Learning Objectives

Upon completion of the chapter, the student will be able to:
1. Identify risk factors for perioperative complications in elderly surgical patients and recommend strategies to decrease this risk.
2. Understand the considerations specific to elderly patients regarding the use of anesthetic agents.
3. Identify the indications for perioperative noninvasive and invasive monitoring.
4. Understand the impact of the presence of common comorbid conditions on the management of the elderly surgical patient.
5. Assess nutritional status in the elderly surgical patient and recommend strategies to improve nutritional reserve.
6. Understand the risk for postoperative delirium and identify strategies to reduce its severity.

Case (Part 1)

Mrs. Marlowe is a 90-year-old woman with recently diagnosed colon cancer who lives independently. She has a medical history of diabetes mellitus, hypertension, hyperlipidemia, hypothyroidism, and a remote history of myocardial infarction. She has decided to undergo colon resection. Her daughter tells you she believes her mother is too old to undergo the surgery and asks you to explain the risks.

What is Mrs. Marlowe’s risk? What further information is needed to assess her risk?
General Considerations

The increasing number of older persons undergoing surgery is due both to our aging population and to important recent advances in surgical and anesthetic techniques. Currently, about one third of all operations in the United States are done on persons 65 years of age and older compared to about 20% in 1980 (1). Over the next three decades, the number of patients over age 65 who undergo noncardiac surgery is projected to increase from 7 million to 14 million (2).

The types of surgical procedures commonly performed on older persons reflect the prevalence of chronic diseases in this population: intraocular lens implants for cataracts, prostate gland resections for hyperplasia, colorectal procedures for cancer, orthopedic procedures for osteoarthritis and fractures, and arterial reconstruction for vascular disease. The introduction of neuroleptic anesthesia, sophisticated perioperative monitoring technology, and effective prophylaxis against deep venous thrombosis have contributed to lower surgical mortality for older adults (3). Endoscopic and other minimal access techniques have added to the ease and safety of operative therapy and have led to reduced mortality, increased ambulatory surgery, and shorter hospital stays (4,5).

Returning patients quickly to their usual environment and functional status reduces complications related to medications and immobilization associated with hospitalization. Current estimates of 30-day perioperative mortality for properly prepared surgical patients over age 65 are 5% to 10% (6–8).

It has been shown that mortality for many types of surgical procedures is associated with increasing comorbidity with age, rather than chronological age alone (9). The American Society of Anesthesiologist (ASA) Physical Status Classification is a reliable and accurate predictor of surgical mortality. It stratifies patients based on comorbid conditions and functional status into five classes (Table 12.1) (10). Curves for mortality versus ASA class in older patients are nearly superimposable on those of younger patients (11). Even in patients over age 80, ASA classification has been shown to accurately predict postoperative mortality (12).

Table 12.1. The American Society of Anesthesiologists (ASA) Physical Status Classification System (10)

<table>
<thead>
<tr>
<th>Class</th>
<th>Description</th>
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<tbody>
<tr>
<td>I</td>
<td>A normal healthy patient for elective operation</td>
</tr>
<tr>
<td>II</td>
<td>A patient with mild systemic disease</td>
</tr>
<tr>
<td>III</td>
<td>A patient with severe systemic disease that limits activity but is not incapacitating</td>
</tr>
<tr>
<td>IV</td>
<td>A patient with incapacitating systemic disease that is a constant threat to life</td>
</tr>
<tr>
<td>V</td>
<td>A moribund patient not expected to survive 24 hours with or without operation</td>
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</tbody>
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Source: Reprinted from American Society of Anesthesiologists. New classification of physical status. Anesthesiology 1963;24:111, with permission from Lippincott, Williams, & Wilkins.