

Perioperative Management of Elderly Patients



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KEYWORDS

- Elderly • Geriatric • Perioperative management • Surgery • Frailty
- Preoperative care • Postoperative care

KEY POINTS

- The older population is rapidly growing and living longer, and this growth is expected to drastically increase surgical demand for both elective and emergent cases.
- The elderly population undergoes significant changes of numerous organ systems as a result of the aging process; their tenuous homeostasis can be drastically unraveled by minor changes in the perioperative period.
- The perioperative management of the elderly population is complex and requires a multi-disciplinary team focusing on education, frequent assessment, functional status, and quality-of-life outcomes as well as traditional outcome measures.
- There remains a paucity of best-practice guidelines and randomized control trials focusing on the elderly; there are growing data investigating frailty indices as predictors of outcomes in perioperative elderly patients.

INTRODUCTION

Because of longer life expectancies and the aging baby boomer generation, the growth of the aging American population at this time is unprecedented.¹⁻³ One out of every 7 Americans is older than 65 years, and there has been a 21% increase in this age group over the past 10 years.¹ With a life expectancy of about 20 years, the older population (65+ years) is becoming older. Since 1900, the 65- to 74-year age group is 10 times larger; the 75- to 84-year group is 17 times larger; and the group aged 85 years and older is 48 times larger.¹ The centenarian population has had a 93% increase since 1980, a larger percentage increase than the total population.¹

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Moreover, the older population has the highest incidence rate for 60% of operations compared with other age groups.⁴ It is predicted that the amount of procedure-based work in general surgery will grow by 31% by 2020 because of the growing older patient population.⁴ These patients often are not the healthiest, with multiple comorbidities, malnutrition, frailty, and little reserve. As the elderly become our primary surgical population, we will need to understand the differences in their physiology as we are challenged with their perioperative care.

ASSESSMENT OF OPERATIVE RISK

Geriatric patients now compose a significant number of patients undergoing surgical intervention in the United States,⁵ and many of these patients undergo operative procedures in the last year of their life.⁶ The geriatric surgical population with its unique physiology and response to surgical insult poses challenges in perioperative assessment. It is now well established that frailty is a strong predictor of perioperative complication and mortality in surgical patients. Frailty is a recognized geriatric syndrome with no agreed on or recognized definition unfortunately.^{7–9} For the sake of surgical understanding, the most important definition would be an inability to tolerate physiologic insult. What is better known, however, is that frailty can be defined by specific indicators, including cognitive, functional, social, and nutritional function. Varying measures of these functional areas are now recognized as strong predictors of perioperative outcomes.^{10,11}

As frailty is now recognized as a strong predictor of postoperative outcomes in multiple specialties, it is imperative to recognize frailty in geriatric surgical patients. Therefore, one must be able to assess frailty before operations and be familiar with the tools to assess frailty. A stepwise approach to assessing frailty will be the accepted approach in the future. This approach will consist of a screening tool to identify those patients who are potentially frail based on a bedside screen of frailty characteristics. If patients have findings consistent with frailty, a more formal assessment in the form of the comprehensive geriatric assessment would be in order to provide for a more detailed workup and provide for shared decision making, surgical buy-in, discussion about increased morbidity and mortality compared with younger patients, and ultimately bring the surgical team together to increase communication in high-risk patients. The comprehensive geriatric assessment is a multidisciplinary process that serves to identify limitations in frail patients in an effort to develop a coordinated treatment plan to optimize their management.^{10,12} The assessment accounts for functional independence—caring for themselves in their environment, which is usually the most important factor to geriatric patients—maintaining quality of life. This multidisciplinary assessment results in patients less likely to require nursing home admission as demonstrated in a randomized controlled trial.¹³ Fried and colleagues⁹ describe a phenotype (Fried-Hopkins frailty index):

- Shrinking
- Weakness
- Poor endurance and energy
- Slowness
- Low physical activity level

When combined with other standard prediction models (American Society of Anesthesiologists, Lee, and Eagle scores), the Fried phenotype improved the predictive power of the usual models¹¹; when used alone for elective operations, it showed an increased risk of complications, length of stay, and discharge to facility.¹¹ Other

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