Welcome

This issue features:

- Mid North Coast LHD Rural Falls Forum
- Websites, Meetings and Conferences
- Recent Abstracts from the research literature

“Falls Prevention is everyone’s business®”

FOR YOUR DIARY:
NSW Falls Prevention Network Forum
Friday 23rd May 2013
Mid North Coast LHD Rural Falls Forum

The Mid North Coast LHD Falls Forum was held in Coffs Harbour on Friday 28th February, and attended by 54 participants. Participants travelled from 7 locations within the Local Health District (LHD) and were from a range of work settings including hospital, community, residential aged care as well as community service providers from both the public and private sector and also local council.

Key presenters included: Professor Stephen Lord, and Professor Jacqueline Close, Neuroscience Research Australia, Ms Anthea Temple, Agency for Clinical Innovation. As well, the Mid North Coast Fall Injury Prevention Plan was launched, having just been approved by the Mid North Coast Local Health District Board. The forum was opened by Ms Kathleen Ryan, Executive Director, Clinical Governance and Information Systems, Mid North Coast Local Health District.

The presenters and presentations included:

Ms Donna Dorrington, Patient Safety Program Manager, Mid North Coast Local Health District (MNC LHD) - Launch MNC LHD Falls Injury Prevention Plan 2014 – 2019, & introducing Mr Frank Stewart, MNC LHD Falls Co-ordinator.

Professor Stephen Lord, Senior Principal Research Fellow, Falls and Balance Research Group, Neuroscience Research Australia (NeuRA) - Falls prevention research update.

Professor Jacqueline Close, Geriatrician, Prince of Wales Hospital and Principal Research Fellow and Director, Falls and Injury Prevention Group NeuRA - Preventing falls in dementia – is there any evidence?

Dr Joanne Rowley, Nurse Researcher, Nursing, Coffs Harbour Health Campus – highlights of some key initiatives that have been implemented in the medical ward, Coffs Harbour.

Ms Lorraine Lovitt, Leader, NSW Falls Prevention Program, Clinical Excellence Commission - Update of NSW Falls Prevention Program.

Dr Esther Vance, Project Officer, NSW Falls Prevention Network & Active and Healthy website, NeuRA Falls prevention resources and activities of the NSW Falls Prevention Network.
Ms Carolynn Worthing, Nursing Unit Manager, ED Coffs Harbour Health Campus – a new and innovative approach to provide follow-up care to people discharged from ED.

Ms Anthea Temple, Project Officer, Aged Health Network, Agency for Clinical Innovation - Care of the Confused Hospitalised Older Person Study (CHOPS).

The PDFs of the presentations are available on the NSW Falls Prevention Network website at: http://fallsnetwork.neura.edu.au/events/

Evaluations were completed by 67% of the participants. Over 97% of respondents rated the overall forum as ≥ 4 (1 is poor and 5 is excellent) and over 80% of respondents rated the presentations by the presenters as ≥ 4.

The main comments on the forums were that they were very informative and well-presented and the information was found to be very useful to those who attended. Participants wanted to be kept regularly informed on the evidence based research particularly on strategies that work and their implementation for their care settings especially residential aged care and also for community service providers. Suggestions for the mechanism for delivery of this information was further face to face sessions or email updates.

The main issues and barriers that participants identified which prevented them from implementing falls prevention strategies were workforce issues, lack of time and need for further staff education and lack of resources. To assist in implementing strategies participants suggested supporting staff including greater involvement of the multidisciplinary team, better use of resources, development of materials for specific areas (dietetics & podiatry) and improved access to specialist staff (Diabetic & Continence CNCs).

There was also a lunchtime meeting attended by 20 Junior Medical Officers (JMOs) with presentations by Prof Jacqueline Close and Prof Stephen Lord. The feedback was very positive with participants indicating that the meeting was relevant to their work.

An informal meeting was held with local GPs and VMOs on Thursday 27th February from 6.00pm – 7.30pm at the Novotel Coffs Harbour Pacific Bay Resort with short presentations by Prof Jacqueline Close and Prof Stephen Lord. There was good general discussion on falls and falls injury with participants (mixture of GP, VMOs and Staff Specialists).
Websites, Meetings & Conferences

Alzheimers Australia

The Use of Restraints and Psychotropic Medications in People with Dementia

Alzheimers Australia have recently released a new report on ‘The Use of Restraints and Psychotropic medications in people with dementia’. The objective of this paper is to provide accessible information about the evidence on the current practice of physical restraints and the use of psychotropic medications. It looks at the physical and psychological consequences, the legal implications and the alternative approaches.

There are no simple answers. Clinical guidelines indicate that the first line of response to behavioural and psychological symptoms of dementia should be the use of psychosocial approaches (NSW Ministry of Health, 2013), but this paper also recognises that the use of restraints – whether physical or chemical – may be necessary in some circumstances. The concern is that in many cases physical and chemical restraints are often the first line of response to behavioural symptoms when, in most cases, other approaches should be tried first.

NSW Falls Prevention Network Forum

Friday 23rd 2014, SMC Conference Centre, 66 Goulburn St Sydney

Further information and to register go to http://fallsnetwork.neura.edu.au

CONFERENCE

Australian and New Zealand Falls Prevention Society

6th Biennial Australasian Falls Prevention Conference, Sydney, 16-18 November 2014

http://www.anzfpconference.com.au

The Australian and New Zealand Falls Prevention Society 6th Biennial Conference will be held at Luna Park Sydney NSW, 16th – 18th November.

An exciting program is being developed, with the following high profile speakers already confirmed:

- Professor Stephen Robinovitch, Simon Fraser University, Canada
- Professor Jeffrey Hausdorff, Tel Aviv Sourasky Medical Center, Israel
- Dr Anna Barker, Monash University
- Professor Adrian Bauman, University of Sydney
- Professor Henry Brodaty, University of New South Wales
- Associate Professor Lesley Day, Monash University
- Dr Anne-Marie Hill, Notre Dame University
- Dr Jasmine Menant, Neuroscience Research Australia
- Dr Sabrina Pit, University of Sydney
- Professor Cathie Sherrington, University of Sydney
- Dr Ronag Taylor, Prince of Wales Clinical School
- Ms Caroline Gall, Manager Public Insurance, Accident Compensation Corporation, NZ

For further information see the website or contact conference organisers – East Coast Conferences Phone: (+61 2) 6650 9800 or email fallsconference@eastcoastconferences.com.au

www.anzfpconference.com.au
Abstracts
Recent abstracts from the research literature
Reviews
Questioning vitamin D status of elderly fallers and non-fallers: a meta-analysis to address a ‘forgotten step’
Annweiler C, Beauchet O.

Affiliation: Department of Neuroscience, Division of Geriatric Medicine and Memory Clinic, Angers University Hospital and UPR EA 4638, University of Angers, UNAM, Angers, France; Robarts Research Institute, the University of Western Ontario, London, Ontario, Canada. (Copyright © 2014, John Wiley and Sons)

Abstract

BACKGROUND: Previous meta-analyses to determine the efficacy of vitamin D supplementation to prevent falls in the elderly have shown mixed results. Inconsistencies might depend on the dose of supplements, suggesting that serum 25-hydroxyvitamin D (25OHD) concentration could influence the risk of falling. Our objective was to systematically review and quantitatively analyse the relationship between serum 25OHD concentration and the occurrence of falls.

METHODS: A Medline search was conducted in December 2013, with no date limit, using the Medical Subject Heading terms ‘Vitamin D’ OR ‘Ergocalciferols’ OR ‘Vitamin D deficiency’ combined with ‘Accidental Falls’ OR ‘Gait disorders, neurologic’ OR ‘Gait apraxia’ OR ‘Gait’ OR ‘Recurrent Falls’ OR ‘Falling’. Fixed and random-effects meta-analyses were performed to determine (i) the effect size of the difference in 25OHD concentration between fallers and non-fallers and (ii) the risk of falling according to serum 25OHD concentration.

RESULTS: Of the 659 retrieved studies, 18 observational studies - including ten cross-sectional and eight cohort studies - met the selection criteria. All were of good quality. The number of participants ranged from 80-2957 (44-100% women); 11.0% to 69.3% were fallers. Serum 25OHD concentrations were 0.33 x SD lower in fallers compared to non-fallers [pooled effect size 0.33; 95% confidence interval (CI) 0.18-0.47]. The risk of falls was inversely associated with serum 25OHD concentration [summary odds ratio (OR) 0.97; 95% CI 0.96-0.99]. The association between falls and hypovitaminosis D varied according to the definition used; the summary OR for falls was 1.23 (95% CI 0.94-1.60) for 25OHD <10 ng/mL, 1.44 (95% CI 1.17-1.76) for 25OHD <20 ng/mL and 0.95 (95% CI 0.81-1.11) for 25OHD <30 ng/mL.

CONCLUSIONS: Fallers have lower 25OHD concentrations, notably more often <20 ng/mL, than non-fallers. These findings help to determine the profile of target populations that would most benefit from vitamin D supplements to prevent falls. This article is protected by copyright. All rights reserved.

Usefulness of bone density measurement in fallers

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Abstract

The objective of this systematic literature review is to discuss the latest French recommendation issued in 2012 that a fall within the past year should lead to bone mineral density (BMD) measurement using dual-energy X-ray absorptiometry (DXA). This recommendation rests on four facts. First, osteoporosis and fall risk are the two leading risk factors for nonvertebral fractures in postmenopausal women. Second, BMD measurement using DXA supplies significant information on the fracture risk independently from the fall risk. Thus, when a fall occurs, the fracture risk increases as BMD decreases. Third, osteoporosis drugs have been proven effective in preventing fractures only in populations with osteoporosis defined based on BMD criteria. Finally, the prevalence of osteoporosis is high in patients who fall and increases in the presence of markers for frailty (e.g., recurrent falls, sarcopenia [low muscle mass and strength], limited mobility, and weight loss), which are risk factors for both osteoporosis and falls. Nevertheless, life expectancy should be taken into account when assessing the appropriateness of DXA
in fallers, as osteoporosis treatments require at least 12 months to decrease the fracture risk. Another relevant factor is the availability of DXA, which may be limited due to geographic factors, patient dependency, or severe cognitive impairments, for instance. Studies are needed to better determine how the fall risk and frailty should be incorporated into the fracture risk evaluation based on BMD and the FRAX(®) tool.

Screening for frailty in primary care: a systematic review of the psychometric properties of the frailty index in community-dwelling older people

Irene Drubbel, Mattijs E Numans, Guido Kranenburg, Nienke Bleijenberg, Niek J de Wit and Marieke J Schuurmans

BMC Geriatrics 2014, 14:27

Abstract

BACKGROUND: To better accommodate for the complex care needs of frail, older people, general practitioners must be capable of easily identifying frailty in daily clinical practice, for example, by using the frailty index (FI). To explore whether the FI is a valid and adequate screening instrument for primary care, we conducted a systematic review of its psychometric properties.

METHODS: We searched the Cochrane, PubMed and Embase databases and included original studies focusing on the criterion validity, construct validity and responsiveness of the FI when applied in community-dwelling older people. We evaluated the quality of the studies included using the Quality in Prognosis Studies (QUIPS) tool. This systematic review was conducted based on the PRISMA statement.

RESULTS: Of the twenty studies identified, eighteen reported on FIs derived from research data, one reported upon an FI derived from an administrative database of home-care clients, and one reported upon an FI derived from routine primary care data. In general, the FI showed good criterion and construct validity but lacked studies on responsiveness. When compared with studies that used data gathered for research purposes, there are indications that the FI mean score and range might be different in datasets using routine primary care data; however, this finding needs further investigation.

CONCLUSIONS: Our results suggest that the FI is a valid frailty screening instrument. However, further research using routine Electronic Medical Record data is necessary to investigate whether the psychometric properties of the FI are generalizable to a primary care setting and to facilitate its interpretation and implementation in daily clinical practice.

Trial registration: PROSPERO systematic reviews register number: CRD42013003737.

Preventing falls among older people with mental health problems: A systematic review

Bunn F, Dickinson A, Simpson C, Narayanan V, Humphrey D, Griffiths C, Martin W, Victor C.


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Abstract

BACKGROUND: Falls are a leading cause of mortality and morbidity in older people and the risk of falling is exacerbated by mental health conditions. Existing reviews have focused on people with dementia and cognitive impairment, but not those with other mental health conditions or in mental health settings. The objective of this review is to evaluate the effectiveness of fall prevention interventions for older people with mental health problems being cared for across all settings.

METHODS: A systematic review of fall prevention interventions for older people with mental health conditions. We undertook electronic database and lateral searches to identify studies reporting data on falls or fall related injuries. Searches were initially conducted in February 2011 and updated in November 2012 and October 2013; no date restrictions were applied. Studies were assessed for risk of bias. Due to heterogeneity results were not pooled but are reported narratively.

RESULTS: Seventeen RCTs and four uncontrolled studies met the inclusion criteria; 11 involved single interventions and ten multifactorial. Evidence relating to fall reduction was inconsistent. Eight of 14 studies found a reduction in fallers (statistically significant in five), and nine of 14 reported a significant reduction in rate or number of falls. Four studies found a non-significant increase in falls. Multifactorial, multi-disciplinary
interventions and those involving exercise, medication review and increasing staff awareness appear to reduce the risk of falls but evidence is mixed and study quality varied. Changes to the environment such as increased supervision or sensory stimulation to reduce agitation may be promising for people with dementia but further evaluation is needed. Most of the studies were undertaken in nursing and residential homes, and none in mental health hospital settings.

CONCLUSIONS: There is a dearth of falls research in mental health settings or which focus on patients with mental health problems despite the high number of falls experienced by this population group. This review highlights the lack of robust evidence to support practitioners to implement practices that prevent people with mental health problems from falling.

Do sitters prevent falls?: A review of the literature
Lang CE.
(Copyright © 2014, Healio)

Abstract

Preventing falls is a primary nursing concern, especially among older adult patients. Employing a sitter is a common but costly intervention. This article is a comprehensive review of the literature on sitter use and its effect on fall rates in acute care. The search was conducted in CINAHL, MEDLINE, PsycINFO, and the Psychology and Behavioral Sciences Collection and included articles published between 1995 and 2013. The articles included reported data on studies increasing or decreasing sitter use. Sitter reduction studies showed no increase in fall rates; studies implementing sitters to reduce falls showed conflicting results. Implications include the impact to staffing and nursing practice that results from sitter use, the need for staff education programs, how sitter use can affect patient satisfaction, and the need for additional, more robust research on this topic to determine whether sitter use is evidence-based practice.

A systematic review of factors associated with accidental falls in people with multiple sclerosis: A meta-analytic approach
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Abstract

OBJECTIVE: To determine whether there are demographic, clinical, and instrumental variables useful to detect fall status of patients with multiple sclerosis.

DATA SOURCES: PubMed and the Cochrane Library.

REVIEW METHODS: Eligible studies were identified by two independent investigators. Only studies having a clear distinction between fallers and non-fallers were included and meta-analysed. Odds ratios (ORs) and standard mean differences (SMDs) were calculated and pooled using fixed effect models.

RESULTS: Among 115 screened articles, 15 fulfilled criteria for meta-analyses, with a total of 2425 patients included. Proportion of fallers may vary from 30% to 63% in a time frame from 1 to 12 months. No significant publication bias was found, even though 12/15 studies relied on retrospective reports of falls, thus introducing recall biases. Risk factors for falls varied across studies, owing to heterogeneity of populations included and clinical instruments used. The meta-analytic approach found that, compared with non-fallers, fallers had longer disease duration (SMD = 0.14, p = 0.02), progressive course of disease (OR = 2.02, p < 0.0001), assistive device for walking (OR = 3.16, p < 0.0001), greater overall disability level (SMD = 0.74, p < 0.0001), slower walking speed (SMD = 0.45, p = 0.0005), and worse performances in balance tests (Berg Balance Scale: SMD = -0.48, p = 0.002; Timed up-and-go test, SMD = 0.31, p = 0.04), and force-platform measures (postural sway) with eyes opened (SMD = 0.71, p = 0.006) and closed (SMD = 0.83, p = 0.01), respectively.
CONCLUSION: Elucidations regarding risk factors for accidental falls in patients with multiple sclerosis (PwMs) are provided here, with worse disability score, progressive course, use of walking aid, and poorer performances in static and dynamic balance tests strongly associated with fall status.

Epidemiology

Circumstances and contributing causes of fall deaths among persons aged 65 and older: United States, 2010
Stevens JA, Rudd RA.
Affiliation: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention, Atlanta, Georgia. (Copyright © 2014, John Wiley and Sons)

Abstract
OBJECTIVES: To determine whether the increasing fall death rate among people aged 65 and older is due in part to temporal changes in recording the underlying cause of death. DESIGN: Analyses of multiple cause of death data using the online Centers for Disease Control and Prevention Wide-ranging ON-line Data for Epidemiologic Research system, which uses the National Center for Health Statistics' Multiple Cause of Death data set.


PARTICIPANTS: People aged 65 and older with a fall listed on their death record as the underlying or a contributing cause of death.

MEASUREMENTS: Circumstances and contributing causes off all deaths-records listing International Classification of Diseases, Tenth Revision, codes W00 to W19 as the underlying cause of death-and underlying causes for records with falls as a contributing cause were examined. Joinpoint regression analysis was used to assess trends in the proportion of fall and fall-associated deaths to total deaths for 1999 to 2010.

RESULTS: In 2010, there were 21,649 fall deaths and 5,402 fall-associated deaths among people aged 65 and older; 48.7% of fall deaths involved a head injury. Approximately half the fall death records included diseases of the circulatory system as contributing causes. From 1999 to 2010, there was a trend toward more-specific reporting of falls circumstances, although total deaths remained unchanged. The proportion of fall deaths to total deaths increased 114.3%, and that of fall-associated deaths to total deaths increased 43.1%.

CONCLUSION: The reasons behind the increasing older adult fall death rate deserve further investigation. Possible contributing factors include changing trends in underlying chronic diseases and better reporting of falls as the underlying cause of death.

Associations of injurious falls and self-reported incapacities: analysis of the National Health Interview Survey
French DD, Margo CE, Tanna AP, Volpe NJ, Rubenstein LZ.
Affiliation: From the *Department of Ophthalmology and Center for Healthcare Studies, Northwestern University Feinberg School of Medicine, Chicago, Illinois; †Department of Ophthalmology, and Pathology and Cell Biology, University of South Florida Morsani Collage of Medicine, Tampa, Florida; and ‡Donald W. Reynolds Department of Geriatric Medicine University of Oklahoma College of Medicine, Oklahoma City, Oklahoma.

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Abstract
PURPOSE: To determine the associative value of selected questions from the U. S. National Health Interview Survey (NHIS) for screening adults older than 18 years at risk of injurious falls.

METHODS: Data from adults 18 years of age and older were extracted from the NHIS for 2011 relevant to an injurious fall within the preceding year. A multivariate logistic regression model was used to determine associations of self-reported injurious falls with key social-demographic, health, and physical function variables. Outcomes were reported as odds ratio (OR) with 95% confidence intervals (CIs).
RESULTS: Self-reported injurious fall within the preceding year was associated with difficulty climbing 10 steps without special equipment (OR, 3.22; 95% CI, 2.32-4.46), loss of dependence for an activity of daily living (OR, 1.85; 95% CI, 1.17-2.91), pain in legs and below the knees (OR, 1.68; 95% CI, 1.23-2.30), and moderate visual impairment (OR, 1.59; 95% CI, 1.18-2.15). Women were at greater risk than men and those aged 75 years and older (OR, 1.46; 95% CI, 1.02-2.09).

CONCLUSIONS: A subset of the NHIS questions are positively associated with injurious falls in the previous 12 months and may be of use in identifying adults at greater risk of future falls. The NHIS questions may serve to identify persons in need of targeted preventive services.

The epidemiology of trauma-related mortality in the United States from 2002 to 2010
Sise RG, Calvo Ry, Spain DA, Weiser TG, Staudenmayer KL.

Affiliation: From the Medical School (R.G.S.), University of California, San Francisco; and Trauma Service (R.Y.C.), Scripps Mercy Hospital, San Diego; and Department of Surgery (D.A.S., T.G.W., K.L.S.), Stanford University, Stanford, California. (Copyright © 2014, Lippincott Williams and Wilkins)

Abstract
BACKGROUND: Epidemiologic trends in trauma-related mortality in the United States require updating and characterization. We hypothesized that during the past decade, there have been changing trends in mortality that are associated with multiple public health and health care-related factors.

METHODS: Multiple sources were queried for the period of 2002 to 2010: the National Trauma Data Bank, the National Centers for Disease Control, the National Highway Traffic Safety Administration, the Nationwide Emergency Department Sample, and the US Census Bureau. The incidence of injury and mortality for motor vehicle traffic (MVT) collisions, firearms, and falls were determined using National Centers for Disease Control data. National Highway Traffic Safety Administration data were used to determine motor vehicle collision information. Injury severity data were derived from the Nationwide Emergency Department Sample and National Trauma Data Bank. Analysis of mortality trends by year was performed using the Cochran-Armitage test for trend. Time-trend multivariable Poisson regression was used to determine risk-adjusted mortality over time.

RESULTS: From 2002 to 2010, the total trauma-related mortality decreased by 6% (p < 0.01). However, mortality trends differed by mechanism. There was a 27% decrease in the MVT death rate associated with a 20% decrease in motor vehicle collisions, 19% decrease in the number of occupant injuries per collision, lower injury severity, and improved outcomes at trauma centers. While firearm-related mortality remained relatively unchanged, mortality caused by firearm suicides increased, whereas homicide-associated mortality decreased (p < 0.001 for both). In contrast, fall-related mortality increased by 46% (5.95-8.70, p < 0.01).

CONCLUSION: MVT mortality rates have decreased during the last decade, owing in part to decreases in the number and severity of injuries. Conversely, fall-related mortality is increasing and is projected to exceed both MVT and firearm mortality rates should current trends continue. Trauma systems and injury prevention programs will need to take into account these changing trends to best accommodate the needs of the injured population.

LEVEL OF EVIDENCE: Epidemiologic study, level III.

The burden of hospitalised fall-related injury in community-dwelling older people in Victoria: a database study
Vu T, Day L, Finch CF.

Affiliation: Monash Injury Research Institute, Monash University, Victoria.

(Copyright © 2014, Public Health Association of Australia, Publisher John Wiley and Sons)

Abstract
OBJECTIVE: To estimate the burden of hospitalised fall-related injury in community-dwelling older people in Victoria.

METHODS: We analysed fall-related, person-identifying hospital discharge data and patient-level hospital treatment costs for community-dwelling older people aged 65+ years from Victoria between 1 July 2005 and 30
June 2008, inclusive. Key outcomes of interest were length of stay (LOS)/episode, cumulative LOS (CLOS)/patient and inpatient costs.

RESULTS: The burden of hospitalised fall-related injury in community-dwelling older people aged 65+ years in Victoria was 284,781 hospital bed days in 2005-06, rising to 310,031 hospital bed days in 2007-08. Seventy-one per cent of episodes were multiday. One in 15 acute care episodes was a high LOS outlier and 14% of patients had ≥1 episode classified as high LOS outlier. The median CLOS/patient was nine days (interquartile range 2-27). The annual costs of inpatient care, in June 2009 prices, for fall-related injury in community-dwelling people aged 65+ years in Victoria rose from $213 million in 2005-06 to $237 million in 2007-08. The burden of hospitalised fall-related injury in community-dwelling older women, people aged 85+ years and those with comorbidity was considerable.

CONCLUSIONS: The burden of hospitalised fall-related injury in community-dwelling older people aged 65+ years in Victoria is significantly more than previously projected. Importantly, this study identifies that women, patients with comorbidity and those aged 85+ years account for a considerable proportion of this burden. Implications: A corresponding increase in falls prevention effort is required to ensure that the burden is properly addressed.

Circumstances and consequences of falls among people with chronic stroke


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Abstract
Falls are common after stroke; however, circumstances and consequences are relatively unknown. Our objectives were to identify the differences between fallers and non-fallers among people with chronic stroke, identify the circumstances of fall events, and examine the consequences of the falls. This is a secondary data analysis; all participants included sustained a stroke. Variables included demographics, stroke characteristics, and comorbidities. Falls were collected via self-report, and circumstances and consequences were derived from participant description of the event and categorized as appropriate. Among 160 participants, 53 (33%) reported a fall during the 1 yr period. Circumstances of falls were categorized as intrinsic or extrinsic. Location and circumstance of the fall were included: 70% occurred at home and 40% were associated with impaired physical or mental state (e.g., inattention to tying shoes). Additionally, 21% of falls were associated with activities of daily living and mobility and 34% with slips or trips. The majority who fell sustained an injury (72%). Injuries ranged from bruising to fractures, and 55% of those with an injury sought medical care (32% to emergency department). Poststroke falls are associated with an alarming rate of injury and healthcare utilization. Targeting mental and physical states may be key to fall prevention.

Mortality after ground-level fall in the elderly patient taking oral anticoagulation for atrial fibrillation/flutter: A long-term analysis of risk versus benefit
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Abstract
BACKGROUND: Elderly patients with atrial fibrillation or flutter who experience ground-level falls are at risk for lethal head injuries. Patients on oral anticoagulation (OAC) for thromboprophylaxis may be at higher risk for these head injuries. Trauma surgeons treating these patients face a difficult choice: (1) continue OAC to minimize stroke risk while increasing the risk of a lethal head injury or (2) discontinue OAC to avoid intracranial hemorrhage while increasing the risk of stroke. To inform this choice, we conducted a retrospective cohort study to assess long-term outcomes and risk factors for mortality after presentation with a ground-level fall among patients with and without OAC.
METHODS: Retrospective analysis of the longitudinal version of the California Office of Statewide Planning and Development database was performed for years 1995 to 2009. Elderly anticoagulated patients (age > 65 years) with known atrial fibrillation or flutter who fell were stratified by CHA2DS2-VASc score and compared with a nonanticoagulated control cohort. Multivariable logistic regression including patient demographics, stroke risk, injury severity, and hospital type identified risk factors for mortality.

RESULTS: A total of 377,873 patient records met the inclusion criteria, 42,913 on OAC and 334,960 controls. The mean age was 82.4 and 80.6 years, respectively. Most were female, with CHA2DS2-VASc scores between 3 and 5. Mortality among OAC patients after a first fall was 6%, compared with 3.1% among non-OAC patients. Patients dying with a head injury constituted 31.6% of deaths within OAC patients compared with 23.8% among controls. Risk of eventual death with head injury exceeded annualized stroke risk for patients with CHA2DS2-VASc scores of 0 to 2. Predictors for mortality with head injury on the first admission included male sex, Asian ethnicity, a history of stroke, and trauma center admission.

CONCLUSION: Elderly patients on OAC for atrial fibrillation and/or flutter who fall have a greater risk for mortality compared with controls. Patients with low CHA2DS2-VASc scores (0−3) at high risk for falls with identified risk factors should speak to their prescribing physicians regarding the risk/benefits of continued use of OAC. LEVEL OF EVIDENCE: Epidemiologic/prognostic study, level III.

Fall-related emergency department admission: fall environment and settings and related injury patterns in 6357 patients with special emphasis on the elderly


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DOI 10.1155/2014/256519 PMID 24723797 PMCID PMC3958756

Abstract

Throughout the world, falls are a major public health problem and a socioeconomic burden. Nevertheless there is little knowledge about how the injury types may be related to the aetiology and setting of the fall, especially in the elderly. We have therefore analysed all patients presenting with a fall to our Emergency Department (ED) over the past five years.

METHODS: Our retrospective data analysis comprised adult patients admitted to our Emergency Department between January 1, 2006, and December 31, 2010, in relation to a fall.

RESULTS: Of a total of 6357 patients 78% (n = 4957) patients were younger than 75 years. The main setting for falls was patients home (n = 2239, 35.3%). In contrast to the younger patients, the older population was predominantly female (56.3% versus 38.6%; P < 0.0001). Older patients were more likely to fall at home and suffer from medical conditions (all P < 0.0001). Injuries to the head (P < 0.0001) and to the lower extremity (P < 0.019) occurred predominantly in the older population. Age was the sole predictor for recurrent falls (OR 1.2, P < 0.0001).

CONCLUSION: Falls at home are the main class of falls for all age groups, particularly in the elderly. Fall prevention strategies must therefore target activities of daily living. Even though falls related to sports mostly take place in the younger cohort, a significant percentage of elderly patients present with falls related to sporting activity. Falls due to medical conditions were most likely to result in mild traumatic brain injury.

Fear of Falling

The association between fear of falling and gait variability in both leg and trunk movements

Sawa R, Doi T, Misu S, Tsutsumimoto K, Nakakubo S, Asai T, Yamada M, Ono R.


Affiliation: Department of Community Health Sciences, Kobe University Graduate School of Health Sciences, Kobe, Japan. (Copyright © 2014, Elsevier Publishing)
Abstract
The aim of this study was to explore whether FoF was associated with variability in both leg and trunk movements during gait in community-dwelling elderly. Ninety-three elderly people participated in this study. Each participant was categorized into either Fear or No-Fear group on the basis of having FoF. The participants walked 15m at their preferred speed. The wireless motion recording sensor units were attached to L3 spinous process and right posterior surface of heel during gait. Gait velocity, stride time and stride length were calculated. Variability in lower limb movements was represented by coefficient of variation (CV) of stride time. Trunk variability was represented by autocorrelation coefficients (AC) in three directions (vertical: VT, mediolateral: ML and anteroposterior: AP), respectively. Gait parameters were compared between groups, and further analyses were performed using generalized linear regression models after adjustment of age, sex, fall experience, height, weight, and gait velocity. Although gait velocity, mean stride time and stride length did not differ significantly between groups, stride time CV and all ACs were significantly worse in the Fear group after adjustment for variables, even including gait velocity (stride time CV: p=0.003, AC-VT: p=0.011, AC-ML: p=0.044, AC-AP: p=0.002). Our results suggest that fear of falling is associated with variability in both leg and trunk movements during gait in community-dwelling elderly. Further studies are needed to prove a causal relationship.

Effects of mild and global cognitive impairment on the prevalence of fear of falling in community-dwelling older adults
Affiliation: Research Institute, National Center for Geriatrics and Gerontology, Obu, Japan.
(Copyright © 2014, Elsevier Publishing)

Abstract
OBJECTIVES: Few studies have reported the relationship between fear of falling (FoF) and mild and global cognitive impairment in community-dwelling older adults. We aimed to determine whether the status of cognitive impairment affects the prevalence of FoF in community-dwelling older adults.

STUDY DESIGN: Cross-sectional study among 4474 community-dwelling older adults who participated in the Obu Study of Health Promotion for the Elderly.

MAIN OUTCOME MEASURES: Participants underwent cognitive tests and were divided into three groups: cognitive healthy, mild cognitive impairment (MCI), and global cognitive impairment (GCI). FoF and related variables, such as fall history, physical function, and depression, were also investigated.

RESULTS: The prevalence of FoF was significantly different by group (p<0.001; healthy: 43.6%, MCI: 50.6%, GCI: 40.6%). Logistic regression analysis showed that GCI (odds ratio=0.63; 95% confidence interval=0.526–0.76) was independently associated with FoF, after controlling for confounding factors. Older adults with GCI showed the lowest prevalence of FoF, although they had the lowest physical function comparing with the other groups (p=0.001).

CONCLUSION: MCI and GCI in community-dwelling older adults affect the prevalence of FoF in a completely different manner. Further study is required to determine whether insensitivity to FoF with GCI increases the risk of falling in older adults.

Relationship of falls and fear of falling to activity limitations and physical inactivity in Parkinson's disease
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Abstract
AIM: To investigate the relationships between falls, fear of falling and activity limitations in individuals with Parkinson’s disease (PD).
DESIGN/METHODS: Cross-sectional study of individuals with mild to moderate PD (N=83). Associations among demographic data, fall frequency, disease severity, motor impairment, ability to perform Activities of Daily Living (ADL), Activities Balance Confidence Scale, Iowa Fatigue Scale, Co-morbidity Index, and Physical Activity Scale for Elders were studied.

RESULTS: Frequent fallers had more ADL limitations than non-fallers (p < .001) and rare fallers (p = .004). Frequent fallers reported a lower percentage of ability to perform ADL than non-fallers (p = .003). Frequent fallers and rare fallers were less physically active than non-fallers (p = .015 and p = .040, respectively). Frequent fallers and rare fallers reported a higher level of fear of falling than non-fallers (p = .031 and p = .009, respectively).

CONCLUSIONS: Falls and fear of falling were associated with more ADL limitations and less physical activity after adjusting for physical impairments.

Risk Assessment

A modified fall risk assessment tool that is specific to physical function predicts falls in community-dwelling elderly people

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Abstract

BACKGROUND AND PURPOSE: Developing a practical fall risk assessment tool to predict the occurrence of falls in the primary care setting is important because investigators have reported deterioration of physical function associated with falls. Researchers have used many performance tests to predict the occurrence of falls. These performance tests predict falls and also assess physical function and determine exercise interventions. However, the need for such specialists as physical therapists to accurately conduct these tests limits their use in the primary care setting. Questionnaires for fall prediction offer an easy way to identify high-risk fallers without requiring specialists. Using an existing fall assessment questionnaire, this study aimed to identify items specific to physical function and determine whether those items were able to predict falls and estimate physical function of high-risk fallers.

METHODS: The analysis consisted of both retrospective and prospective studies and used 2 different samples (retrospective, n = 1871; prospective, n = 292). The retrospective study and 3-month prospective study comprised community-dwelling individuals aged 65 years or older and older adults using community day centers. The number of falls, risk factors for falls (15 risk factors on the questionnaire), and physical function determined by chair standing test (CST) and Timed Up and Go Test (TUGT) were assessed. The retrospective study selected fall risk factors related to physical function. The prospective study investigated whether the number of selected risk factors could predict falls. The predictive power was determined using the area under the receiver operating characteristic curve.

RESULTS: Seven of the 15 risk factors were related to physical function. The area under the receiver operating characteristic curve for the sum of the selected risk factors of previous falls plus the other risk factors was 0.82 (P = .00). The best cutoff point was 4 risk factors, with sensitivity and specificity of 84% and 68%, respectively. The mean values for the CST and TUGT at the best cutoff point were 12.9 and 12.5 seconds, respectively. In the retrospective study, the values for the CST and TUGT corresponding to the best cutoff point from the prospective study were 13.2 and 11.4 seconds, respectively.

DISCUSSION: This study confirms that a screening tool comprising 7 fall risk factors can be used to predict falls. The values for the CST and TUGT corresponding to the best cutoff point for the selected 7 risk factors determined in our prospective study were similar to the cutoff points for the CST and TUGT in previous studies for fall prediction. We propose that the sum of the selected risk factors of previous falls plus the other risk factors may be identified as the estimated value for physical function.

CONCLUSIONS: These findings may contribute to earlier identification of high-risk fallers and intervention for falls prevention.
Automated detection of missteps during community ambulation in patients with Parkinson's disease: a new approach for quantifying fall risk in the community setting

Iluz T, Gazit E, Herman T, Sprecher E, Brozgol M, Giladi N, Mirelman A, Hausdorff JM.


Abstract

BACKGROUND: Falls are a leading cause of morbidity and mortality among older adults and patients with neurological disease like Parkinson's disease (PD). Self-report of missteps, also referred to as near falls, has been related to fall risk in patients with PD. We developed an objective tool for detecting missteps under real-world, daily life conditions to enhance the evaluation of fall risk and applied this new method to 3 day continuous recordings.

METHODS: 40 patients with PD (mean age +/- SD: 62.2 +/- 10.0 yrs, disease duration: 5.3 +/- 3.5 yrs) wore a small device that contained accelerometers and gyroscopes on the lower back while participating in a protocol designed to provoke missteps in the laboratory. Afterwards, the subjects wore the sensor for 3 days as they carried out their routine activities of daily living. An algorithm designed to automatically identify missteps was developed based on the laboratory data and was validated on the 3 days recordings.

RESULTS: In the laboratory, we recorded 29 missteps and more than 60 hours of data. When applied to this dataset, the algorithm achieved a 93.1% hit ratio and 98.6% specificity. When we applied this algorithm to the 3 days recordings, patients who reported two falls or more in the 6 months prior to the study (i.e., fallers) were significantly more likely to have a detected misstep during the 3 day recordings (p = 0.010) compared to the non-fallers.

CONCLUSIONS: These findings suggest that this novel approach can be applied to detect missteps during daily life among patients with PD and will likely help in the longitudinal assessment of disease progression and fall risk.

Identifying Fallers and Non-Fallers With the Maximal Base of Support Width (BSW): A 1-Year Prospective Study

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Abstract

The purpose of this prospective cohort study was to determine whether the maximal width of the base of support (BSW) measure is able to predict the risk of multiple falls in community-dwelling women. 38 community-dwelling women (mean age of 72 ±8 years old) participated. Falls were prospectively recorded during the following year. Overall, 29 falls were recorded were of 6 (16%) multiple fallers and 32 (84%) non-fallers. There was a significant difference in the BSW between the fallers and non-fallers (F(1, 37) = 5.134 (p = 0.030)). A logistic regression analysis indicated a significant contribution of the BSW test to the model (odds ratio = 0.637; 95% CI [0.407, 0.993]; p = 0.046 per 1 cm). The cut-off score was determined to be 27.8 cm (67% sensitivity and 84% specificity). These results indicate that women with a smaller BSW at baseline had a significantly higher risk of sustaining a fall.

Risk Factors

Association between anemia and falls in community-dwelling older people: cross-sectional results from the KORA-Age study

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BMC Geriatrics 2014, 14:29
Abstract

BACKGROUND: Falls and fractures are among the principal causes of disability, and mortality of older people. Therefore, identifying treatable risk factors for falls in this population is very important. Here we evaluate the association between anemia and falls in community-dwelling people aged 65 years and older.

METHODS: In 2009 967 community-dwelling people aged 65 years and older were included as part of the KORA-Age study. History of falls was assessed via questions derived from the National Health and Nutrition Examination Survey questionnaire. A non-fasting venous blood sample was obtained from all study participants. Anemia was defined as a hemoglobin level below 12 g/dL in women and below 13 g/dL in men according to the WHO criteria. Different logistic regression models were computed including relevant confounders such as sex, age, and disability to estimate Odds Ratios (OR) for falls.

RESULTS: In the total sample there was no significant association between anemia and falls neither in the unadjusted (OR 1.35; 95% CI 0.87-2.09) nor in the multivariable-adjusted models (OR 1.06; 95% CI 0.66-1.70). The association between continuous hemoglobin levels and falls was significant in the unadjusted model (OR per 1 SD decrease 1.36; 95% CI 1.14-1.64), but after adjustment for age and sex the association was attenuated and lost its significance (OR 1.13; 95% CI 0.92-1.38). In age- and sex-stratified analyses, no significant associations between anemia or hemoglobin levels and falls could be found. However, in joint analysis in the total sample a significantly, more than two-fold increased risk was observed after multivariable adjustment in persons with anemia and disability (OR 2.10; 95% CI 1.12-3.93) in comparison to persons without anemia and disability.

CONCLUSION: In the present study we have not found an independent association between hemoglobin levels or anemia and falls in older people from the general population. Because there was an additive effect of anemia and disability on the occurrence of falls, blood count should be measured in disabled older men and women to identify persons, who are at particular high risk for falls.

Sarcopenic obesity and dynapenic obesity: Five-year associations with falls risk in middle-aged and older adults
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Obesity (Silver Spring) 2014; ePub(ePub): ePub.
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Abstract

OBJECTIVES: To determine whether obesity concurrent with sarcopenia (low muscle mass) or dynapenia (low muscle strength) is associated with increased falls risk in middle-aged and older adults. Design and

METHODS: Five-year prospective cohort study including 674 community-dwelling volunteers (mean ± SD age 61.4 ± 7.0 years; 48% female). Sarcopenia and dynapenia were defined as lowest sex-specific tertiles for dual-energy X-ray (DXA)-assessed appendicular lean mass (adjusted for height and fat mass) or lower-limb strength, respectively. Obesity was defined as the highest tertiles of DXA-assessed total or trunk fat mass. Change in falls risk was calculated using the Physiological Profile Assessment (z-scores: 0-1 = mild increased risk; 1-2 = moderate increased risk; >2 = marked increased risk).

RESULTS: Multivariable linear regression analyses revealed mild but significantly increased falls risk scores for dynapenic obesity (change in mean z-score compared to non-dynapenic, non-obese group: 0.33, 95% CI 0.06 - 0.59 [men] and 0.46, 95% CI 0.21 - 0.72 [women]) and dynapenia (0.25, 95% CI 0.05 - 0.46 [women only]).

CONCLUSIONS: Dynapenic obesity, but not sarcopenic obesity, is predictive of increased falls risk score in middle-aged and older adults. In clinical settings, muscle function assessments may be useful for predicting falls risk in obese patients.

Association between performance on timed up and go subtasks and mild cognitive impairment: further insights into the links between cognitive and motor function
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Abstract

OBJECTIVES: To assess whether different Timed Up and Go (TUG) subtasks are affected differently in older adults with mild cognitive impairment (MCI) and are specific to different cognitive abilities.

DESIGN: Cross-sectional.

SETTING: Community and home.

PARTICIPANTS: Older adults without dementia (N = 347; mean age 83.6 ± 3.5, 75% female, 19.3% with MCI) participating in the Rush Memory and Aging Project.

MEASUREMENTS: Subjects wore a small, light-weight sensor that measured acceleration and angular velocity while they performed the instrumented TUG (iTUG). Measures of iTUG were derived from four subtasks (walking, turning, sit-to-stand, stand-to-sit) and compared between participants with MCI and those with no cognitive impairment.

RESULTS: Participants with no cognitive impairment and those with MCI did not differ in age (P = .90), sex (P = .80), years of education (P = .48) or time to complete the TUG (no cognitive impairment 7.6 ± 3.7 seconds; MCI 8.4 ± 3.7 seconds; P = .12). Participants with MCI had less walking consistency (P = .009), smaller pitch range during transitions (P = .005), lower angular velocity during turning (P = .04) and required more time to complete the turn-to-walk (P = .04). Gait consistency was correlated with perceptual speed (P = .01), and turning was correlated with perceptual speed (P = .02) and visual-spatial abilities (P = .049).

CONCLUSION: Mild cognitive impairment is associated with impaired performance on iTUG subtasks that cannot be identified when simply measuring overall duration of performance. Distinctive iTUG tasks were related to particular cognitive domains, demonstrating the specificity of motor-cognitive interactions. Using a single sensor worn on the body for quantification of mobility may facilitate understanding of late-life gait impairments and their interrelationship with cognitive decline.

Change in balance confidence and its associations with increasing disability in older community-dwelling women at risk for falling

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Abstract

OBJECTIVES: To describe change in balance confidence, and to identify associated factors and disabling consequences.

METHOD: Secondary analysis of 2 years of data collected from 272 older women enrolled in a randomized clinical trial of fall prevention. Balance confidence and disability measures were assessed at baseline, after the 12 week intervention, and at 1 and 2 years follow-up. Associated factors were measured at baseline.

RESULTS: Balance confidence varied at baseline and decreased 5% over 2 years, but no variables predicted this decline. Baseline balance confidence was associated with poor physical function and mental health. Decreasing balance confidence was associated with increasing impairments in balance and hip flexion strength, increasing functional limitations in mobility and chair rises, reduced physical activity levels, increased activity restrictions, and decreasing social networks.

DISCUSSION: Decreasing balance confidence plays an important role in disablement. More research is needed to identify predictors of decreasing balance confidence.
Six-month prospective study of fall risk factors identification in patients post-stroke
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**Abstract**

**AIM:** To determine if the findings at month 1 could correctly identify stroke patients who fell in the 6 months post-stroke; and to describe the characteristics of fallers and non-fallers, and their courses of recovery.

**METHODS:** Of 133 volunteers who had their first stroke, 98 participants completed the assessment three times. Fall incidence and history were collected by telephone every 2 weeks and recorded. Fear of falling measured by the Fall Efficacy Scale (FES-S), the amount of time that physical therapy was received, and standardized outcome measures according to the International Classification Functioning, Disability and Health model were measured at month 1, 3 and 6 after stroke. The Berg Balance Scale, Barthel Index, Timed Up & Go, 10-m (10mWT) and 2-min walks and participation subscore of Stroke Impact Scale were used for assessment.

**RESULTS:** A total of 25 patients (25%) fell in the 6 months; 13 had multiple falls. Fallers showed less improvement in impairments, activity and community participation compared with non-fallers. The risk of falling was greater than 1 (odds ratio [OR]) when assessed by all outcome measures at month 1, and was double at month 3. The FES-S ≥33 at month 1 could accurately identify a faller (OR 2.99, 95% confidence interval 1.07-8.37), moderate to high sensitivity (76%), specificity (49%), and positive and negative predicted value (34% and 85%).

**CONCLUSIONS:** Fear of falling was the best indicator of falling. Receiving physical therapy after a stroke seems to highly contribute to improved functional independence of activities in daily living, and increased self-confidence and cognitive function.

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Fall risk-increasing drugs and falls: a cross-sectional study among elderly patients in primary care
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**Abstract**

**BACKGROUND:** Falls are the most common cause of injuries and hospital admissions in the elderly. The Swedish National Board of Health and Welfare has created a list of drugs considered to increase the fall risk (FRIDs) and drugs that might cause/worsen orthostatism (ODs). This cross-sectional study was aimed to assess FRIDs and their correlation with falls in a sample of 369 community-dwelling and nursing home patients aged ≥75 years and who were using a multi-dose drug dispensing system.

**METHODS:** Data were collected from the patients’ electronic medication lists. Retrospective data on reported falls during the previous three months and severe falls during the previous 12 months were collected. Primary outcome measures were incidence of falls as well as numbers of FRIDs and ODs in fallers and non-fallers.

**RESULTS:** The studied sample had a high incidence of both reported falls (29%) and severe falls (17%). Patients were dispensed a mean of 2.2 (SD 1.5) FRIDs and 2.0 (SD 1.6) ODs. Fallers used on average more FRIDs. Severe falls were more common in nursing homes patients. More women than men experienced severe falls. There were positive associations between number of FRIDs and the total number of drugs (p < 0.01), severe falls (p < 0.01) and female sex (p = 0.03). There were also associations between number of ODs and both total number of drugs (p < 0.01) and being community dwelling (p = 0.02). No association was found between number of ODs and severe falls. Antidepressants and anxiolytics were the most frequently dispensed FRIDs.

**CONCLUSIONS:** Fallers had a higher number of FRIDs. Numbers of FRIDs and ODs were correlated with the total number of drugs dispensed. Interventions to reduce falls in the elderly by focusing on reducing the total number of drugs and withdrawal of psychotropic medications might improve the quality and safety of drug treatment in primary care.
Sub-cortical infarcts and the risk of falls in older people: combined results of TASCOG and Sydney MAS studies


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Abstract

BACKGROUND: White matter hyperintensities increase the risk of multiple falls in older people, but the effect of sub-cortical infarcts is unknown. AIMS: By pooling data from two Australian population-based studies, we aimed to investigate the association between sub-cortical infarcts and multiple falls and whether this relationship, and that of white matter hyperintensities, is mediated or modified by cognitive or sensorimotor factors.

METHODS: Participants underwent structural magnetic resonance imaging and cognitive and sensorimotor assessments. Falls were prospectively measured over 12 months. Sub-cortical infarcts were detected visually. Total white matter hyperintensity volume was quantified using automated segmentation methods. Generalized linear models were used to examine if sub-cortical infarcts and white matter hyperintensities predicted falls.

RESULTS: The mean age of the sample (n = 655) was 74.5 (standard deviation 6.7) years, 336 (51.3%) males. Overall, 114 (17.4%) had multiple falls. The majority had no sub-cortical infarcts (n = 491, 75.0%), while 90 had one (13.7%), 41 had two (6.3%), and 33 had more than or equal to three sub-cortical infarcts (5.0%). The risk of multiple falls was elevated in people with more than or equal to three sub-cortical infarcts (adjusted relative risk 1.89, 95% confidence interval 1.03, 3.46) and in the highest quarter of white matter hyperintensity volume (adjusted relative risk 1.46, 95% confidence interval 1.00, 2.13). The effect of sub-cortical infarcts on falls was amplified by poorer vision (P = 0.03). The effect of white matter hyperintensities was amplified by poorer vision (P = 0.008), proprioception (P = 0.03), and muscle strength (P = 0.008). There was no modifying effect of cognitive function.

CONCLUSIONS: Increasing burdens of sub-cortical infarcts and white matter hyperintensities are associated with a risk of falling. Interventions targeting sensorimotor factors along with strategies to prevent sub-cortical infarcts and white matter hyperintensities may reduce the risk of falls.

Antihypertensive medications and serious fall injuries in a nationally representative sample of older adults


Affiliation: Yale School of Public Health, New Haven, Connecticut.

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Abstract

IMPORTANCE: The effect of serious injuries, such as hip fracture and head injury, on mortality and function is comparable to that of cardiovascular events. Concerns have been raised about the risk of fall injuries in older adults taking antihypertensive medications. The low risk of fall injuries reported in clinical trials of healthy older adults may not reflect the risk in older adults with multiple chronic conditions.

OBJECTIVE: To determine whether antihypertensive medication use was associated with experiencing a serious fall injury in a nationally representative sample of older adults.

DESIGN, PARTICIPANTS, AND SETTING: Competing risk analysis as performed with propensity score adjustment and matching in the nationally representative Medicare Current Beneficiary Survey cohort during a 3-year follow-up through 2009. Participants included 4,961 community-living adults older than 70 years with hypertension.

EXPOSURES: Antihypertensive medication intensity based on the standardized daily dose for each antihypertensive medication class that participants used.
MAIN OUTCOMES AND MEASURES: Serious fall injuries, including hip and other major fractures, traumatic brain injuries, and joint dislocations, ascertained through Centers for Medicare & Medicaid Services claims.

RESULTS: Of the 4961 participants, 14.1% received no antihypertensive medications; 54.6% were in the moderate-intensity and 31.3% in the high-intensity antihypertensive groups. During follow-up, 446 participants (9.0%) experienced serious fall injuries, and 837 (16.9%) died. The adjusted hazard ratios for serious fall injury were 1.40 (95% CI, 1.03-1.90) in the moderate-intensity and 1.28 (95% CI, 0.91-1.80) in the high-intensity antihypertensive groups compared with nonusers. Although the difference in adjusted hazard ratios across the groups did not reach statistical significance, results were similar in the propensity score-matched subcohort. Among 503 participants with a previous fall injury, the adjusted hazard ratios were 2.17 (95% CI, 0.98-4.80) for the moderate-intensity and 2.31 (95% CI, 1.01-5.29) for the high-intensity antihypertensive groups.

CONCLUSIONS AND RELEVANCE: Antihypertensive medications were associated with an increased risk of serious fall injuries, particularly among those with previous fall injuries. The potential harms vs benefits of antihypertensive medications should be weighed in deciding to continue treatment with antihypertensive medications in older adults with multiple chronic conditions.

Use of benzodiazepines and association with falls in older people admitted to hospital: A prospective cohort study
Ballokova A, Peel NM, Fialova D, Scott IA, Gray LC, Hubbard RE.


Abstract
BACKGROUND: Hypnosedatives are commonly prescribed for anxiety and sleep problems. Changes in pharmacokinetics and pharmacodynamics of benzodiazepines (BZDs) during ageing may increase their potential to cause adverse outcomes.

OBJECTIVE: This study aimed to investigate the use of BZDs in acute care settings and explore their association with falls.

METHODS: A prospective cohort study was undertaken of patients aged over 70 years consecutively admitted to 11 acute care hospitals in Australia. Data were collected using the interRAI Acute Care assessment tool. Falls were recorded prospectively (in hospital) and retrospectively (in the 90 days prior to admission).

RESULTS: Of 1,412 patients, 146 (10.3%) were taking BZDs at admission and 155 (11.3%) at discharge. Incidence rates of in-hospital fallers for users and non-users of BZDs were not statistically different [incidence rate ratio 1.03, 95% confidence interval (CI) 0.58-1.82]. There was also no significant association between benzodiazepine use at admission and history of falls in the previous 90 days compared with non-users. However, patients on diazepam were significantly more likely to have a history of falls than all other benzodiazepine users (70.8 vs. 36.1%; p = 0.002), particularly when compared with oxazepam users (70.8 vs. 25.0%; p < 0.001). Adjusting for confounders, use of diazepam at admission was positively associated with a history of falls compared with all other benzodiazepine users (odds ratio 3.0; 95% CI 1.1-8.5; p = 0.036).

CONCLUSIONS: Different BZDs may vary in their propensity to predispose to falls, with diazepam having the strongest association. The selection of particular BZDs for older patients should be carefully evaluated.

Interventions

Does progressive resistance and balance exercise reduce falls in residential aged care? Randomized controlled trial protocol for the SUNBEAM program
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Abstract

INTRODUCTION: Falls are common among older adults. It is reported that approximately 60% of residents of aged care facilities fall each year. This is a major cause of morbidity and mortality, and a significant burden for health care providers and the health system. Among community dwelling older adults, exercise appears to be an effective countermeasure, but data are limited and inconsistent among studies in residents of aged care communities. This trial has been designed to evaluate whether the SUNBEAM program (Strength and Balance Exercise in Aged Care) reduces falls in residents of aged care facilities.

RESEARCH QUESTION: Is the program more effective and cost-effective than usual care for the prevention of falls?

DESIGN: Single-blinded, two group, cluster randomized trial.

PARTICIPANTS AND SETTING: 300 residents, living in 20 aged care facilities.

INTERVENTION: Progressive resistance and balance training under the guidance of a physiotherapist for 6 months, then facility-guided maintenance training for 6 months.

CONTROL: Usual care.

MEASUREMENTS: Number of falls, number of fallers, quality of life, mobility, balance, fear of falling, cognitive well-being, resource use, and cost-effectiveness. Measurements will be taken at baseline, 6 months, and 12 months.

ANALYSIS: The number of falls will be analyzed using a Poisson mixed model. A logistic mixed model will be used to analyze the number of residents who fall during the study period. Intention-to-treat analysis will be used.

DISCUSSION: This study addresses a significant shortcoming in aged care research, and has potential to impact upon a substantial health care problem. Outcomes will be used to inform care providers, and guide health care policies.

Multifactorial assessment and targeted intervention to reduce falls among the oldest-old: a randomized controlled trial

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Abstract

BACKGROUND: The purpose of this study was to assess the effectiveness of a multifactorial intervention to reduce falls among the oldest-old people, including individuals with cognitive impairment or comorbidities.

METHODS: A randomized, single-blind, parallel-group clinical trial was conducted from January 2009 to December 2010 in seven primary health care centers in Baix Llobregat (Barcelona). Of 696 referred people who were born in 1924, 328 were randomized to an intervention group or a control group. The intervention model used an algorithm and was multifaceted for both patients and their primary care providers. Primary outcomes were risk of falling and time until falls. Data analyses were by intention-to-treat.

RESULTS: Sixty-five (39.6%) subjects in the intervention group and 48 (29.3%) in the control group fell during follow-up. The difference in the risk of falls was not significant (relative risk 1.28, 95% confidence interval [CI] 0.94-1.75). Cox regression models with time from randomization to the first fall were not significant. Cox models for recurrent falls showed that intervention had a negative effect (hazard ratio [HR] 1.46, 95% CI 1.03-2.09) and that functional impairment (HR 1.42, 95% CI 0.97-2.12), previous falls (HR 1.09, 95% CI 0.74-1.60), and cognitive impairment (HR 1.08, 95% CI 0.72-1.60) had no effect on the assessment.

CONCLUSION: This multifactorial intervention among octogenarians, including individuals with cognitive impairment or comorbidities, did not result in a reduction in falls. A history of previous falls, disability, and cognitive impairment had no effect on the program among the community-dwelling subjects in this study.
Effects of 18-month low-magnitude high-frequency vibration on fall rate and fracture risks in 710 community elderly—cluster-randomized controlled trial

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Abstract

This study is a prospective cluster-randomized controlled clinical trial involving 710 elderly subjects to investigate the long-term effects of low-magnitude high-frequency vibration (LMHFV) on fall and fracture rates, muscle performance, and bone quality. The results confirmed that LMHFV is effective in reducing fall incidence and enhancing muscle performance in the elderly.

INTRODUCTION: Falls are direct causes of fragility fracture in the elderly. LMHFV has been shown to improve muscle function and bone quality. This study is to investigate the efficacy of LMHFV in preventing fall and fractures among the elderly in the community.

METHODS: A cluster-randomized controlled trial was conducted with 710 postmenopausal females over 60 years. A total of 364 participants received daily 20 min LMHFV (35 Hz, 0.3 g), 5 days/week for 18 months; 346 participants served as control. Fall or fracture rate was taken as the primary outcome. Also, quadriceps muscle strength, balancing abilities, bone mineral density (BMD), and quality of life (QoL) assessments were done at 0, 9, and 18 months.

RESULTS: With an average of 66.0% compliance in the vibration group, 18.6% of 334 vibration group subjects reported fall or fracture incidences compared with 28.7% of 327 in the control (adjusted HR = 0.56, p = 0.001). The fracture rate of vibration and control groups were 1.1 and 2.3% respectively (p = 0.171). Significant improvements were found in reaction time, movement velocity, and maximum excursion of balancing ability assessment, and also the quadriceps muscle strength (p < 0.001). No significant differences were found in the overall change of BMD. Minimal adverse effects were documented.

CONCLUSION: LMHFV is effective in fall prevention with improved muscle strength and balancing ability in the elderly. We recommend its use in the community as an effective fall prevention program and to decrease related injuries.

Can chronic disease management plans including occupational therapy and physiotherapy services contribute to reducing falls risk in older people?

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Affiliation: Faculty of Health Sciences, Discipline of Occupational Therapy, University of Sydney, NSW. (Copyright © 2014, Royal Australian College Of General Practitioners)

Abstract

BACKGROUND: Exercise and home modifications are effective interventions for preventing falls. Chronic disease management (CDM) items are one way for general practitioners (GPs) to access these interventions. This study aimed to evaluate the outcomes and feasibility of using CDM items for occupational therapy (OT) and physiotherapy (PT) sessions to address falls risk.

METHODS: A pre-post pilot study design was used to evaluate five collaborative sessions shared by a private OT and PT using CDM items and a GP management plan. Pre and post intervention measures were used to evaluate outcomes for eight patients aged ≥75 years from two GP practices.

RESULTS: At 2 months post-intervention there were significant improvements in everyday functioning (P = 0.04), physical capacity (P = 0.01) and falls efficacy (P =0.01). Adherence to the intervention was excellent.

DISCUSSION: Falls prevention interventions can be effective in primary care settings and sustainable pathways need to be developed to ensure access for older people at risk.
Joining the Network

To join the NSW Falls Prevention Network listserv, send an email to:

majordomo@lists.health.nsw.gov.au

In the body of the message type

subscribe nsw-falls-network

on the next line type end

Do not put anything in the subject line. You will receive an e-mail to confirm you have been added to the listserv.

To unsubscribe send an e-mail to:

majordomo@lists.health.nsw.gov.au

and in the body of the message type

unsubscribe nsw-falls-network

on the next line type end

If you have any problems, contact Esther Vance at e.vance@neura.edu.au.

Share your news and information/ideas

Do you have any news on Falls Prevention you want to share with others on the network, or do you want to report on a project that is happening in your area.

Please email Esther with your information. We also welcome suggestions for articles and information you would like to see in this newsletter.

Send your information to:

e.vance@neura.edu.au

The Network Listserv

It is great to see the increased activity on the listserv and we want to continue to promote this. To send an item to the listserv where all members of the network can see it, send an email to:

nsw-falls-network@lists.health.nsw.gov.au

You need to be a subscriber to the listserv to send an email that will be distributed to all members of the listserv. Remember to put a short description in the subject line.

Recently some posts to the listserv have bounced due to email address changes, you need to re-subscribe with your new e-mail address and unsubscribe from your old address following the Join the Network instructions as shown on this page.

NSW Falls Prevention Network Background

The NSW Falls Prevention Network was established in 1993. The role of this network has grown since its inception and now includes:

- Meetings for discussion of falls related issues;
- Dissemination of research findings both local and international;
- Sharing resources developed and exploration of opportunities to combine resources in joint initiatives;
- Encouragement of collaborative projects and research;
- To act as a group to influence policy;
- To liaise with NSW Ministry of Health to provide information on current State/Commonwealth issues in relation to falls and
- Maintenance of resources pertinent to the field.

The main purpose of the network is to share knowledge, expertise and resources on falls prevention for older people.

The NSW Falls Prevention Network activities are part of the implementation of the NSW Falls Prevention Policy funded by the NSW Ministry of Health.

“Falls Prevention is everyone’s business®”

For more information

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