Neural Blockade in Clinical Anesthesia and Pain Medicine, 4th edition. Edited by Michael J. Cousins, A.M., M.B., B.S., M.D. (SYD), F.A.N.Z.C.A., Daniel B. Carr, M.D., D.A.B.P.M., F.F.P.M.A.N.Z.C.A. (Hon), Terese T. Horlocker, M.D., Phillip O. Bridenbaugh, M.D. Philadelphia, Lippincott Williams & Wilkins, 2009. Pages: 1,306. Price: $210.00.

Amazing progress has been made in the field of regional anesthesia and pain medicine since the publication of the third edition of *Neural Blockade* a decade ago. The current edition takes on the daunting task of presenting these advances in a body of work that is wide in scope, ranging from basic concepts, such as the clinical pharmacology and molecular neurophysiology of local anesthetics, to more macro concepts, such as socioeconomic factors and racial disparities in chronic pain management. One is easily impressed by the sheer magnitude and breadth of this text, which totals 1,306 pages. Of note, this edition has the added benefit of being online, thus facilitating access to its vast contents, tables, illustrations, and images. Seventeen chapters have been added to the new edition, and the number of authors has grown from 52 to a formidable 90, representing 15 countries. The depth of such expertise is consistently evident throughout.

In keeping with the idea that one must look back and acknowledge "from whence we came," the book begins with a chapter devoted to the history of regional anesthesia. The full spectrum of thought concerning pain and neural blockade is presented within a historical context, ranging from the early ideas of Plato and Aristotle to relatively more advanced frameworks such as the gate control theory of Melzack and Wall, to the even more modern concepts of multimodal analgesia and preemptive/preventive analgesia. Key events, such as the groundbreaking development of cocaine as a local anesthestic, and their consequences are discussed in detail as is the development of special techniques, including spinal anesthesia, obstetric anesthesia, epidural anesthesia, and paravertebral anesthesia. Interestingly, none of the initial discoveries within the realm of neural blockade involved anesthesiologists but were pioneered by surgeons and basic scientists. The gradual changing of the guard from surgeon anesthetist to regional anesthesiologist specialist is discussed in fascinating detail, culminating in the founding of the American Society of Regional Anesthesia and the emergence of regional anesthesia as a subspecialty of anesthesiology.

The book is then divided into four major parts. The first covers the pharmacology and neurophysiology of local anesthetics in such fine detail that it is reminiscent of one's medical school basic science lectures. Applied concepts, such as the possible role of neural blockade in modulating the metabolic stress response to surgery and the controversial role of neural blockade in influencing patient outcomes postoperatively, are also discussed. The second part covers the different techniques of neural blockade, including neuraxial blockade (spinal and epidural), peripheral nerve blockade (upper and lower extremity as well as intravenous neural blockade), techniques for neural blockade of the thorax and abdomen, and techniques for neural blockade of the head and neck. This part is replete with detailed reviews and illustrations of basic anatomy as well as detailed discussion of the neurologic complications of these techniques (discussion of complications is the focus of two chapters). That this section includes an entire chapter on neural blockade of oral structures and details techniques used exclusively by dentists again reflects the comprehensive scope of this book.

Part three focuses on applications of neural blockade within the operating room. Theories and techniques specific to head and neck surgery, orthopedics, pediatrics, ambulatory surgery, obstetrics and gynecology, cardiovascular surgery, thoracic surgery, and abdominal surgery are described. The final part of the book focuses on pain medicine, with chapters covering topics ranging from the pharmacologic, neurochemical, and neurophysiologic aspects of pain to its psychologic, behavioral, and socioeconomic aspects. Research findings surrounding the complex pathways that regulate nociceptive processing and pain transmission within the spinal cord are explored. These more basic science chapters are augmented by additional chapters describing the various clinical techniques of neural blockade, including sympathetic, intrathecal, neurostimulation, and percutaneous neural destructive techniques, as well as the complications associated with the same. How these techniques and the use of multimodal analgesia are applied to pain management among special patient populations (*i.e.*, oncology, complex regional pain syndrome, pediatrics, geriatrics, palliative care) is the focus of the remaining chapters of this text.

Each chapter simultaneously reinforces others and stands on its own. At no point does the information presented seem overly repetitive. All of the information presented is evidence-based and is backed by exhaustive literature review. Of note, there is one rare instance when the information presented in one chapter is inconsistent with that presented in another. In their discussion of the Bezold-Jarisch reflex associated with interscalene block in awake shoulder surgery patients in the beach chair position, the authors of Chapter 13 describe "a hyperdynamic myocardium . . . that vigorously contracts against an empty ventricle (decreased preload from the beach chair position). These conditions combine to activate mechanoreceptors in the ventricular wall and reflexively cause bradycardia (Bezold-Jarisch reflex). The frequency of this complication can be reduced by titrating metoprolol or similar β-blocker . . . but is unaffected by prophylactic glycopyrrolate" (p. 325). This explanation is in contrast to the one presented in Chapter 25 in which the author purports that "this reaction has been misinterpreted as an activation of the Bezold-Jarisch reflex . . . as this reflex is activated by an overfilled ventricle and never by hypovolemia. Consequently, β-blockers are not required as prophylactic or therapeutic agents, and management of these vasovagal reactions

include fluid loading, ephedrine, atropine, and finally epinephrine use if necessary" (p. 572).

As a current regional anesthesia fellow with special interest in peripheral nerve blockade, I was pleased with how the information on peripheral nerve blockade was presented. Each technique is described in a manner that is easy to read and understand. Relevant anatomy and important anatomical relationships are reviewed. Detailed information regarding specific indications for each block and complications associated with each block are outlined. Many illustrations accompanying the text help only to augment one's understanding of each technique in relation to the anatomical site of interest. Again, the authors leave no stone unturned when describing the various techniques. For example, when some texts may describe two or three different techniques for the sciatic nerve block, five are described in this text. This is yet another testament to the comprehensive nature of this book, which is its strength. The use of ultrasound is also covered but is done so primarily within the context of upper extremity brachial plexus, intercostal, and abdominal blockade (rectus sheath, ilioinguinal/iliohypogastric, and transversus abdominus plane blocks). With the rapid increase and ever-expanding use of ultrasound for a wide variety of blocks and techniques (including lower extremity, epidural, and paravertebral), future editions of this text will no doubt include entire chapters devoted to this important technological advance in the field of neural blockade.

Other hot topics in the field, such as the possible development of effective targets for the treatment of persistent pain *via* the identification of novel voltage-gated sodium channels and advanced concepts surrounding peripheral and central sensitization, are discussed in detail. With an eye to translating theory into lasting therapeutic benefit, the text ends on an optimistic note as new treatments in pain medicine are eagerly anticipated.

Taken together, the editors of *Neural Blockade* have hit the mark in terms of producing a comprehensive, cohesive text that is a must-have in the personal library of the anesthesiologist, with special interests in regional anesthesia and pain medicine.

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(Accepted for publication March 15, 2010.)