Our Mission: Helping to prepare Iowa’s health practitioners to care for our growing population of elders. E-NEWS is one of our methods of teaching through technology.

Each month, E-NEWS delivers abstracts from current multidisciplinary healthcare journal articles related to a specific geriatric topic. This month’s E-NEWS focuses on FALLS IN OLDER ADULTS: AN OVERVIEW.

FALLS IN OLDER ADULTS: AN OVERVIEW

In this issue of the E-NEWS, you will find abstracts for:

- A study that analyzes total 3-year healthcare costs for older adults who experience a fall requiring medical care.
- A study that explores determinants of disparities between perceived and physiological risk of falling among older adults.
- A study that investigates executive control deficits as a prodrome to falls in healthy older adults.
- A study that researches the effect of Vitamin D treatment on fall prevention in older adults.
- An article that reviews evidence for primary care-relevant interventions to prevent falls in older adults.
- A study that evaluates the effects of a risk-based multifactorial fall prevention program on the incidence of falls.
- An article that reports the development and validation of a brief performance-based fall risk assessment tool for use in primary care.
- A study that examines the effect of dissemination of evidence on reducing injuries from falls.
- An article that uses a case study to discuss falls in older adults.
OBJECTIVES: To compare longitudinal changes in healthcare costs between fallers admitted to the hospital at the time of the fall (admitted), those not admitted to the hospital (nonadmitted), and nonfaller controls; test hypotheses related to differences in mean costs between and within these groups over time; and estimate the costs attributable to falling. DESIGN: Longitudinal cohort. SETTING: Group Health Cooperative of Puget Sound. PARTICIPANTS: Seven thousand nine hundred ninety-three nonadmitted fallers, 976 admitted fallers, and 8,956 nonfallers aged 67 and older enrolled in an integrated healthcare delivery system. Fallers were identified according to fall-related E-Codes and International Classification of Diseases, Ninth Revision codes recorded between January 1, 2004, and December 31, 2006. Nonfallers were frequency matched on age group and sex. MEASUREMENTS: Quarterly costs during a 3-year period were modeled using generalized estimating equations. Covariates included index age, sex, RxRisk (a comorbidity adjuster), fall status, time, and interactions between fall status and time. RESULTS: Cost differences between the faller cohorts and nonfallers were greatest in quarters closest to the fall (all P<.01) and persisted throughout the entire year of follow-up. Although nonfaller costs increased with time, faller cohort costs increased more quickly (all P<.01). For admitted fallers, 92% of costs incurred in the quarter of the fall were estimated to be attributable to falling ($27,745 of $30,038, P<.001). CONCLUSION: Falls for which medical attention is sought resulted in higher costs than for nonfallers for up to 12 months after a fall, particularly for falls requiring hospitalization. Prevention efforts should focus on reducing fall-related injuries requiring hospitalization because they produce the highest excess costs and have a higher likelihood of 1-year mortality.


OBJECTIVES: To gain an understanding of elderly people’s fear of falling by exploring the prevalence and determinants of perceived and physiological fall risk and to understand the role of disparities in perceived and physiological risk in the cause of falls. DESIGN: Prospective cohort study. SETTING: Community sample drawn from eastern Sydney, Australia. PARTICIPANTS: 500 men and women aged 70-90 years. MAIN OUTCOME MEASURES: Baseline assessment of medical, physiological, and neuropsychological measures, with physiological fall risk estimated with the physiological profile assessment, and perceived fall risk estimated with the falls efficacy scale international. Participants were followed up monthly for falls over one year. RESULTS: Multivariate logistic regression analyses showed that perceived and physiological fall risk were both independent predictors of future falls. Classification tree analysis was used to split the sample into four groups (vigorous, anxious, stoic, and aware) based on the disparity between physiological and perceived risk of falling. Perceived fall risk was congruent with physiological fall risk in the vigorous (144 (29%)) and aware (202 (40%)) groups. The anxious group (54 (11%)) had a low physiological risk but high perceived fall risk, which was related to depressive symptoms (P=0.029), neurotic personality traits (P=0.026), and decreased executive functioning (P=0.010). The stoic group (100 (20%)) had a high physiological risk but low perceived fall risk, which was protective for falling and mediated through a positive outlook on life (P=0.001) and maintained physical activity and community participation (P=0.048). CONCLUSION: Many elderly people underestimated or overestimated their risk of falling. Such disparities between perceived and physiological fall risk were primarily associated with psychological measures and strongly influenced the probability of falling. Measures of both physiological and perceived fall risk should be included in fall risk assessments to allow tailoring of interventions for preventing falls in elderly people.


BACKGROUND: Executive function (EF) deficits may increase fall risk, even among older adults with no overt cognitive impairment. Indeed, the effects of dual tasking (DT) on gait, a challenge to executive control, are more exaggerated in persons with a history of falls. Prospective evidence is, however, lacking. METHODS: We prospectively evaluated whether EF predicts falls over a 2-year period among 262 community-living, healthy, and well-functioning older adults, focusing on the 201 who reported no falls during the previous year. At baseline, participants completed a computerized cognitive battery that generated an index of EF and other
cognitive domains. Gait was assessed using performance-based tests and by quantifying walking during single- and dual-task conditions. RESULTS: The 262 participants (mean age: 76.3 ± 4.3 years, 60.3% women) had intact cognitive function on testing, a low comorbidity index, and good mobility. The EF index predicted future falls. Among those who reported no previous falls, participants in the worst EF quartile were three times more likely to fall during the 2 years of follow-up, and they were more likely to transition from nonfaller to faller sooner. DT gait variability also predicted future falls and multiple falls, whereas other measures of cognitive function, gait, and mobility did not. CONCLUSIONS: Among healthy older adults, individuals with poorer EF are more prone to falls. Higher-level cognitive functions such as those regulated by the frontal lobes are apparently needed for safe everyday navigation that demands multitasking. Optimal screening, early detection, and treatment of falls should, apparently, also target this cognitive domain.


OBJECTIVES: To systematically review and quantitatively synthesize the effect of vitamin D therapy on fall prevention in older adults. DESIGN: Systematic review and meta-analysis. SETTING: MEDLINE, CINAHL, Web of Science, EMBASE, Cochrane Library, LILACS, bibliographies of selected articles, and previous systematic reviews through February 2009 were searched for eligible studies. PARTICIPANTS: Older adults (aged > or = 60) who participated in randomized controlled trials that both investigated the effectiveness of vitamin D therapy in the prevention of falls and used an explicit fall definition. MEASUREMENTS: Two authors independently extracted data, including study characteristics, quality assessment, and outcomes. The I(2) statistic was used to assess heterogeneity in a random-effects model. RESULTS: Of 1,679 potentially relevant articles, 10 met inclusion criteria. In pooled analysis, vitamin D therapy (200-1,000 IU) resulted in 14% (relative risk (RR)=0.86, 95% confidence interval (CI)=0.79-0.93; I(2)=7%) fewer falls than calcium or placebo (number needed to treat =15). The following subgroups had significantly fewer falls: community-dwelling (aged <80), adjunctive calcium supplementation, no history of fractures or falls, duration longer than 6 months, cholecalciferol, and dose of 800 IU or greater. Meta-regression demonstrated no linear association between vitamin D dose or duration and treatment effect. Post hoc analysis including seven additional studies (17 total) without explicit fall definitions yielded smaller benefit (RR=0.92, 95% CI=0.87-0.98) and more heterogeneity (I(2)=36%) but found significant intergroup differences favoring adjunctive calcium over none (P=.001). CONCLUSION: Vitamin D treatment effectively reduces the risk of falls in older adults. Future studies should investigate whether particular populations or treatment regimens may have greater benefit.


BACKGROUND: Falls among older adults are both prevalent and preventable. PURPOSE: To describe the benefits and harms of interventions that could be used by primary care practitioners to prevent falling among community-dwelling older adults. DATA SOURCES: The reviewers evaluated trials from a good-quality systematic review published in 2003 and searched MEDLINE, the Cochrane Central Register of Controlled Trials, Cochrane Database of Systematic Reviews, and CINAHL from the end of that review’s search date to February 2010 to identify additional English-language trials. STUDY SELECTION: Two reviewers independently screened 3423 abstracts and 638 articles to identify randomized, controlled trials (RCTs) of primary care-relevant interventions among community-dwelling older adults that reported falls or fallers as an outcome. Trials were independently critically appraised to include only good- or fair-quality trials; discrepancies were resolved by a third reviewer. DATA EXTRACTION: One reviewer abstracted data from 61 articles into standardized evidence tables that were verified by a second reviewer. DATA SYNTHESIS: Overall, the included evidence was of fair quality. In 16 RCTs evaluating exercise or physical therapy, interventions reduced falling (risk ratio, 0.87 [95% CI, 0.81 to 0.94]). In 9 RCTs of vitamin D supplementation, interventions reduced falling (risk ratio, 0.83 [CI, 0.77 to 0.89]). In 19 trials involving multifactorial assessment and management, interventions with comprehensive management seemed to reduce falling, although overall pooled estimates were not statistically significant (risk ratio, 0.94 [CI, 0.87 to 1.02]). Limited evidence suggested that serious clinical harms were no more common for older adults in intervention groups than for those in control groups. Limitations: Interventions and methods of fall ascertainment were heterogeneous. Data on potential harms of interventions were scant and often not reported. CONCLUSION: Primary care-relevant interventions exist that can reduce falling among community-dwelling older adults.

OBJECTIVES: To evaluate the effects of a multifactorial fall prevention program on falls and to identify the subgroups that benefit the most. DESIGN: Randomized controlled trial. SETTING: Community-dwelling subjects who had fallen at least once during the previous 12 months. PARTICIPANTS: Five hundred ninety-one subjects randomized into intervention (IG) (n=293) and control (CG) (n=298) groups. INTERVENTION: A multifactorial 12-month fall prevention program. MEASUREMENTS: Incidence of falls. RESULTS: The intervention did not reduce the incidence of falls overall (incidence rate ratio (IRR) for IG vs CG=0.92, 95% confidence interval (CI)=0.72-1.19). In subgroup analyses, significant interactions between subgroups and groups (IG and CG) were found for depressive symptoms (P=.006), number of falls during the previous 12 months (P=.003), and self-perceived risk of falling (P=.045). The incidence of falls decreased in subjects with a higher number of depressive symptoms (IRR=0.50, 95% CI=0.28-0.88), whereas it increased in those with a lower number of depressive symptoms (IRR=1.20, 95% CI=0.92-1.57). The incidence of falls decreased also in those with at least three previous falls (IRR=0.59, 95% CI=0.38-0.91) compared to those with one or two previous falls (IRR=1.28, 95% CI=0.95-1.72). The intervention was also more effective in subjects with high self-perceived risk of falling (IRR=0.77, 95% CI=0.55-1.06) than in those with low self-perceived risk (IRR=1.28, 95% CI=0.88-1.86). CONCLUSION: The program was not effective in reducing falls in the total sample of community-dwelling subjects with a history of falling, but the incidence of falls decreased in participants with a higher number of depressive symptoms and in those with at least three falls.


BACKGROUND: To report the development, external validity, reliability, and feasibility of a falls risk assessment tool for use in primary care. METHODS: Two prospective cohort studies, a test-retest reliability study, and a feasibility study were included. Seven hundred and sixty four older community-living people (mean age = 75.3 years, SD = 5.8) participated in the tool development study, 362 people (mean age = 80.25 years, SD = 4.5) participated in the external validation study, 30 older people took part in the test-retest reliability study, and 32 clinicians participated in the feasibility study. RESULTS: The fall risk assessment score (number of risk factors) displayed a good ability to discriminate between multiple fallers (those who experienced two or more falls) and non-multiple fallers in the external validation study (area under the receiver operating characteristic curve = 0.72, 95% confidence interval = 0.66-0.79). Each of the performance items; low contrast visual acuity, tactile sensitivity, sit to stand, alternate step, and near tandem stand ability; and measures of previous falls and medications could discriminate between prospectively categorized multiple fallers and non-multiple fallers with relative risk values ranging from 1.4 to 2.4 in the development study. The probability of future multiple falls increased from 7% with the identification of zero or one risk factor up to a probability of 49% with the identification of six or more risk factors. The assessment items exhibited moderate to excellent test-retest reliability and a high degree of acceptance by health professionals. CONCLUSION: The assessment tool is an externally validated, reliable, and feasible falls risk assessment that can accurately predict multiple falls and assist with guiding interventions in community living older people.


BACKGROUND: Falling is a common and morbid condition among elderly persons. Effective strategies to prevent falls have been identified but are underutilized. METHODS: Using a nonrandomized design, we compared rates of injuries from falls in a region of Connecticut where clinicians had been exposed to interventions to change clinical practice (intervention region) and in a region where clinicians had not been exposed to such interventions (usual-care region). The interventions encouraged primary care clinicians and staff members involved in home care, outpatient rehabilitation, and senior centers to adopt effective risk assessments and strategies for the prevention of falls (e.g., medication reduction and balance and gait training). The outcomes were rates of serious fall-related injuries (hip and other fractures, head injuries, and
joint dislocations) and fall-related use of medical services per 1000 person-years among persons who were 70 years of age or older. The interventions occurred from 2001 to 2004, and the evaluations took place from 2004 to 2006. RESULTS: Before the interventions, the adjusted rates of serious fall-related injuries (per 1000 person-years) were 31.2 in the usual-care region and 31.9 in the intervention region. During the evaluation period, the adjusted rates were 31.4 and 28.6, respectively (adjusted rate ratio, 0.91; 95% Bayesian credibility interval, 0.88 to 0.94). Between the preintervention period and the evaluation period, the rate of fall-related use of medical services increased from 68.1 to 83.3 per 1000 person-years in the usual-care region and from 70.7 to 74.2 in the intervention region (adjusted rate ratio, 0.89; 95% credibility interval, 0.86 to 0.92). The percentages of clinicians who received intervention visits ranged from 62% (131 of 212 primary care offices) to 100% (26 of 26 home care agencies). CONCLUSIONS: Dissemination of evidence about fall prevention, coupled with interventions to change clinical practice, may reduce fall-related injuries in elderly persons.


Falls are common health events that cause discomfort and disability for older adults and stress for caregivers. Using the case of an older man who has experienced multiple falls and a hip fracture, this article, which focuses on community-living older adults, addresses the consequences and etiology of falls; summarizes the evidence on predisposing factors and effective interventions; and discusses how to translate this evidence into patient care. Previous falls; strength, gait, and balance impairments; and medications are the strongest risk factors for falling. Effective single interventions include exercise and physical therapy, cataract surgery, and medication reduction. Evidence suggests that the most effective strategy for reducing the rate of falling in community-living older adults may be intervening on multiple risk factors. Vitamin D has the strongest clinical trial evidence of benefit for preventing fractures among older men at risk. Issues involved in incorporating these evidence-based fall prevention interventions into outpatient practice are discussed, as are the trade-offs inherent in managing older patients at risk of falling. While challenges and barriers exist, fall prevention strategies can be incorporated into clinical practice.
Next Month's Issue:

Gait Assessment in Older Adults

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