Curr Surg Rep (2016) 4:29
DOI 10.1007/s40137-016-0148-z

Incorporating Shared Decision Making into Perioperative Care of Older Adults

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Published online: 7 July 2016

Abstract
Purpose of review Older patients represent a growing and significant portion of the surgical population. Due to age-related changes in physiology and the presence of multiple comorbidities, older patients are more likely to experience complications, functional decline, increased care needs, and decreased independence following surgery. Identification of risk factors preoperatively permits early use of prevention strategies to mitigate risk, which translates into optimal postoperative outcomes.
Recent findings Preexisting cognitive impairment is identified in 30% of patients undergoing elective surgery, and is associated with long-term postoperative cognitive dysfunction. Assessment for the presence of comorbidities, medication history, nutritional status, and frailty is critical. Patient preference, treatment goals, and advanced directives should be discussed and documented preoperatively. Post-hospital disposition requires significant planning, with emphasis on efficient transition of care and early post-operative follow-up.
Summary Multidisciplinary perioperative assessment and appropriate management of the elderly surgical population are of paramount importance.

Keywords Perioperative · Surgery · Geriatrics · Preoperative evaluation · Postoperative care · Postoperative outcomes

Introduction

Individuals over 65 years of age are the fastest growing segment of the United States population, with a projected 53 % increase between 2001 and 2020 [1]. With advances in surgical techniques, anesthesia and postoperative care, an increasing number of older adults are undergoing surgical intervention. According to a study from the National Hospital Discharge Survey and the National Survey of Ambulatory Surgery, the aging of the United States population will result in a significant growth in the utilization of surgical service for these older patients with a projected 14–47 % increase in all surgical fields between 2000 and 2020 [1]. Specifically, between 2010 and 2020, the rate of oncological procedures was expected to increase by 24–51 % [2]. Aging is an independent risk factor for adverse outcomes after surgery because older adults have reduced reserve, making it more difficult to overcome surgical stress. Studies have consistently demonstrated that older surgical patients have increased risks for the development of postoperative morbidity and mortality, prolonged hospitalization, hospital readmission, cognitive dysfunction, functional decline, and loss of independence [3, 4, 5•, 6]. Occurrence of these events is associated with increased resource utilization and higher costs [7]. Identifying those older patients at highest risk will allow for careful consideration of the risks and benefits of surgery and expectant management perioperatively with an emphasis on prevention and enhanced recovery protocols (Table 1).

This article is part of the Topical collection on *Geriatric Surgery*.

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Preoperative Management

Multidisciplinary Care

A multidisciplinary, interprofessional preoperative assessment is needed, with the surgeon playing a central role (Fig. 1). In addition to involving the patient, caregiver, primary care physician, and anesthesiologist, other essential members of the team include nurses, case managers, social workers, dieticians, physical/occupational therapists, and speech therapists. When available, collaboration or consultation with a geriatrician and/or geriatrics trained advanced practice provider can provide additional specialty expertise in managing mobility, function, cognition, and care planning.

Primary care physicians are well positioned to actively contribute to the preoperative evaluation of older patients because care coordination is needed when complex care management is involved. Even minor surgeries can involve multiple provider visits and procedures with the need for frequent communication as evidenced by one example where the primary physician communicated 40 times with 12 clinicians over an 80-day period [8]. A provider known to the patient can enhance the coordination between the different specialists caring for the patient and enhance communication regarding preoperative teaching, risk–benefit discussion, and the nature and duration of the expected postoperative recovery period. While there is paucity of data directly examining the role of primary care physicians in the preoperative evaluation of older patients, published data demonstrated that better coordination of postoperative care between surgeons and primary care physicians is important to help reduce hospital readmissions within 30 days for older patients undergoing high-risk surgery [9].

Involvement of geriatrics preoperatively is also helpful in identifying patient risk factors and in tailoring a comprehensive management plan. Geriatricians provide unique perspectives in the preoperative evaluation of the older patients given their understanding of the influence of aging on the pathophysiologic responses to stressors, such as surgery. Geriatricians are well-suited to prioritize the complex needs of older patients when planning a strategy to optimize comorbidities, nutrition intake, and functional status before elective surgery. The additional expertise in facilitating discussions regarding advance care planning can help prepare patients for realistic expectations throughout the surgical encounter, with goal setting at each stage of recovery, and care coordination to best leverage the resources in each setting.

Table 1 Summary of perioperative care of older adults undergoing elective surgery

Preoperative	Intraopertive	Postoperative
Comprehensive history and physical	Proper positioning/padding	Geriatrics involvement
Indication	Warm blankets/IVFs	Early screening for delirium
Physical status	Regional anesthesia	Delirium treatment
Frailty	Judicious goal directed IVFs	Nonpharmacologic therapy
Comorbidities	Avoid certain medications	Pharmacologic agents only when indicated
Nutritional status	Scopolamine	Chest toileting
Cognition	Promethazine	Epidural analgesia
Depression	Prochlorperazine	Early ambulation with fall precautions
Delirium		Early dietary consultation/swallow evaluation
ETOH/substance abuse		Early diet resumption
Cardiac status		Nutritional supplement
Pulmonary function		Aspiration precautions
Fall risk factors		Prophylactic bowel regimens
Medications		Early Foley removal
Family/social history		Pressure ulcer evaluation/prevention
Appropriate testing		Judicious intravenous fluids
Vision/hearing		
Patient preferences		
Risks–benefits discussion		
Advanced directives		
Preventive strategies		

IVF intravenous fluid

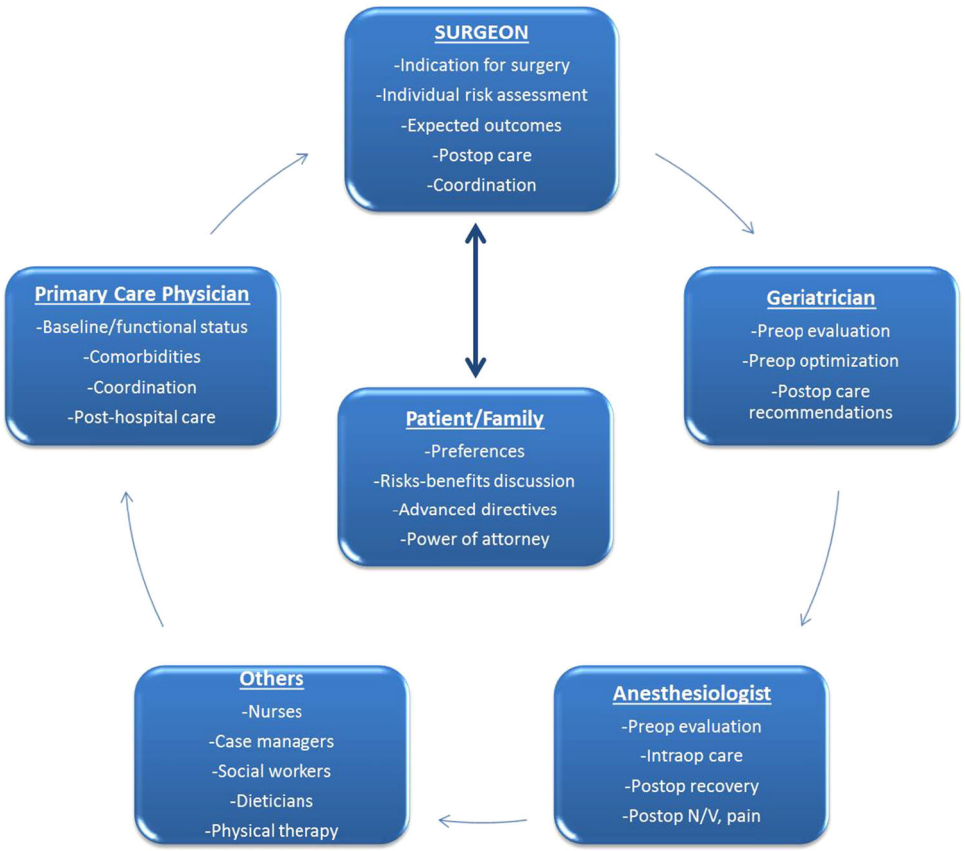

Fig. 1 A model for shared decision making in the perioperative care of older adults undergoing elective surgery

Preoperative Assessment

Comprehensive preoperative assessment is necessary for achieving optimal clinical outcomes in older surgical patients. Older patients undergoing surgery should undergo a thorough evaluation for medical history and physical examination, comorbid conditions, nutritional status, cognitive ability and capacity, depression, risk factors for delirium, alcohol/substance dependence, cardiac status (per guidelines), risk factors for pulmonary complications, functional physiological status, risk for fall, frailty, medications, family and social support status, and appropriate preoperative testing [10••]. While all of these areas are important, the following aspects of the preoperative evaluation deserve special attention:

Cognitive Assessment

Preexisting cognitive dysfunction is highly prevalent in older patients, affecting nearly a third of those over age 65 undergoing elective surgery [11]. Assessment of patients' cognitive function preoperatively establishes a baseline level from which changes in cognition can be determined. In an observational clinical trial of 300 patients >60 years undergoing noncardiac surgery, preexisting cognitive impairment was identified in 31 % of the patients. Patients with preoperative cognitive impairment were more likely to develop postoperative cognitive dysfunction and cognitive decline [11]. Underlying cognitive impairment is one of the many predisposing conditions for delirium, which develops in as many of half of those over 65 years undergoing surgery [12]. Moreover, delirium is associated with postoperative prolonged hospital length of stay, decreased quality of life, and increased 1-year mortality [13–16].

Identification of high-risk patients preoperatively permits employment of strategies to reduce risks for postoperative cognitive impairment, such as avoidance of precipitating factors for delirium, utilization of nonopioid medications, and avoidance of benzodiazepines.

Nutritional Status

Older age is associated with increased risk of malnutrition. According to one study of acutely hospitalized older patients, up to 71 % present with nutritional risk or malnourishment [17]. Preoperative nutritional status is an important determinant of postoperative morbidity and mortality [18]. The diagnosis of malnutrition is established by presence of two of the following: insufficient energy

intake; weight loss; loss of muscle mass; loss of subcutaneous fat; localized or generalized fluid accumulation that may sometimes mask weight loss; diminished functional status as measured by handgrip strength [19]. Once the diagnosis of malnutrition is established, corrective nutritional strategies should be implemented such as oral supplementation, tube feeding, or parenteral feeding; however, enteral nutritional support is superior and should be considered first, given its simplicity, lower complication profile, cost-effectiveness, and an enhanced ability to maintain mucosal barrier function. Extended periods of preoperative fasting should therefore be minimized [20, 21].

Comorbidities

Older patients are more likely to present with multiple comorbidities. Presence of comorbid conditions is strongly associated with adverse postoperative outcomes and greater likelihood that the older adult will not regain optimal function [22]. Older patients with multiple comorbidities need to be considered as high risk, and measures should be undertaken to mitigate its effects whenever possible.

Medication History

A complete list of the patient's medications should be documented, including over-the-counter medications and nutritional supplements. Many medications place older patients into higher risks for the development of postoperative complications and may impede recovery, such as anticholinergics, benzodiazepines, and sedatives. The "Beers List" from the American Geriatrics Society (AGS) provides an evidence-based compendium of potentially inappropriate medications to be avoided or used with caution in older adults [23]. All essential medications should be continued or substituted if needed, with the plan to resume appropriate baseline medications postoperatively. Consultation with other specialists or a pharmacist may be helpful in determining the need for high-risk medications.

Frailty

Frailty is a state of increased vulnerability to stressors due to age-related declines in physiologic reserve across neuromuscular, metabolic, and immune systems [24]. Frail older adults are vulnerable to the poor resolution of homoeostasis after a stressor event, such as surgery, trauma, or acute illness. This increased vulnerability contributes to the increased risk for multiple adverse outcomes, including postoperative complications, falls, institutionalization, disability, and death [25]. The prevalence of frailty ranges from 14 to 16 % in the older population [26–28]. The presence of frailty before surgery is associated with greater risk for postoperative complications, longer hospital stays, and higher likelihood of being discharged to a skilled nursing or assisted-living facility [5•].

Identification of frailty preoperatively can guide additional evaluation and help tailor treatment plans. Several validated tools identify these high-risk patients, such as the FRAIL scale [29, 30] and the Study of Osteoporotic Fractures (SOF) frailty tool [31].

Surgical Decision Making

During the surgical visit, the surgeon should take steps to ensure that older patients understand the nature of the disease process and the need for treatment. Prior to any discussion, an assessment of factors that affect communication and decision making among older adults should occur. Examples include accounting for hearing or vision deficits, addressing other factors that limit comprehension, including limited education or health literacy, language barriers or cognitive impairment, and cultural factors that may guide language choice and inclusion of family or clergy in key decision. In cases where capacity is questionable, further cognitive testing and inclusion of a designated surrogate is essential. Explanation of the proposed procedure and its risks and benefits should be conducted in a manner that is meaningful to the patient, encourages the patient to evaluate alternative treatment options (including the option of non-surgical treatments), and allows time to discuss this with family members or other key decision makers. All patients' and caregivers' questions should be adequately answered. Patients' preferences should then be fully documented. If necessary, patients and families may need time outside the visit to consider options and seek further input.

The preoperative period is an ideal opportunity to discuss factors that need patient participation and adherence for a true patient centered optimization plan, which could include strategies for preoperative nutritional support, better glycemic control, improvement of functional status, smoking cessation, and/or recruitment of support/resources that are anticipated during recovery after discharge from the hospital.

Surgery teams caring for older adults must account for their unique preferences and priorities in understanding their goals for surgery. Older adults often value maintaining independence over reductions in mortality [32]. A survey of Medicare beneficiaries has shown patients have different levels of involvement when participating in decision making regarding their care with different surgical procedures. When considering treatment preferences, patients should be more involved in discussing differing options while weighing the risks and benefits of each [33].

Tools for Shared Decision Making

The published literature includes several examples of effective use of decision-making tools to improve this critical stage of communication, both for the surgeon as well as for the patient and family. One study conducted to gain insight into the preferences used to guide content and design of decision aids, showed that physicians usually consider the technical details, benefits, and risks of the procedure while patients are often influenced by nonmedical factors such as location [34]. It is important, therefore, for the surgeon to explore what factors concerns the patient most so that pertinent information can be shared in order to facilitate decisions that are mutually acceptable to the patient and provider. Questionnaires used in vascular surgery highlight that shared decision making is very useful due to multiple treatment options. It is important that surgeons ask patients for their preferred approach to receiving information, verify that the patient has understood the provided information, and inquire about how patients would like to be involved in shared decision making [35]. One tool created by the American College of Surgeons (ACS) as part of the National Surgical Quality Improvement Program (NSQIP) is the Surgical Risk Calculator, which uses the current procedural terminology (CPT) code for the anticipated procedure with patient-specific risk information to estimate the chances for adverse outcomes within 30 days following surgery for nine separate areas [10••].

Although time and effort are precious commodities, they are invaluable in establishing good, meaningful communication. A preconsultation educational group intervention for breast cancer survivors undergoing breast reconstruction was found to improve patients' shared decision-making quality compared to routine preoperative patient education [36]. Interventions involving novel telephone-based early and intensive dietetic model of care for newly diagnosed upper gastrointestinal cancer patients have shown improved outcomes compared to the standard of care counterparts. Patients also reported satisfaction with consistent communication, emotional support, and pain and symptom management [37].

Communication can be particularly challenging when the procedure is an emergent one, and when it involves an older patient with a life-threatening condition. Good communication is critical as breakdown in communication may lead to nonbeneficial procedures at the end of life [38]. Discussion about quality of life (QOL) plays a substantial role in the decisions regarding the various treatment modalities as with the choices available for aortic valve replacement in older patients with multiple comorbidities and a limited life expectancy. Current evidence shows that trans catheter aortic valve replacement (TAVR) results in improvement of QOL in older patients with aortic stenosis, an effect that is sustained for up to two years and medical results comparable to an open procedure, yet with much less surgical risk [39]. Education and open discussion about end of life care is important in geriatric surgery patients. While goals of care should be discussed with the patient and family to help with surgical decision making, there should be a frank discussion about events that may lead to poor outcomes. Differences between DNR, palliative care, hospice care, and symptom management should be made clear to avoid conflict [40].

Decision About Specific Choice of Procedures

Beyond decisions to have surgery and how to optimize, older patients often face choices regarding the range of types of procedures and their different levels of benefit and risk. Gastrojejunostomy and stent placement are the most commonly used interventions for malignant gastric outlet obstruction. The preference for either treatment largely depends on the expected survival. The WHO score was found to be a significant predictor of survival in patients with malignant gastric outlet obstruction. A simple prognostic model was to be efficient in guiding the palliative treatment decision for either gastrojejunostomy (WHO score 0–1) or stent placement (WHO 3–4) in these patients [41].

Patient reported outcomes after pancreaticoduodenectomy for pancreatic cancer or periampullary malignancy were found to have deteriorated in the short term, but recovered after 6 months and was maintained at 2 years in survivors [42]. This type of information is important to share with a patient who is trying to decide on the utility of surgery.

Patients with rectal cancer in whom either a low anterior resection or an abdominoperineal resection could be performed were given a rectal cancer decision aid. This was developed to help patients weigh features of options and share their preference. Patients reported that their knowledge regarding the procedure improved, and that their decisional conflict was reduced [43].

Advanced Directives

While there are several forms of advanced directive, the most common types are: (1) the living will; (2) health care power of attorney; (3) the do not resuscitate (DNR) order; and (4) Medical Orders for Scope of Treatment (MOST)/ Physician Orders for Life Sustaining Treatment (POLST). The first two provide general guidance for decision making and, most importantly, designation of a surrogate decision maker in the event of loss of capacity. The latter two provide specific limits on life saving or sustaining measures and may be particularly important for guiding care among patients with advanced chronic or terminal illness.

The 2015 American College of Surgeons and American Geriatrics Society guidelines recommend that older adult patients undergoing surgery should have an advanced directive and a designated health care proxy documented in the patient's medical record prior to surgery [44••].

Intraoperative Management

In addition to careful risk stratification in the preoperative period, attention to specific preventive measures in the operating room and during recovery can avoid unnecessary complications. Older adults undergoing surgery are at increased risk for peripheral nerve damage and pressure injuries from malpositioning in the operating room, leading to a high prevalence of intraoperative pressure ulceration (8.5 %) [45]. Proper positioning and padding of older patients is therefore essential to decrease the risk of pressure ulceration.

Older patients are predisposed to intraoperative hypothermia, due to the altered thermoregulatory function as a result of anesthesia, decreased muscle mass, metabolic rate, and/or vascular reactivity [46]. Utilization of warming blankets and/or warmed intravenous fluids is recommended for cases lasting longer than 30 min [44••].

Anesthetic agents can have profound systemic effects in older patients due to the pathophysiological processes associated with aging. The choice and technique of anesthesia should be individualized based on individual patient risk. Regional anesthesia (e.g., epidural and spinal) may present as appealing alternative to general anesthesia in high-risk patients. Regional analgesia in older adults is associated with improved pain control and reduced sedation, opioid use, duration of tracheal intubation, and postoperative morbidity [47–50].

While older patients at high risks for postoperative nausea and vomiting requiring prophylactic antiemetic interventions, use of certain antiemetic medications should be avoided, such as transdermal scopolamine, promethazine, and prochlorperazine, all of which have anticholinergic properties and may precipitate cognitive impairment [51, 52]. Given an association of volume overload with nausea, judicious use of fluids in the intraoperative period is advised [53, 54].

Postoperative Management

Information gathered in the preoperative assessment can inform safe and effective approaches to care of the older adult in the postoperative period. The approach needs to utilize an interdisciplinary and interprofessional team with care coordination, with continued elicitation of patient and family preferences with emphasis on reducing risk and preventing problems needs to continue throughout the hospitalization. When comprehensive geriatric care is provided to hospitalized older adults, they are more likely to be alive and in their own homes at 6 months (OR 1.25, 95 % CI 1.11–1.42, $P = 0.0002$), less likely to be institutionalized at 12 months (OR 0.79, 95 % CI 0.69–0.88, $P < 0.0001$), and less likely to have functional decline or death at 12 months (OR 0.76, 95 % CI 0.64–0.90, $P = 0.001$) [55].

Postoperative Delirium

Delirium is an acute state of confusion, characterized by changes in consciousness and the ability to focus, sustain, or shift attention. Postoperative delirium is the most common age-related postoperative complication [44••]. Older patients are more susceptible to postoperative delirium, with prevalence rates ranging from 7 to 44 % depending on surgery type and other specific risk factors [44••, 56]. Delirium is associated with adverse postoperative outcomes, longer hospitalization, and higher mortality and costs [56–60].

Older patients should be screened for risk factors for postoperative delirium for early detection, prophylactic interventions, risk mitigating strategies, and initiation of treatment; the most effective treatment for delirium is prevention. Risk factors for the development of postoperative delirium include age >65 years, chronic cognitive decline or dementia, poor vision or hearing, severe illness, and presence of infection [44••]. Postoperative delirium is multifactorial; therefore, screening of all potential risk factors or precipitating components should be undertaken for more effective management. The American College of Surgeons and American Geriatrics Society recommend consideration of daily delirium screening for all older adults using a validated screening tool; intensive care and high-risk patients should regularly be assessed for postoperative delirium [44••]. Pain management should be optimized with utilization of nonopioid agents, and medications associated with cognitive impairment should be avoided.

Identification and treatment of the underlying cause(s) represents the first step in the management of postoperative delirium. Implementation of nonpharmacologic treatment strategies should be considered as first line therapy, such as frequent orientation, limitation of restraint use, presence of familiar objects in the room, and use of assistive devices (e.g., glasses, hearing aids). Having family members or loved ones present to assist with orientation in the postoperative period can reduce delirium risk for patients who have been identified as high risk for delirium preoperatively. Indications for pharmacological agents include prevention of harm to self or others

with agitation or hyperactive delirium behavior. While antipsychotics can reduce symptoms of hyperactive delirium, they also have important and serious adverse effects that have led to a black box warning from the FDA. These side effects include metabolic effects, parkinsonian symptoms, vascular events, arrhythmia, and death. Their use should occur in consultation with team members with experience in their safe use and with clear plans for early discontinuation [44••, 61].

Pulmonary Complications

Older adults undergoing surgery are more susceptible to postoperative pulmonary complications, which in turns increases the risk for long-term mortality [62]. Strategies to reduce the risk of postoperative pulmonary complications include preoperative smoking cessation, utilization of laparoscopic approaches, aspiration precautions, chest physical therapy and use of incentive spirometry, use of deep breathing exercises, and epidural analgesia [44••].

Patient Falls

Falls are common among older individuals [63]. All older patients should undergo fall risks assessment. Predisposing factors for falls include altered mental status, dehydration, urinary frequency, history of falls, impaired gait or mobility, medications, and visual impairment. Strategies to prevent falls should be implemented for high-risk patients, such as physical therapy consultation, supervised exercises, environmental elements, assistive technology, and knowledge interventions [44••]. Early mobilization protocols should be promoted as soon as possible after surgery because this helps older adults maintain functional abilities, have less pain, less delirium, and shorter hospital stays [64, 65] and can also help prevent deep vein thrombosis and pulmonary embolus [64].

Nutrition

Older surgical patients are at increased risk for malnutrition. Studies have consistently demonstrated the association between postoperative malnutrition and compromised postoperative outcomes [66–68]. Current recommendations of the American College of Surgeons indicate that older patients should undergo daily evaluation of their ability to take adequate nutrition and risk of aspiration, with initiation of dietary consultation and/or swallow evaluation when indicated [44••].

Oral feeding is preferred; patients using dentures at home should have them readily available. Due to the increased risk of aspiration, aspiration measures should be instituted routinely, such as elevation of the head of the bed and sitting upright during and 1 h after eating [69]. Nutritional supplements may be indicated for undernourished patients [44••]. Tube feeding may be initiated when there is difficulty with oral intake. Parenteral nutrition may be a last-resort option due its associated complications [20, 21].

Prophylactic bowel regimens are needed to mitigate the negative effect of opioids on bowel function. Utilization of opioid-sparing analgesia techniques is helpful to decrease the incidence of postoperative ileus, such as scheduled postoperative acetaminophen and regional analgesia. Pharmacologic agents such as stool softeners and stimulant laxatives may be used.

Management of Indwelling Urinary Catheter

Older patients are more susceptible to postoperative urinary tract infection. When possible, catheters should be avoided altogether. Strict aseptic techniques must be adhered to. Patients with indwelling urinary catheters should undergo daily review and documentation of its indication; efforts should be made to remove urinary catheters as soon as possible [44••]. Immobilization and/or incontinence are not acceptable justifications for prolonged urinary catheterization. In cases of urinary retention, it is preferable to leave the indwelling catheter for a few days, start the patient on a selective alpha-antagonist, with plans made to remove the catheter after a few days.

Pressure Ulcers

The vast majority of pressure ulcers occur in older patients during an acute hospitalization. All hospitalized older patients should undergo evaluation for pressure ulceration. Several validated scales have been developed to predict the development of pressure ulceration, such as the Braden scale, Waterlow score, and Norton scales [70–73]. In addition to using these, there should be policies in place to ensure that patients will be repositioned regularly to prevent pressure ulcers. Close collaboration with the nursing staff is necessary to facilitate such endeavors.

Determining Need for Higher Acuity of Care

Close monitoring of older patients is critical after surgery. Oral nutrition should be instituted as soon as possible, unless contraindicated based on the nature of the surgical procedure. Multiple factors may prevent satisfactory oral intake and this may lead to dehydration. Judicious supplemental intravenous fluids may be needed to prevent hypotension; a key etiological factor in postoperative delirium. Care should be taken to avoid fluid overloading and subsequent pulmonary edema. In case of hemodynamic instability or increased work of breathing, there should be a

low threshold for transfer to a step-down unit for monitoring or to an intensive care unit when needed, as older patients tend to decompensate very rapidly.

Readdressing the issue of goals of care and advance directives should be considered early when there is an unexpected turn of events following surgery. This may include the need for longer mechanical ventilation, the need for a feeding tube, for reoperation or an interventional radiology procedure that carries prohibitively high risk. Timely discussions with patients and/or their caregivers can allow time for consideration and alleviate anxiety related to lack of understanding or uncertainty about potential outcomes and prognosis. Maintaining open lines of communication helps establish trust and makes it easier on the surgical team and the surrogate decision maker, if decisions have to be made regarding withdrawal of care. Appropriate and early involvement of the palliative care team can be of immense help in this regard. Studies have shown that there is lower pain perception despite greater symptom distress and that patients are appreciative of their increased resources and alternatives for pain control, adding value to palliative care consults (Wallen, Baker et al. 2012).

Transition to PostAcute Care

Disposition of older surgical patients is a complex process that requires close coordination between the surgical team, nursing, physical therapists, social workers, family/caregiver, and other specialists. The American College of Surgery and American Geriatrics Society guidelines recommend the following evaluations before patient discharge: mini nutritional assessment; cognitive evaluation; determination of ambulation ability; functional status; and presence of delirium [44••]. Social support should be assured and the need for home health needs to be determined. Discharge instructions should be comprehensive detailing the full list of medications, tests, and follow-up appointments. Predictors of discharge to postacute care include being 85 years or older, the presence of septic shock or ventilator dependence preoperatively, American Society of Anesthesiologists class of 4 or 5 and totally dependent functional status [74]. These factors should be considered and discussed with the patient and family members as early as possible to help with the decision-making processes.

Transition to Primary Care

Efforts should be focused on adequate transition of care to the patient's primary care physician. Detailed information about the patient surgical history, surgical intervention(s), and postoperative course should be communicated with the primary care physician. Older patients who had early primary care follow-up after discharge and within 30 days after surgery had a 15 % reduction in readmission rate compare to those who did not have an early follow-up visit with their primary care physician [9].

Conclusions

High quality care for older adults undergoing surgical procedures requires a careful and comprehensive approach to risk stratification, communication, and coordination. A preoperative assessment by an interprofessional team that include both surgical and geriatrics expertise can help identify specific risks for postoperative complications, including falls, delirium, malnutrition, and poor care coordination. This assessment informs specific evidence-based interventions in the entire perioperative course to reduce risk and improve outcomes. In addition, a careful preoperative review of goals of care and preferences can improve the patient and family experience and provide the care team with critical information that allows shared decision making at every stage of care.

Compliance with Ethics Guidelines

Conflict of Interest Drs. Adam, McDonald, Heflin, and Lagoo-Deenadayalan declare no conflicts of interest relevant to this manuscript.

Human and Animal Rights and Informed Consent This article does not contain any studies with human or animal subjects performed by any of the authors.

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