Preventing Falls in Elderly Hospitalized Patients: A Review of Evidenced Based Interventions

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The National Database of Nursing Quality Indicators (NDNQI) defines a fall “as an unplanned descent to the floor with or without injury to the patient” (Agency for Healthcare Research and Quality) (AHRQ). According to Gray-Micelli and Quigley (2012), “Falls rank as the eighth leading cause of unintentional injury for older Americans and were responsible for more than 16,000 deaths in 2006.” Studies by Cameron, et al., (2014) identified the elderly population as patients who were 65 years or older, and hospitalized. Patients 65 years and older are more prone to falls, thus, twenty to 30% of the falls result in head injuries, hip fractures and death (World Health Organization, 2012). Hospitals’ fall prevention policies should align with evidence-based research recommendations to assure the safety of elderly patients.

Healthcare professionals, policy makers, researchers, geriatric daycare providers, rehabilitative services and long term care providers, performance improvement teams, and family members would benefit from research pertaining to evidence –based fall prevention interventions. Fall prevention care in elderly patients require collaborative, multifactorial interventions by clinicians, families, therapists, and technicians. (Ganz, Alkema, & Wu, 2008).

There is a large volume of research information about hospitalized elderly falls in the form of reviews, case studies, and practice guidelines. Cochrane’s library (known for its six databases) returned 189 systematic reviews and 14,084 trials by using key words elderly falls, falls and hospitalized elderly. The Cumulative Index of Nursing and Allied Health Literature (CINAHL) returned 10 case controlled studies related to elderly falls, as well.

**Summary of Research Articles**

Three research articles indicated that several care settings were looking at what could be done to prevent falls. One such article discussed a study done to determine whether there was a
relationship between psychotropic medications and fall rates in the inpatient geriatric psychiatric setting. The independent variable was the number and types of psychotropic medications given and the dependent variable was the fall rate among participants. The population was 485 inpatients of a geriatric psychiatric unit, over the age of 60 during the span of one year. The design was a “one-year prospective, exploratory and descriptive study” (Blair & Szarek, 2008). The findings revealed significantly less number of falls among those patients who were given atypical antipsychotic or antidepressant medications over those who were not. The authors shared that overall mental and physical health of the subjects varied. They stated that it is unclear what “factors predispose the patient to fall” and ask whether it is “the medications that are used to treat a specific diagnosis or is it the diagnosis and its symptoms alone placing the patient at risk to fall” (Blair & Szarek, 2008, p. 10). The authors suggested that further research is needed and recommended treating each patient as an individual maintaining openness to other factors as a source of fall risk.

Another study was done on 204 patients, aged 60 or older, at a teaching hospital. The researchers were trying to see if there was a relationship between the number of fall-risk increasing drugs (FRIDS), total number of medications, and/or drug-drug interactions (DDI) (independent variables), and falls in the elderly (both frail and robust) inpatient population (dependent variable). The authors hypothesized that the number of medications taken would increase the incidence of falls in this population. This prospective cohort study found that, “exposure to FRIDS and other measures of high risk medication exposures is common in older people admitted with falls, especially the frail” (Bennet et al., 2014, p. 225) The implications were that providers should consider the number and type of medications frail elderly are on or
are being prescribed, when assessing for fall risk and consider removal of unnecessary medications. The authors suggested further research. (Bennet et al., 2014).

A third article described a systematic examination of several randomized, controlled trials focusing on fall prevention programs and their outcomes. The study aim was to determine if homogeneity existed between studies published from 1999 to 2005 and those published between 2008 and 2012. Eighty-four case controlled and observational cohort studies were compared. The review concluded that: “falls can be precipitated by many factors and patients who fall often have several risk factors, multicomponent interventions are believed to be necessary for prevention” (Miake-Lye, Hempel, Ganz, & Shekelle, 2013, p. 390)

In summary, successful programs included the presence of “leadership support, engagement of front-line clinical staff in the design of the intervention, guidance by a multidisciplinary committee, pilot-testing of interventions and changing nihilistic attitudes about falls”(Miake-Lye et al., 2013, p. 390). The program promoted use of risk assessment tools, staff education, and components designed for sustainment of the program’s success. These studies could impact the way that future fall prevention programs are designed. The authors suggested further research to advance the goal of fall prevention.

Summary of Systematic Review Articles and Practice Guidelines

A systematic review of Ganz, Alkema, & Wu’s (2008) article revealed a meta-analysis of randomized control studies (RCTs) that depicted the benefits of multifactorial fall prevention and management activities (FP/M) in three areas: (a) health promotion strategies such as assessment of physical activities, (b) multifactorial risk factor assessment, and (c) minimizing the consequences of falls. The article revealed that FP/M required a high degree of coordination on multiple settings by multiple providers. They concluded that a new set of concepts are needed to
judge the adequacy of FP/M. They stated, “It takes a village of stakeholders working together to prevent falls and reduce fall risk; tasks that no one stakeholder can accomplish alone” (Ganz, et al., 2008, p. 270)

A second systematic review of Maike-Lye, Hempel, Ganz, & Shekelle (2013) research conducted from 2005 to 2013 assessed several reviews (including 4 meta-analyses that involved 19 studies) were in agreement with studies conducted earlier by Ganz, et al. in 2008. Maike-Lye et al., (2013) stated, “Future research would most effectively advance the field by determining whether an ‘optimal’ bundle of components exists or whether effectiveness is primarily a function of successful implementation” (p. 395).

Two sources were reviewed pertaining to practice guidelines for fall prevention in the elderly patient population. One source was the Hartford Institute for Geriatric Nursing and the other source was Falls Preventions Best Practice Guidelines for Public Hospitals and State Government Residential Aged Care Facilities Incorporating a Community Integration Supplement from Queensland, Australia. The sources were equal in regards to basic best practice guidelines for hospitalized elderly patients. The guidelines included a clear definition and etiology of a fall, extensive assessment guidelines with nursing care strategies, expected outcomes, and follow-up monitoring of patients’ conditions. Queensland’s practice guidelines had extensive protocols for the prevention of falls including nutritional management (Queensland Government).

**Level of Evidence and Grades of Recommendations**

The Joanna Briggs Institute (JBI) levels of recommendations (a 3 tier grade system) was used to determine the quality of the evidence, its profound effect, and the ratio of harm to
effectiveness. The grade recommendations were grade A for strong evidence, grade B for moderate evidence, and grade C if no evidence existed (Hopp and Rittenmeyer, 2012).

Bennet et al., (2014) observational study was conducted without the use of RCT or control groups. It used statistical analysis on obtained data to show findings. Findings pertaining to frail and robust patients included the following recommendations: (a) clinicians should be mindful of type and quantity of medication they prescribe (B-moderate evidence); (b) deprescribing certain medications while hospitalized may reduce the incidence of falls; (c) robust patients with <2.5 medications and frail patients with <1.5 medications prescribed FRID have reduced incidence of falls (B-moderate evidence); and (d) robust elderly patients taking less than 5.5 medications have a decreased risk of fall (B-moderate evidence). The article calls upon further research on FRID withdrawal and its effect on patient outcome (B-moderate evidence) (Bennet et al., 2014).

Blair and Szarek (2008) used an exploratory and descriptive study on all patients admitted to a psychiatric setting in a one year period. This article used credible synthesized findings for support but it lacked design of a control group or RCT. Recommendations were presented: (a) nurses should be vigilant with low fall risk patients during medication modifications; (b) shift evaluation of patient for changes (B-moderate evidence); (c) use non-skid floor material that reduce impact of falls (A-strong evidence); (d) cognizant of fall risk associated with psychotropic medication (A-strong evidence); (e) hip protectors for high risk fall patients (B-moderate evidence); and (f) rails in the corridors and night lights in the room (C-no evidence).

Miake-Lye, Hempel, Ganz, and Shekelle (2013) used a meta-analysis involving 19 different studies. The article summarized the findings and made recommendations: (a) patient
education, bedside risk signs, and staff education to be effective and quick steps that can be implemented at low cost (A-strong evidence); (b) stress the importance of alter wristbands, proper footwear, and toilet scheduling to reduce fall risk (A-strong evidence); (c) focus on how to effectively implement fall prevention; and (d) leadership support needed at the facility and unit level (A-strong evidence), and multidisciplinary committees to oversee interventions (A-strong support).

**Policy Review**

Prevalent findings that resonated in each of the articles included: (a) medications often increase the risk of falls in elderly patients; (b) internal and environmental factors should be considered in fall prevention plans; (c) use of an admission fall screening tool; and (d) inclusion of universal fall precautions such as use of night lights, call lights, identifying wristbands and patient alarms, non-skid foot wear, removal of excess clutter and signage alerting staff to patients’ fall risk status; (e) patient education about fall prevention; (f) scheduled toileting; (g) suggestion for the implementation of a multidisciplinary fall prevention program.

Examination of two hospitals’ fall prevention programs revealed that Riverside Health System used the Modified Morse Fall Scale and Sentara used the Johns Hopkins Modified Fall Assessment Tool. The hospitals’ fall prevention policies were very similar and included all of the evidence based recommendation found in the literatures. No changes were warranted to the existing policies.

**Conclusion**

Evidence-based fall prevention programs require a multidisciplinary approach due to the multifactorial factors that surround elderly falls. More research is needed pertaining to removal
of FRIDs and FRID withdrawal in the elderly, implementation of a multidisciplinary fall prevention programs, and the mind of the older hospitalized patient. Elder care is dynamic.
References


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Riverside Health System Fall Policy, [Riverside health System fall prevention policy.pdf](Riverside health System fall prevention policy.pdf)

