

Perioperative Medicine: Managing for Outcome, 2nd Edition

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This book is edited by two anesthesiologists and two surgeons, and the contributors are, with the exception of one medical intensivist, all anesthesiologists, anesthesiologists/intensivists, and surgeons. The first edition was published in 2008. The current edition begins with three chapters on how perioperative care affects long-term outcomes, and how inflammation and hemostasis have a role in so many of the perioperative complications. In a very logical fashion, the chapters that follow begin with preoperative assessment, then merge into intra- and postoperative preservation of the integrity of all the major organs/systems, with special coverage on some common operations and perioperative problems.

The chapters are written in a scholarly fashion with emphasis on evidence-based information. Where published experimental and observational data are lacking, the authors' opinions are occasionally offered, which, in our view, is great. The chapters read like peer-reviewed journal review articles that are well referenced. This is not a "how-to" book or "cookbook," so detailed guidance on how to manage cases is not found here. It is a useful reference book that complements the major anesthesiology textbooks.

The topics are thoughtfully chosen and expertly researched. There are, however, some omissions that, in our opinion, should be considered for inclusion in the next edition, assuming they will still be relevant. Some of these omissions include pediatric perioperative outcomes, management of problems that may occur in patients with central nervous system injury, and details on the management of uncontrolled bleeding.

Pediatric perioperative outcomes receive little coverage. Common issues such as postoperative apnea, prematurity and related issues, the presence of upper respiratory symptoms in elective surgery, foreign body aspiration, Down syndrome, and pediatric regional analgesia are missing. The chapter on acute respiratory failure would have been a good place to discuss the practical approach to the case of a child (or adult) who has vomited (with possible aspiration) after extubation.

There is a great deal of real estate devoted to assessment of the cranial nerves in the chapter (24) on central nervous system injury. Although this very basic examination that is covered in many textbooks is important, relatively little of the book is devoted to management of some very important problems. Take ventilator-associated pneumonia

as an example: the only point that is mentioned is that intensive care units all have a certain bundle of care for prevention. Details are missing; with the exception of oral decontamination mentioned in Chapter 20, "Prevention and Treatment of Postoperative Pulmonary Complications," other measures are lacking. Use of the Shiley™ Evac endotracheal tube with TaperGuard (Covidien LLC, USA) is not mentioned anywhere, including the sections on intubation in cervical spine and head injuries.

Chapter 27, "Perioperative Management of Bleeding and Blood Transfusion," feels inadequate without deeper discussion on the use of tranexamic acid. Although Clinical Randomization of an Antifibrinolytic in Significant Hemorrhage 2 (CRASH-2) and World Maternal Antifibrinolytic (WOMAN), the meta-analyses of tranexamic acid in spine surgery and cardiac surgery trials for trauma, postpartum hemorrhage, spine surgery, and open heart surgery, respectively—and by default in congenital thrombocytopenia—are included in different chapters of the book, there is no mention of the antifibrinolytic agents used for otolaryngologic and maxillofacial surgeries, liver transplantation, or hip, knee, and shoulder arthroplasties. Also lacking is the use of tranexamic acid in patients with bleeding disorders such as hemophilia and von Willebrand disease.

The coverage of postpartum hemorrhage is very superficial (in Chapter 29) with, for instance, no mention of the various drugs used for treating uterine atony. The WOMAN trial is mentioned in one sentence with no dose given (as mentioned, this is not a how-to book).

Regional analgesia has seen great advances since the first edition, but is only minimally discussed in this second edition, in spite of its importance in perioperative outcomes. Blocks (e.g., erector spinae plane and rectus sheath blocks) could usurp epidural in certain scenarios but are not covered. Even though regional analgesia has not been shown to be superior to parenteral opioids in patients with rib fractures (in a meta-analysis of four randomized controlled trials published between 1989 and 2004 [none of which are cited]), it is widely believed to be immensely useful; however, that message is not conveyed. In the chapter on major orthopedic surgery, authored by four surgeons, there is no mention of regional analgesia to facilitate postoperative mobilization after lower limb surgery. The statement that nerve block weakens the muscle is—in the case of

knee surgery—no longer valid as adductor canal block (which targets the saphenous nerve—a purely sensory nerve) has now replaced femoral nerve block with minimal to no effect on the quadriceps muscle motor function. Interscalene block or a phrenic nerve-sparing block (e.g., superior trunk block) for shoulder arthroplasty is now routine but not mentioned. Fig. 39.1 shows how to prevent postoperative atelectasis, but epidural analgesia is the only regional modality mentioned, when there are many other choices in our current clinical practice suitable for many different scenarios. These chapters and others could have benefitted from a combination of anesthesiologists and surgeons on the panel of authors. Lidocaine and ketamine infusion are useful analgesic options not discussed.

In “Prevention of Ischemic Injury in Cardiac Surgery” (Chapter 11), more updated references are needed, with the exception of the section on cardioplegia. For example, in the section on transfusion strategy, there is no reference to the Transfusion Requirements in Cardiac Surgery (TRICS III) study from Mazer *et al.* (N Engl J Med 2017; 377:2133–44. doi:10.1056/NEJMaol711818) on restrictive or liberal erythrocyte transfusion. There was an accompanying opinion piece in the *Journal of Thoracic and Cardiovascular Surgery* from Levy and Steiner (2019; 157:1038–40. doi:10.1016/j.jtcvs.2018.10.108) on this paper. At the very least, the readers should be directed to chapter 27, where TRICS III is discussed. The report on 5-yr outcomes between off- and on-pump coronary artery bypass grafting by Lamy *et al.* (N Engl J Med 2016; 375:2359–68. doi:10.1056/NEJMoal601564) could also have been referenced.

Chapter 13 offers an excellent review on cardiac surgery. While *Miller's Anesthesia* makes no mention of vasoplegic syndrome, this important subject is at least mentioned here. We would like to have seen reference to use of right-sided central venous monitoring in addition to the rarely used pulmonary capillary wedge pressure for optimizing preload conditions.

Fig. 31.1 is taken from a 1999 reference. It could be updated by including tranexamic acid (in addition to ε-aminocaproic acid) as an option for an antifibrinolytic agent. Similarly, concentrated fibrinogen is another excellent source of fibrinogen (cryoprecipitate is the only one listed).

Fig. 39.3 gives the algorithm for acute hypoxemia in the intubated patient. Missing are nonrespiratory causes such as circulatory collapse and endobronchial intubation from head/neck positioning changes.

In discussing hyponatremia and hypernatremia in the chapter on endocrine and electrolyte disorders, adjustment of sodium level (which has implications in dialysis and correction of hyponatremia) for the effect of hyperglycemia should have been covered. Also, hypothyroidism having an association with hyponatremia is missing from the list of differential diagnoses. There is also no mention of the effect of albumin levels on serum calcium in the section on hypo- and hypercalcemia.

It is odd that in the section on use of somatosensory evoked potential and motor evoked potential for spinal surgery (such as scoliosis), there is no mention of the avoidance of volatiles, muscle relaxants, and benzodiazepines. Interference with these monitoring modalities can prevent spinal cord injury from being noticed in a timely fashion. There should be a cross-reference to Chapter 23 in which motor evoked potential and somatosensory evoked potential are discussed and the anesthetics to avoid.

The patient with substance abuse and the issue of postoperative opioid prescription and patient education on the serious ongoing opioid epidemic are not discussed in any context.

Finally, the indexing can use some improvements in completeness.

As mentioned, this is an excellent resource for all perioperative practitioners, and we hope that these suggestions/criticisms do not give a negative impression as they are offered simply as advice for refinement. Thus, we do wish to reiterate how informative we feel this book is to healthcare professionals involved in perioperative care.

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