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# Book Review

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*Cardiopulmonary Bypass: Current Concepts and Controversies. A Society of Cardiovascular Anesthesiologists Monograph.* Edited by John H. Tinker, MD, Copyright 1989, WB Saunders Company, Philadelphia; 156 pages, illustrated, indexed. \$45.00

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This monograph from the Society of Cardiovascular Anesthesiologists (SCA) offers the reader seven reviews of controversial topics in clinical perfusion. The authors present their subjects in a concise matter and include excellent references at the end of each review. Dr. John H. Tinker, professor and head of the Department of Anesthesia at the University of Iowa College of Medicine skillfully organizes a vast and diverse scope of knowledge in this book.

It is appropriate that the first chapter addresses the most controversial aspect of cardiopulmonary bypass (CPB): acid-base management. This fine review covers the historical background, theoretical basis, comparative physiology and implications for acid-base management during CPB in humans. Although overwhelming evidence supports the alpha-stat technique, the authors cautiously withhold their endorsement until well-controlled clinical studies are completed.

The following chapters examine the effect of extracorporeal circulation on cerebral physiology and function and possible factors that cause central nervous system complications. Recommendations regarding acid-base strategy, arterial blood pressure, systemic blood flow, pulsatile bypass and cerebral protection are presented by the authors.

Chapter Four offers a large table describing the effects of cardiopulmonary bypass on the pharmacokinetics of various drugs. The focus of this chapter evolves around the hypothesis that specific anesthetic techniques may improve a patient's recovery. Clear arguments and a comprehensive summary of the adrenergic response support the author's supposition.

"Hemostasis During Cardiopulmonary Bypass" is the book's fifth and shortest chapter. Drs. Ellison and Jobes point out the dangers of preoperative fibrinolytic therapy, inadequate anticoagulation, heparin-induced thrombocytopenia and excessive protamine administration. Clinicians are cautioned against the imperial transfusion of homologous blood products. The best segment of the chapter details a brief literature review on anticoagulation. The authors introduce rational guidelines on heparin management and its reversal for cardiopulmonary bypass. Readers wanting more information are encouraged to read last year's SCA monograph devoted to this subject.

Discontinuation of CPB is one of the most critical periods during cardiac surgery. When preparing to wean from bypass, all clinical parameters must be optimized. The sixth chapter clearly cites these factors. Inotropic agents (with a strong preference for epinephrine) and vasodilators are covered. The routine administration of calcium chloride is criticized. Sections on right ventricular failure and Amrinone are satisfactory, but little information is introduced on mechanical assist devices.

In the final chapter, Dr. James K. Kirklin summarizes the clinical sequelae of the post-perfusion syndrome and describes the humoral amplification and complement systems. Their adverse effect on microvascular permeability, pulmonary function and blood coagulation are clearly noted. Dr. Kirklin emphasizes the role of the protamine-complement interaction and the deleterious effects that many clinicians observe.

Readers familiar with the format of other review publications such as Critical Care Clinics and Surgical Clinics (WB Saunders Company, Philadelphia) will enjoy this reference. The book is well illustrated and contains a complete index. This authoritative monograph will enrich other anesthesia textbooks and is highly recommended.

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