "Clinical Application of Intraaortic Balloon Counterpulsation (IABC)." The first of nine chapters details the basics of IABC and its effect on the circulation. This is built upon in the next chapter, "Interactive Hemodynamics of IABC." There is an excellent discussion of myocardial oxygen demand and supply, coronary perfusion,

preload and afterload, concepts you are prepared to understand after reading Part 1. The rest of this section provides a thorough review of indications, contraindications, complications, and insertion techniques. Specific information on percutaneous and antegrade insertion is included. Balloon size selection is also discussed and formulae are offered.

The five chapters in Part 3, "Interfacing Counterpulsation to the Patient's Cardiac Cycle," get down to the nuts and bolts of IABC. The section starts with an in depth review of how to calibrate transducers to ensure an accurate trace and follows with a description of hemodynamic pressure monitoring. Derived indices such as systemic vascular resistance (SVR) and left ventricular stroke work index (LVSWI) are defined and explained. A very helpful table for troubleshooting problems with a pulmonary artery catheter is included. Part 3 ends with exercises. Twenty arterial pressure waveforms are presented. You are asked to comment on the timing of inflation and deflation (e.g., early or late) and then to discuss the hemodynamic consequences of any improper timing and to describe corrective measures that should be taken. The answers and a thorough discussion of each exercise are provided. These exercises would be especially helpful to maintain skills when the IABP is not used frequently in your practice.

"Patient Management" is covered in the five chapters in Part 4. Nursing care is the focus of the first chapter. Three case studies are presented in the following chapter. Although many nursing considerations are included, you are also asked to calculate balloon size and volume, parameters such as SVR and oxygen delivery, and to comment on balloon timing. The answers and a discussion of each scenario are then given. The remainder of this section addresses IABC in the community hospital setting, weaning criteria and techniques, and a thorough chapter on organizing a total quality management program. This chapter would be especially helpful to anyone charged with implementing such a program.

Part 5, "IABC Instrumentation" begins with the history of balloon pump development and then devotes a chapter to each of the five major IABC systems currently available. Comprehensive information is presented on system specifications and components, timing and troubleshooting.

The concluding five chapters comprise Part 6, "IABC in Special Situations." Ambulatory IABC is covered in a concise chapter, as are pulmonary artery balloon counterpulsation, pediatric IABC, and air transport. The chapter on air transport is

quite interesting and reviews pertinent physiology of flight. It discusses the problems caused by acceleration, vibration, and noise. A list of necessary items and ideas for preflight assessment and transport logistics are presented. The final chapter, "Balloon Pumping and Beyond," discusses some of the new directions being studied for mechanical assistance to circulation in the presence of the failing myocardial pump.

I would highly recommend this book for your personal and institutional libraries. It will be a valuable teaching, continuing education, and reference text.

Phyllis Palmer Stark, BA, CCP  
Renton, WA