

Anesthetic Considerations for Common Procedures in Geriatric Patients



Hip Fracture, Emergency General Surgery, and Transcatheter Aortic Valve Replacement

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KEYWORDS

- Geriatric anesthesia • Elderly anesthesia • Anesthesia emergency surgery
- Anesthesia TAVR • Hip fracture • Emergency general surgery
- Transcatheter aortic valve replacement

KEY POINTS

- Focused history and physical before going to the operating room is essential, even in patients with extensive preoperative evaluation given risk for changing condition.
- Pay special attention to pharmacokinetic and neurologic differences associated with aging.
- Consider regional anesthesia with light sedation for geriatric patients undergoing surgery for hip fracture.
- Emergency abdominal surgery is very high risk and requires coordinated and timely supportive care.
- Transcatheter aortic valve replacement is an emerging treatment for aortic stenosis that will proliferate rapidly.

INTRODUCTION

The elderly population is growing, and citizens 65 and over will increase from 13% of the population in 2010 to 20% by 2030.¹ Geriatric patients undergo a large proportion of operative procedures and have increased complications, morbidity, and mortality, which may be associated with increased intensive care unit (ICU) time, length of stay, hospital readmission, and high cost.^{2,3} With the expanding elderly population,

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identification of optimal anesthetic care for the older patient that leads to decreased complications and contributes to the best possible outcomes will have outsized value for individual patients and society.

This article reviews the anesthetic considerations for intraoperative care of geriatric patients and focuses on 3 procedures that are common, high risk, and/or emerging. First, an approach to evaluation and management of the elderly surgical patient is described. Then, a review of anesthetic management for repair of hip fractures, emergency abdominal surgery, and transcatheter aortic valve replacement (TAVR) are discussed.

GENERAL APPROACH TO ANESTHETIC MANAGEMENT IN THE ELDERLY PATIENT

Advancing age, American Society of Anesthesiologists status, low preoperative albumin concentration, and frailty are all risk factors for perioperative complications and mortality.^{2,4} Complications are associated with increased morbidity and mortality, and neurologic, cardiovascular, respiratory, renal, and infectious complications are common.^{2,4,5} Anesthetic management should be tailored to prevent and adequately manage perioperative complications while maintaining appropriate surgical conditions, patient safety and patient comfort.^{6,7} A high level of postoperative care is necessary in the high-risk elderly patient, and ICU admission should be considered for prompt recognition and management of complications.⁸ General anesthesia, regional anesthesia, and local anesthesia with sedation, as well as combined general and regional or local anesthesia, can all be performed safely in elderly patients. Overall, there is no specific anesthetic technique that has proved superior to others.^{9–11} However, in the case of hip fracture, this balance seems to be tipping in favor of regional anesthesia; this issue is discussed elsewhere in this article.^{12,13}

Focused History and Physical

Preoperative evaluation and optimization of the elderly patient over 65 is essential¹⁴ and are discussed in detail in the article by Tsai and Nakhaie elsewhere in this issue. A focused history and physical evaluating for new or underappreciated conditions is prudent, even after prior preoperative evaluation and optimization.

Consider Pharmacologic Differences

The pharmacologic differences between older and younger patients are complex, involve both pharmacokinetic and pharmacodynamics interactions, and are discussed in depth in articles by Akhtar and Ramani, elsewhere in this issue.¹⁵ In practice, these changes lead to increased sensitivity to anesthetic agents and decreased dose requirements.¹⁵ Impatience and lack of appreciation of delayed time to peak effect and increased sensitivity associated with aging can lead to “dose stacking”—a dangerous overshooting of the desired effect. To avoid dose stacking, slow, gentle titration of intravenous anesthetics such as propofol, with a dose that may be 50% of the weight-based dose in younger adults, is necessary. Hypotension should be anticipated and treated.¹⁶

Consider the Systems-Based Changes Associated with Aging

The physiologic differences associated with aging are discussed in depth elsewhere in this issue. A brief mental review of physiologic changes associated with airway, breathing, circulation, disability (neurologic), renal and electrolyte, hepatic, endocrine, hematologic, and infectious disease is helpful in avoiding pitfalls.

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