
Preface to the First Edition

Approximately 14% of the current US population is 65 years of age or older. By the year 2020, it is predicted that 20% or 60,000,000 Americans will reach this milestone. Further, if today's statistics continue unchanged, at least half of these individuals will undergo anesthesia and surgery, likely of increasing complexity, prior to their eventual demise. The geriatric patient population represents a huge and growing challenge for anesthesia providers the world over.

My interest in the anesthetic management of geriatric patients was kindled 15 years ago while on the faculty at Bowman Gray. One of our surgeons asked me to anesthetize his healthy 72-year-old father. All went well in the intraoperative and postoperative periods, and he was discharged home in the customary time frame. However, my colleague later reported that he had observed subtle psychomotor changes in his father which persisted postoperatively for 7 weeks. It dawned on me that perhaps the geriatric patient is not simply an older adult, but, rather, a truly different physiologic entity. What could explain the relatively commonly observed delayed postoperative return of normal mentation in the geriatric surgical patient? It is this and other unanswered questions regarding the anesthetic management of the elderly that stimulated the development of this text.

Geriatric Anesthesiology is designed to be a comprehensive text that methodically addresses the aging process while emphasizing important clinical anesthetic considerations. The first two sections of the text define the demographics of our aging population and describe age-related physiologic changes that occur in each major organ system. The third section addresses the multitude of factors that contribute to a safe and successful anesthetic with suggested adjustments in technique that may improve anesthetic management of the elderly. Topics range from preoperative evaluation and risk assessment to the altered effects of various classes of drugs with further discussion regarding positioning, thermoregulation, perioperative monitoring, and postoperative recovery. In addition, issues such as management of pain syndromes, outpatient anesthesia, medicolegal implications, and even special CPR techniques in this age group are considered. The fourth section identifies the ten most commonly performed surgical procedures in the elderly and, for each, offers recommended anesthetic techniques. The text ends with an intriguing exploration into future research opportunities in the field, including molecular mechanisms of aging.

Considerable energy has gone into the creation of this text. I am grateful for the significant efforts made by all the contributing authors and especially appreciate contributions made by the editors from Williams & Wilkins. The text would have been impossible to complete without the encouragement, dogged determination, and professionalism of Ms. Tanya Lazar and Mr. Carroll Cann. Tim Grayson was innovative and supportive during the original design and formulation of this project.

I am optimistic that this text will heighten the awareness of the very real clinical differences presented by the geriatric patient population. Perhaps by referring to appropriate sections in this text, anesthesia providers will be armed with a better understanding of the physiologic changes of aging and the recommended considerations and modifications of anesthetic technique, which we hope will contribute to an ever-improving outcome for the geriatric surgical patient population.

Charles H. McLeskey

Preface to the Second Edition

Do not go gentle into that good night, Old age should burn and rave at close of day; Rage, rage against the dying of the light.

Dylan Thomas

The goal of getting older is to age successfully. Unfortunately, the majority of our older patients will have acquired one or more chronic medical conditions as they age, and, even if a perfectly healthy older patient presents for surgery, that patient's ability to handle physiologic stress will be diminished, including the stress of surgery. Nearly half of all surgical procedures involve patients older than age 65, and that percentage is likely to increase as the US population ages. Thus, the perioperative care of the older patient represents one of the primary future frontiers of anesthetic practice. Even though perioperative mortality has diminished for the elderly, as well as for the population in general, the growing number of cases spotlights perioperative morbidity and mortality as an important issue for patients and healthcare systems alike. The vision set forward by the first edition (i.e., to apply the growing body of knowledge in this subspecialty area to the everyday practice of anesthesiology) remains the mission and vision of this second edition. The editors believe that the updated contents of this edition represent an important opportunity to consolidate and organize the information that has been acquired since 1997 and to apply that knowledge to the current practice of anesthesiology.

Part I contains several new chapters on topics that may not always seem to be directly involved with anesthetic care, but are important to the future of medical and anesthesia care. An understanding of the aging process may lead to methods of slowing its progression or at least of ameliorating some of its consequences, including the development of chronic disease. Most anesthesiology residency programs provide limited formal teaching of geriatric anesthesia. The editors believe the incorporation of relevant subspecialty material in the anesthesiology curriculum is needed to improve care for this patient population. The realities of reimbursement for services rendered to the older patient, either by Medicare or other payers, warrant the attention of all anesthesiologists who provide care for older patients. Ethics as applied to treatment of the older patient is also addressed. The medical management of this population is often complicated by issues such as patient goals that differ from physician expectations, physician "ageism," patient cognitive impairment, and the physician's failure to recognize the true risk of surgery and attendant recovery time. The last chapter of Part I reviews current knowledge and suggests research areas where the greatest impact on patient outcomes might be realized.

Parts II and III review the physiology of aging and the basic anesthetic management of the geriatric patient, and Part IV examines selected surgical procedures frequently performed in older patients. Not all of these chapters are specific to anesthetic management. Geriatric medicine is a broad field with many relevant topics. Wound healing is a perfect example. The reality is that anesthesiologists can likely have a positive impact on patient care by being better able to recognize conditions that may compromise skin when other medical professionals may fail to and, as a result, can improve protection of the skin, especially during long operating room cases. In contrast, polypharmacy and drug interactions, major topics in geriatric medicine, have direct relevance to anesthetic management. The cardiac surgery chapter is an example of

how age affects outcomes after a specific type of surgical procedure. The unusual aspects of anesthetic management for cardiac surgery revolve mostly around the patient's underlying disease status rather than there being anything specific to cardiac anesthesia in the older patient beyond the principles delineated in Parts II and III.

For chapters similar to those in the first edition, an effort has been made to update content and incorporate studies that examine outcome. Such work helps us challenge conventional wisdom and sometimes test novel ideas that prove beneficial. Even the most casual reader of this textbook will recognize huge gaps in our present knowledge. It is not sufficient, for example, to take an understanding of the physiology of aging and draw conclusions regarding anesthetic management from that information. Oftentimes, however, we are forced to do just that when making anesthetic management decisions. The editors hope the future will provide better research and answers that advance the field of geriatric anesthesiology.

The editors thank the many authors of this text. In addition to their hard work, they responded to entreaties for revisions and updates with admirable patience and promptness. Their contributions expand our knowledge and will improve the care of elderly patients.

Lastly, the editors thank Stacy Hague and Elizabeth Corra from Springer. Without their vision and determination, this book would not exist.

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Preface to the Third Edition

People all over the world are living longer. In fact, by percentage change, the over-65-year-old group is the fastest growing age group worldwide. According to the U.S. Census Bureau, by year 2030, nearly 20% of the population will be 65 years of age and older. Considering the burgeoning population and the fact that patients aged 65 and older are receiving procedures in disproportionate numbers to younger patients, it is imperative that anesthesiologists be prepared to care for an ever-increasing number of elderly patients. Thus, evidence-based perioperative care of the geriatric patient will only continue to grow in importance for the practicing anesthesiologist.

The mission of this edition remains the same as the previous two editions: to assemble the growing body of knowledge in geriatric anesthesia and provide it to the anesthesiologists for use in the everyday practice of anesthesia. However, as our knowledge regarding perioperative care of the elderly surgical patient grows, so do our questions. In this edition, we have asked all authors to include a section within each chapter entitled “Gaps in Our Knowledge.” These sections highlight areas in which research is needed, as well as hopefully inspire readers to begin solving some of these questions.

This edition continues to build on the strong foundation of the first two editions. However, as the field of geriatric anesthesiology rapidly evolves, so does our focus on important new developments. Part I contains several new chapters that reflect the evolution of multidisciplinary geriatric care throughout the perioperative continuum. We highlight the evolving development of the Perioperative Surgical Home, as well as expound on the growing body of literature related to prehabilitation. In addition, in the theme of multidisciplinary collaboration, we have also included chapters on the surgeon’s perspective and geriatrician’s perspective on surgery in the geriatric population. This is important as medical care must continue to be a more collaborative effort as patients get older and sicker.

Parts II and III review the systematic physiologic changes associated with aging and the pharmacologic considerations for the geriatric patient undergoing procedures. These chapters are necessary components to any comprehensive textbook on geriatric anesthesia, and while much of the material is similar to that of the last two editions, an effort has been made to update any information relevant to the changing practice of geriatric anesthesia. For example, in the chapter on chronic medication use in the elderly, particular focus was placed on certain rapidly developing medications that impact practice such as antidepressants and new anticoagulants.

Part IV, special concerns, has also undergone major changes. There are more minimally invasive procedures being performed outside the operating rooms or in hybrid operating suites which pose specific challenges for geriatric patients. We have highlighted these changes in practice within this section, including expanding chapters on cardiovascular procedures related to minimally invasive valvular procedures as well as monitored anesthesia care and NORA procedures. In addition, we included a chapter solely dedicated to implantable pacemakers and ICDs as both perioperative management of these devices and anesthetic management for heart and vascular procedures are growing in volume. The anesthetic management of patients undergoing surgery for cancer entails special considerations, and since the elderly commonly undergo such procedures, a chapter on this topic has been added. The elderly are also subject to trauma, and there is a growing knowledge base on trauma care for the older patient. This

section also includes chapters on management of elderly patients undergoing cardiothoracic/vascular surgery and orthopedic surgery. There is an especially large body of knowledge on orthopedic surgery in the elderly, much of which has arisen from outside the USA.

Finally, in this edition, we have added a Part V that focuses on postoperative care specific to the geriatric population which includes acute pain management, ICU management, recent evidence and up-to-date practice regarding delirium and postoperative cognitive dysfunction, and palliative care. As the role of the anesthesiologist continues to expand outside of the operating room, it is imperative that we continue to practice evidence-based care for the geriatric patient within these settings.

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