Management of Postoperative Complications: General Approach

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KEYWORDS

• Physiological changes of aging • Postoperative complications • Early mobility
• Urinary catheters • Malnutrition and pressure ulcers • Pain management
• Postoperative cognitive dysfunction • Pneumonia and urinary track infections

KEY POINTS

- An aging-sensitive environment of care can reduce postoperative complications.
- Understanding and anticipating the physiologic changes of aging can help to avoid postoperative complications.
- General approach involves early mobility; freedom from tethers (indwelling urinary catheters and other devices); effective pain control; treating malnutrition; preventing pressure ulcers; reducing risk for pulmonary, urinary, and wound infections; and managing cognition.

INTRODUCTION

Effective management of the postoperative period following hip repair requires attention to four key components: an aging-friendly environment that addresses physical and social needs; team care that includes patient and family preferences, goals and values; the collaboration of physicians and other providers who are skilled in geriatric principles of care; and processes and procedures that are engineered into daily practice to assure full adherence to the best of care.

The goal of postoperative management is to promote early mobility and avoid postoperative complications, recognizing the potentially devastating impact of complications on the recovery of elderly hip fracture patients. The recommended approach involves aggressive early mobilization; freedom from tethers (indwelling urinary catheters and other devices); effective pain control; treating malnutrition; preventing pressure ulcers; reducing risk for pulmonary, urinary, and wound infections; and managing

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cognition. This carefully structured and patient-centered management provides older, vulnerable patients their best chance of returning to their previous level of functioning as quickly and safety as possible.

Keys to effective management
- Aging-friendly environment
- Patient-and-family–centered care
- Collaborative interdisciplinary team
- Processes and procedures engineered into care.

Goals of postoperative management
- Promote mobility and avoid postoperative complications
- Return patient to their highest level of functioning.

OVERVIEW OF THE POSTOPERATIVE PERIOD

The postoperative period is characterized by several challenges for the elderly patient. The normal decline in physiologic reserve seen in the cardiovascular, pulmonary, renal, and neurocognitive systems of the elderly is further affected by the physiologic stress of surgery, anesthesia, and immobility.[1,2] Furthermore, this decreased functional reserve, coupled with accumulated comorbidities and impairments in functional status often found in the elderly, predisposes the patient to an increased risk for postoperative complications. These complications delay recovery and result in an increased length of stay, loss of function, and risk of subsequent decline that threatens the patient's ability to transition to the highest level of independent living in the home and community.

Morbidity and mortality surge in the week following surgery.[3] Criteria from the American Heart Association and the American Society of Anesthesiologists have been developed to predict perioperative risk; however, these criteria are imperfect in assessing the surgical risk for elderly patients. Other markers for postoperative risk are now recognized as equally valuable. These include the presence of frailty, malnutrition, and functional status. A clearly outlined approach to assess and manage risk is required to achieve the best outcomes.[4–6] In addressing the approach to the management of patients in the postoperative period, it is worthwhile to specifically examine the organ systems affected by this stress to best understand the recommendations.

IMPLICATIONS OF PHYSIOLOGIC CHANGES OF AGING ON POSTOPERATIVE COMPLICATIONS

An understanding of the physiology of the elderly patient allows the team managing hip fractures to direct care with the aim of mitigating adverse events that develop.

Respiratory System

- Pulmonary morbidity is the most common complication following noncardiac surgery.
- Physiologic aging leads to lowered Pa_{O_2}, increased work of breathing, and decline in central hypoxic drive.
- Postoperative narcotics and immobility lead to atelectasis, hypoxia, and hypercarbia.

Pulmonary morbidity, along with cardiac events, is the most common complication following non-cardiac surgery in elderly patients.[7] Several well-known aging-related physiologic changes in the respiratory system result in a patient who is vulnerable