Surgical Risk and Comorbidity in Older Urologic Patients

Nicole T. Townsend, MD, Thomas N. Robinson, MD, MS*

KEYWORDS

• Geriatric surgery • Frailty • Preoperative risk assessment

KEY POINTS

- Urologic surgeons commonly operate on geriatric patients.
- Geriatric patients are at high risk for globally decreased physiologic reserves, a phenomenon described as frailty.
- Geriatric patients are more concerned with functional outcomes than other populations undergoing surgery.
- Frailty can be reliably used to predict risk of postoperative complications and adverse postoperative outcomes, including loss of the ability to live independently.
- Traditional comorbidity-based surgical risk calculators focus on forecasting 30-day morbidity and mortality rather than physical and mental functional outcomes.

INTRODUCTION

The demographic makeup of the surgical population is changing with the overall aging of the population. Older adults are an increasing proportion of surgical care, with greater than 35% of all inpatient operations being performed in adults 65 years or older in the United States.[1] This number is higher in subspecialties, such as urology, where 65% of all operations are performed in adults aged 65 years and older.[2] This proportion is anticipated to increase in the years and decades to come. It is essential to understand the unique physiology, risks, and characteristics of older adults to provide optimal urologic care for these patients.

The geriatric population is at greater risk for postoperative complications than younger adults. This risk is related to the physiologic decline seen in this population known as frailty. Frailty is a state of decreased physiologic reserve that increases the patient's susceptibility to disability.[3] Thus, by definition, frailty increases the risk

Department of Surgery, University of Colorado, 12631 E 17th Avenue, C-305, Aurora, CO 80045, USA
* Corresponding author. 1055 Clermont Street (112), Denver, CO 80220.
E-mail address: thomas.robinson@ucdenver.edu

Clin Geriatr Med 31 (2015) 591–601
http://dx.doi.org/10.1016/j.cger.2015.06.009 **geriatric.theclinics.com**
0749-0690/15/$ – see front matter Published by Elsevier Inc.

of a poor postoperative outcome.[4,5] Although there are few studies for outcomes specifically in geriatric urologic patients, those that do exist confirm that patterns of worse outcomes in surgical patients are mirrored specifically in the subset of urologic patients. Geriatric urologic patients are at higher risk of delirium, injury, intensive care unit (ICU) admissions, ICU stay, and death than their younger counterparts.[6,7]

Previous models of preoperative risk assessment have focused on single-organ systems to determine risk of adverse postoperative cardiac, renal, pulmonary, or hepatic events.[8–11] Although these algorithms continue to play a role in the preoperative risk assessment of urologic patients, frailty has replaced these strategies as an effective, efficient, global assessment for surgical risk and represents a significant paradigm shift in the preoperative evaluation of surgical patients.

PREOPERATIVE RISK ASSESSMENT IN THE OLDER UROLOGIC PATIENT

Historically, surgeons were primarily responsible for categorizing risk for patients[12]; this reflects a previous era but that emphasized the clinical judgment of an individual surgeon as authoritative that is no longer relevant to current surgical ethics and culture. Initial screening for risk involved taking patient histories, physical examination, and limited laboratory or imaging tests. These approaches were neither sensitive nor specific for actual predictions of risk.[13] Beginning in the 1970s, statistical methodology was applied to provide more quantitative data. These systems focused on single-organ systems, more notably the cardiac risk index, which has evolved into formal recommendations from the American Heart Association.[9–11] Geriatric medicine has continued to define what patient-centric outcomes are important to the older surgical patient to refine a quantitative approach to risk.

The preoperative risk assessment is essential to counseling the older urologic patient. Patients and families need accurate and reliable information about outcomes to make decisions about undergoing surgery and weigh the possible risks and benefits. Older adults can prioritize different outcomes than younger adults and tend to focus on quality-of-life issues rather than longevity. Health-related quality of life is a multidimensional outcome that includes functional independence, cognition, and physiologic health. In fact, living independently and maintaining other measures of functional independence are the most important health outcomes for this population.[4] This information is not reflected in more traditional outcomes from the surgical literature such as 30-day morbidity/mortality and complication rates.

Complications that geriatric patients are at greater risk for include other nontraditional complications, such as delirium. Delirium is more likely in the hospitalized postoperative patient.[14,15] Delirium is common in certain subspecialties, such as orthopedic surgery, which have rates that reach 40% to 60%.[16] Observational studies of urologic patients have demonstrated that, although rates of delirium are not as high as in other specialties, it can occur in 10% of patients.[6] Intraoperative hypotension, previous history of delirium, poor clock-drawing on the Mini-Cog, and inability to perform activities of daily living (ADLs) were all independently related to delirium in this population, although extent of surgery (endoscopic vs open) was not.

Frailty assessments have emerged as a primary way to quantify risk for geriatric patients, as it can predict both the traditional quantitative outcomes of morbidity and mortality as well as the qualitative outcomes of functional independence.

FRAILTY: A SINGLE PREOPERATIVE RISK ASSESSMENT

The American College of Surgeons (ACS) and American Geriatric Society have recommended a frailty assessment as standard of care for the preoperative risk assessment