Developing a Multidisciplinary Fall Reduction Program for Lower-Extremity Joint Arthroplasty Patients

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KEYWORDS

• Fall prevention • Fall reduction • Patient safety • Total joint replacement
• Regional anesthesia

KEY POINTS

- Total joint arthroplasty patients are at increased risk for postoperative falls, and anesthesiologists can provide leadership in promoting patient safety during the perioperative period.
- A multidisciplinary team approach is associated with greater success in implementing interventions and reducing fall rates.
- Multicomponent interventions that address risk factors specific to each hospital's total joint arthroplasty patients are essential to a successful fall reduction program.
- Making fall reduction interventions an integral and routine part of patient care is necessary for long-term changes.

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INTRODUCTION

Falls continue to occur frequently in the community, long-term care facilities, and hospitals, often leading to adverse events. In 2011, emergency departments in the United States treated 2.4 million adults with fall-related injuries, leading to 689,000 patient hospitalizations.[1] During a 2-year span in Australia, one in every six patients 70 years of age or older presented to the emergency department because of a fall, which averaged 4.4 falls per day, with 40% of subsequent hospitalizations caused by fractures.[2] The incidence of falls among hospitalized patients 65 years of age or older is close to three times the rate observed in the community.[3] For acute-care hospitals, fall rates (equal to total number of falls/number of occupied bed days $\times$ 1000) can range from 1.3 to 8.9 falls per 1000 hospital days, with higher rates in certain wards specializing in neurology, geriatrics, and physical rehabilitation.[4]

The Joint Commission (TJC) includes fall prevention as one of the national patient safety goals and requires each health care facility to effectuate a fall reduction program.[5] The increasing focus on inpatient fall reduction is justified. Falls can lead to physical injuries, anxiety and fear of future falls, and prolonged hospital stays.[4,6–9] In addition, the financial burden of falls on the health care system is not insignificant. In 2000, direct medical costs in the United States for nonfatal fall injuries were $19 billion.[10] The Centers for Medicare and Medicaid Services categorize inpatient falls as a hospital-acquired condition, leaving hospitals to shoulder the burden of costs associated with subsequent care.[11]

When considering lower-extremity total joint replacement surgeries, patients may incur additional risks compared with their nonsurgical counterparts because of potential gait and balance disturbances, effects of postoperative polypharmacy, intravascular volume status changes, and unfamiliarity with the hospital environment. This target patient population is of particular interest to anesthesiologists because 3.48 million total knee replacement procedures are estimated to be performed each year by 2030 in the United States.[12] Although the care of surgical patients by anesthesiologists has been defined traditionally in the preoperative and intraoperative periods, the increasing implementation of regional anesthesia techniques for acute pain medicine and the expanding perioperative role (perioperative surgical home concept)[13] are involving anesthesiologists more frequently in the management of postoperative outcomes and complications. Anesthesiologists are in a position to provide leadership in preventing falls and to collaborate with other health care providers to improve patient safety among total joint arthroplasty patients.

CURRENT GUIDELINES

Although falls are widespread in acute-care and long-term settings and recognized as a potential comorbidity, there has yet to be established a generally accepted or standardized fall reduction program for hospitals. Numerous studies have investigated the effectiveness of interventions or strategies singly or in combination[4,14]; however, the dynamic etiologies of, and variable circumstances surrounding, falls have precluded a program that can be universally applied to all patient care settings. In a 2001 fall prevention guideline published jointly by the American Geriatrics Society, British Geriatric Society, and American Academy of Orthopedic Surgeons, recommendations were provided mostly for community-dwellers and long-term care centers, but the panel concluded that further studies were necessary to outline fall prevention elements for acute-care hospitalized patients.[3] TJC outlines key elements that should be included in a fall reduction program (**Box 1**). Even though there is no defined program for total joint arthroplasty patients, previous investigations have addressed inpatient falls in