

Predictors of Recurrent Falls in Community-Dwelling Older Adults after Fall-Related Hip Fracture

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Introduction

As longevity becomes an inevitable factor for our aging population, more individuals are living with multiple chronic health conditions than ever before. Comorbidities such as heart disease, diabetes, hypertension, arthritis, and chronic obstructive pulmonary disease can lead to increased debility and place older adults at high risk for falls and serious injuries such as hip fractures. According to the literature, hip fractures are associated with a marked functional decline within the 12-month period following the injury [1,2] with less than one-half of patients regaining their prior level of functioning [3]. There are risk factors that can predict an older adult's functional level after hospitalization for a hip fracture. These risk factors include comorbidities, quality of life, nutritional status, muscle strength, balance, ability to perform activities of daily living, pre-fracture health status and fall history, physical activity level, and history of gait device use [4-7].

Lloyd et al. [4] conducted a prospective study on 193 participants (mean age 81 years) to investigate the incidence of and related risk factors for recurrent and fall-related injuries in community-dwellers hospitalized for surgical repair of hip fracture due to minimal trauma. Patient were surveyed using phone calls, medical records, and calendars of fall events. Results revealed 227 falls within the year after hip fracture for fall surveillance data collected on 178 participants. There were falls and fall-related injuries to include participants who had fallen at least once (56%), had recurrent falls (28%), had fall-related injuries (30%), experienced a new fracture (12%), and experienced a new hip fracture (5%). Age-adjusted fall risk factors for recurrent and fall-related injuries included decreased health status, quality of life, nutritional status and vitamin D, muscle strength, balance, physical activity level, as well as increased polypharmacy, comorbidities, and disabilities. Independent risk factors identified by multivariate analyses for recurrent and fall-related injuries included older persons, congestive heart failure, decreased quality of life, and decreased nutritional status [4].

Shumway-Cook et al. [5] conducted an observational cohort study on ninety community-dwelling older persons >65 years of age who had undergone hospitalization for a fall-related hip fracture. Interviews and medical records were utilized to obtain demographic data, pre-fracture health status, number of falls, and functional status. Six months following hospitalization the participants were interviewed regarding number of falls and had completion of performance-based measures of balance and mobility. Results revealed that 53.3% of participants had a self-report of 1 or more falls within this time-frame. Risk factors for falls included greater decline in ability to perform activities of daily living and lower performance on balance and mobility measures.

Predictors for falls post discharge also included pre-fracture fall history and gait device use [5].

Ingemarsson et al. [6] performed a stepwise logistic regression of 157 patients (mean age 80.9 years) who underwent surgery for hip fractures to determine which variables can predict ambulatory ability and activity level at 12 months after hip fracture and to describe functional capacity over time. Fifty-seven patients participated in the follow-up with a significant attrition rate due to high mortality and fragility. The patients received physical performance testing at discharge. Pre-fracture status was evaluated by interviews and post-fracture activity level was evaluated at 1 year follow-up. Results revealed that the performance test "Timed up and go" was a strong predictor for functional ambulatory ability and activity level 12 months after the fracture. Consequently, patients walking speed was significantly faster with improved balance function [6].

Eisler et al. [7] conducted a multiple regression analysis of 75 patients (mean age 78 years) who underwent cannulated screw fixation for nondisplaced femoral neck fractures. The authors recorded pre-injury Functional Independence Measure scores at 3 and 6 months. Data were also recorded on comorbidities, time of operation, type of anesthesia, estimated surgical blood loss, number of transfusions, and complications in the post-op period. Results revealed the mean overall scores were 86% and 89% of the initial Functional Independence Measure scores and 73% and 89% of the initial Locomotion Functional Independence Measure scores, at 3 and 6 months, respectively. The patient's age and initial overall Functional Independence Measure score were independent predictors of locomotion and functional measure scores at 3 months; whereas, only the initial Functional Independence Measure score predicted Functional Independence Measures at 6 months. Findings suggested that the patient's age may affect the speed of recovery but does not affect the final functional results. The only comorbid condition that significantly affected functional recovery at 3 months was chronic obstructive pulmonary disease; no affect was seen at 6 months. The time of operation, type of anesthesia, estimated surgical blood loss, and gender did not have an impact on functional outcomes [7].

Health care providers can play a vital role in identifying multiple risk factors associated with recurrent falls and fall-related injuries in community-dwelling older adults with recent hospitalization for hip fractures. Identification of these risk factors in the early post-hospital discharge period can assist the practitioner in the establishment of plans of care to meet the patient's individualized health care needs and fall prevention care. The practitioner can interview the patient and significant caregiver and review medical records and multiple medication use, identify pre-fracture health status and fall history, comorbidities, ability to perform activities of daily living and specific

nutritional needs. Functional performance test can be administered to assess muscle strength and balance to determine the patient's risk for falls. Implementation of these strategies can aim at preventing recurrent falls and fall-related injuries; thus, providing an increased quality of life for these individuals.

References

1. Magaziner J, Hawkes W, Hebel JR, Zimmerman SI, Fox KM, et al. (2000) Recovery from hip fracture in eight areas of function. *J Gerontol A Biol Sci Med Sci* 55: M498-507.
2. Michel JP, Hoffmeyer P, Klopfenstein C, Bruchez M, Grab B, et al. (2000) Prognosis of functional recovery 1 year after hip fracture: Typical patient profiles through cluster analysis. *J Gerontol A Biol Sci Med Sci* 55: M508-515.
3. Röder F, Schwab M, Aleker T, Mörike K, Thon KP, et al. (2003) Proximal femur fracture in older patients--rehabilitation and clinical outcome. *Age Ageing* 32: 74-80.
4. Lloyd BD, Williamson DA, Singh NA, Hansen RD, Diamond TH, et al. (2009) Recurrent and injurious falls in the year following hip fracture: A prospective study of incidence and risk factors from the sarcopenia and hip fracture study. *J Gerontol A Biol Sci Med Sci* 64: 599-609.
5. Shumway-Cook A, Ciol MA, Gruber W, Robinson C (2005) Incidence of and risk factors for falls following hip fracture in community-dwelling older adults. *Physical Therapy: Journal of the American Physical Therapy Association*.
6. Ingemarsson AH, Frändin K, Mellström D, Möller M (2003) Walking ability and activity level after hip fracture in the elderly--a follow-up. *J Rehabil Med* 35: 76-83.
7. Eisler J, Cornwall R, Strauss E, Koval K, Siu A, et al. (2002) Outcomes of elderly patients with nondisplaced femoral neck fractures. *Clin Orthop Relat Res* 52-58.