BOOK REVIEWS

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Malignant Hyperthermia: A Genetic Membrane Disease. Edited by S. Tsuyoshi Ohnishi and Tomoko Ohnishi. Boca Raton, Press, 1994. Pages: 331. Price: $129.95.

This book, edited by S. Tsuyoshi Ohnishi, Ph.D., and Tomoko Ohnishi, Ph.D., begins with a poem by one of the editors. It describes the surprise of malignant hyperthermia (MH), the dread and lethality, and the hope for the future. The introduction, which in a page describes muscle contraction and subcellular separation of the organelles involved in muscle contraction, does not adequately prepare one for what is to follow. The expectation is a dry but important thesis concerning the biophysical basis of MH. The first three chapters are written by family members of MH victims. The recollections of these disasters date back 25–30 yr, but for any who have been involved with MH, the descriptions are moving and disturbing. Part 2 of chapters 2 and 3 describe the development of MHAUS (Malignant Hyperthermia Association of the United States) and the British MH Association, patient-formulated organizations committed to patient and health-worker education and development of the MH Hotline.

The book then turns to a more standard format. Overall it consists of five parts, I. Prologue, II. History, III. Current Understanding, IV. Diagnosis, and V. New Developments. However, part II does not allow us back into our more standard perusal of biophysical literature but rather arrests us again with the recollections by Werner Kalow, and subsequently, Gaisford Harrison of the "early days of MH." Michael Denborough, a geneticist from Australia, is gracefully acknowledged by Kalow to have the clinical acumen to "listen" to his patient and subsequently describe MH in the medical literature. The entry of other significant figures into MH, *e.g.,* Beverly Britt, is also described by Kalow. In chapter 5, Harrison then enumerates the recognition of MH in the pig and the debt, we who have benefitted from MH research have to thank the liver transplantation program at the University of Capetown. Harrison lists the original members of the research group and—again, a surprise—the name of Dr. Julian Biebyck appears, at that time he was an Anesthesiology resident at the University of Capetown, now Chairperson of Anesthesiology at Pennsylvania State University. Harrison describes the initial recognition of MH in the pig, the determination that it was a genetic disorder, and the frustration of not being able to stop its progression once it initiated.

Finally, in chapter 6, we arrive at the basic biochemical, biophysical explanation of this disorder by Ohnishi, but again we're in for a few surprises. Ohnishi continues the historical perspective, but this is a more personal retrospective of his own research career including the important development of the rapid-flow spectrophotometric measurement with the metallchromic dye murexide while working in the laboratory of the pioneering muscle biochemist Setsuro Ebashi. This personal treatise not only includes the scientific setbacks and advances but also describes, occasionally in embarrassing detail, the difficulties encountered by an immigrant scientist in the U.S. and the continued instability that we are all plagued with in dealing with the competitive and, apparently, idiosyncratic granting mechanisms. If you are currently having funding problems, reading this chapter would alleviate one's own sense of paranoia. The overall gist, however, deals with Ohnishi's own research achievements and highlights the description of an abnormal Ca^{2+} release channel in MH muscle, first published with Drs. Stuart Taylor and Gerald Gronert in 1983.

Part III begins with a description of the clinical features of MH in humans. It is brief and to the point and, importantly, points out that "MH is a clinical diagnosis." This chapter does not replace more in-depth discussions found in standard anesthesia text but rather points out that much of our knowledge of MH is dependent on case reports and emphasizes a few important clinical manifestations of this disorder. Ensuing chapters describe the porcine and canine syndromes, the relationship to drug-induced hypermetabolic syndromes, and the possibility of free radical involvement in MH. All information-filled and worth reading if one is interested in particular aspects of MH.

Chapter 13, written by Britt, is of particular importance to all involved in MH, whether investigator, physician, anesthesiologist, anesthetist, or consultant. This chapter describes in detail the caffeine-halothane contracture test and, specifically, the North American protocol.

It has taken years to develop a uniform protocol adhered to by all biopsy centers in North America. A disappointing feature of this book is that a representative of the European MH Consortium was not asked to present their protocol and data. Certainly, the development of uniform criteria and attempt at a description of the genetics has been pioneered by the European MH group.

Subsequent chapters deal with various other methods of diagnosis or research. Skinned muscle studies are described by a renowned muscle physiologist, Makoto Endo, fluorescence studies of lymphocyte are discussed, and use of muscle homogenates for diagnosed are proposed. Each methodology is unique to certain laboratories, each is fraught with technical problems, and each is a long distance from demonstrating utility as a widely employed diagnostic method.

The final section of the book, part V, is concerned with new developments in MH and focuses on the genetics of MH and the use of genetic techniques for diagnosis; MacLennon *et al.,* who first described the porcine genetic defect, the Ca^{2+} release channel gene and the genetic homogeneity of porcine MH and apparent genetic heterogeneity of human MH.

The chapter from O'Brien's group (chapter 19) describes the specific methodology for genetic diagnosis of the porcine stress syndrome (PSS). This is a particularly useful chapter, not only for the specific information regarding PSS but for general information regarding genetic screening for any known mutation. Importantly, they also describe the costs involved with genetic screening; whereas startup costs are approximately $40,000 and considerable expertise is required, each assay costs only $3.

In the final chapter, the hopes and frustration of MH genetic screening is described. The excitement that initially grew from the discovery of a specific MH mutation for the porcine syndrome has evaporated as further studies into human MH diagnosis have demonstrated considerable heterogeneity and the likelihood, if not the certainty, that genetic screening for MH is unlikely to become a broadly based diagnostic procedure, *i.e.,* once again, we must rely on carefully controlled contracture testing, in-depth family history, and most importantly, close attention to the clinical story to make a diagnosis of MH.

In summary, this is an interesting and valuable book. The writing is somewhat uneven, but the story told is worth the effort by the

reader. Each reader will find areas of interest and important information about this lethal and frustrating disorder.

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Pediatric Trauma Anesthesia. Edited by J. M. Berman and C. M. Grande. (**International Anesthesiology Clinics.** Volume 32. Edited by T. W. Feeley.) Boston, Little, Brown and Company, 1994. Pages: 176. Price: $39.00.

In 1981, when I had my first rotation in pediatric anesthesia with Ed Lowe at Cincinnati Childrens Hospital, there was very little discussion of trauma anesthesia care. Emergency medical systems were less developed. Many times, only patients with "survivable" injuries were transported. Now, perioperative care of the pediatric trauma patient is an emerging specialty, and all anesthesiologists and intensivists should be familiar with it.

Drs. Jeffrey Berman and Christopher Grande, under the auspices of the International Trauma Anesthesia and Critical Care Society, have produced a volume of the *International Anesthesiology Clinics* devoted to topics in pediatric trauma anesthesia. Overall, the text is a well researched multi-author work, although like many "review" series, it suffers from some shortcomings: conspicuously absent are chapters relating to traditional trauma subjects such as burns, drowning, head injury, thoracoabdominal trauma, and penetrating injuries.

There are, however, some genuine shining stars in the text. Steven Hall and Alexandra Mazurek have produced a pair of chapters that constitute a remarkable, if somewhat depressing, exposé of trauma patterns and demographics. Their chapters clearly reflect the urban nature of their practice but will be of value to all pediatric caregivers. There also are a number of very good, practical clinical pearls. Gavin Elliott has collected a number of handy formulas that should allow those who don't routinely care for children to estimate the diameter and size of endotracheal tube required (these formulas are all available elsewhere, but I've never seen them assembled in one place). Michael Badgewell has presented an interesting correlation that I had never thought of before—the wiggle, open, answer rule (that is, children who can wiggle their toes to command, open their eyes, and answer questions) for rapid estimation of Glascow coma score. Badgewell's chapter also contains a timely summary of the American Academy of Pediatrics guidelines for sedation.

There are some areas that were distracting because of minor inaccuracies: it is noted that H_2 agonists and metoclopramide *decrease* (emphasis mine) gastric *p*H (page 37), the use of uncommon units such as the reference to a 20 Charriere chest tube (page 63), and opioid dosages that usually are not considered equi-analgesic (page 68). There were some statements that I am unable to confirm, such as on page 116, "Tricyclic antidepressants . . . are the most widely prescribed drugs. . . ." Most intriguing is a statement with an incomplete reference dealing with cyanide toxicity: "Lethal effects of CN can be reversed by artificial respiration" (page 109).

These minor glitches aside, this text is an admirable effort on the part of all authors and editors and deserves a place on the shelf in every anesthesia department library.

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Max Brödel: The Man Who Put Art into Medicine. By R. W. Crosby and J. Cody. New York, Springer, 1991. Pages: 352. Price: $49.00.

Those of us who became physicians after 1950 may believe that medical illustration began with Frank Netter. This book, a biography of Max Brödel (1870–1941), will dissuade them. According to the authors, Brödel established current standards for medical illustration while he worked as an illustrator at Johns Hopkins Hospital during its formative years. There he founded a school of medical illustration and trained many students who made important contributions to the field. Among his friends and colleagues he included Harvey Cushing, then Assistant Resident under William Halsted, gynecologists Thomas Cullen and Howard Kelly, internist William Osler, and obstetrician J. Witteridge Williams. Brödel's drawings illustrate textbooks by Cullen and Kelly and many early papers by Cushing. Brödel was a close friend of Baltimore columnist and satirist H. L. Mencken and long a member of Mencken's famous "Saturday Night Club," an informal group that met weekly to socialize, drink beer, and make music—Brödel was an accomplished pianist.

Born in Leipzig, Germany, to a family of modest means, Brödel studied at the art institute there. After graduation he worked for a time in the laboratory of Carl Ludwig, world famous physiologist and inventor of the kymograph drum and the stromuhr, an early apparatus for measuring blood flow. While working in Ludwig's laboratory, Brödel met two American postdoctoral students, William Henry Welch, soon to be appointed Dean of the newly formed medical school at Hopkins, and Franklin P. Mall, whom Welch would select as the school's first chair of the anatomy department. Both men helped recruit Brödel to Hopkins, where he would remain for the rest of his career.

Several things make this biography interesting. First, it tells of the work of a man who made important contributions to the development of modern medicine: Illustrations were essential for the dissemination of information about new surgical techniques, many of which were developed at that time. In a sense, Brödel's move from Ludwig's laboratory to Johns Hopkins symbolizes the transfer of leadership in medicine from prewar Germany to the United States. The book also contains fascinating vignettes of social life in Baltimore and the medical community of Johns Hopkins at the turn of the century. In this regard, the book nicely complements biographies of Welch by the Flexner brothers,[1] of Osler by Cushing,[2] and of Cushing by John Fulton.[3] The book also serves as a sobering reminder of the impotency