

SafetyLit October 7th, 2018

A multicomponent frailty intervention for socioeconomically vulnerable older adults: a designed-delay study

Jang IY, Jung HW, Park H, Lee CK, Yu SS, Lee YS, Lee E, Glynn RJ, Kim DH.

Clin. Interv. Aging 2018; 13: 1799-1814.

Affiliation: Division of Gerontology, Department of Medicine, Beth Israel Deaconess Medical Center, Boston, MA, USA.

(Copyright © 2018, Dove Medical Press)

DOI 10.2147/CIA.S177018 **PMID** 30275687 **PMCID** PMC6156114

Abstract

PURPOSE: The primary aim of this study was to evaluate the effectiveness of a 6-month multicomponent intervention on physical function in socioeconomically vulnerable older adults in rural communities. As secondary aims, we evaluated the effectiveness of the intervention on frailty and other geriatric syndromes, sustained benefit at 12 months, and baseline characteristics associated with poor response.

PATIENTS AND METHODS: This designed-delay study was conducted in 187 adults (mean age: 77 years; 75% women) who were living alone or on a low income in three rural regions of Korea. A 24-week multicomponent program that consisted of group exercise, nutritional supplementation, depression management, deprescribing medications, and home hazard reduction was implemented with a planned 6-month interval from August 2015 through January 2017. The primary outcome was physical function, measured using the Short Physical Performance Battery (SPPB) score (range: 0-12; minimum clinically important difference ≥ 1) at 6 months. Secondary outcomes included frailty phenotype, sarcopenia, Mini Nutritional Assessment-Short Form score (range: 0-14), Center for Epidemiologic Studies-Depression Scale score (range: 0-60), and falls.

RESULTS: At 6 months, the SPPB score increased by 3.18 points (95% CI: 2.89, 3.48) from baseline. The program improved frailty (odds ratio: 0.06; 95% CI: 0.02, 0.16), sarcopenia (odds ratio: 0.32; 95% CI: 0.15, 0.68), Mini Nutritional Assessment-Short Form score by 1.67 points (95% CI: 1.28, 2.06), and Center for Epidemiologic Studies-Depression Scale score by -3.83 points (95% CI: -5.26, -2.39), except for fall (rate ratio: 0.99; 95% CI: 0.69, 1.43). These beneficial effects were sustained at 12 months. Body mass index ≥ 27 kg/m² and instrumental activities of daily living disability at baseline were associated with poor improvement in the SPPB score.

CONCLUSION: This 24-week multicomponent program had sustained beneficial effects up to 1 year on physical function, frailty, sarcopenia, depressive symptoms, and nutritional status in socioeconomically vulnerable older adults in rural communities. (ClinicalTrials.gov, NCT 02554994).

PDF Y Endnote Y

Body postural sway analysis in older people with different fall histories

Ghahramani M, Stirling D, Naghdy F, Naghdy G, Potter J.

Med. Biol. Eng. Comput. 2018; ePub(ePub): ePub.

Affiliation: Illawarra Shoalhaven Local Health District, Wollongong, Australia.

(Copyright © 2018, International Federation for Medical and Biological Engineering, Publisher Holtzbrinck Springer Nature Publishing Group)



DOI 10.1007/s11517-018-1901-5 PMID 30259474

Abstract

A cross-sectional study of postural sway analysis in older non-fallers, once-fallers and multiple-fallers using five common standing tests was conducted. Eighty-six older subjects with an average age of 80.4 years (SD \pm 7.9) participated in the study. The angular rotation and velocity of the trunk of the participants in the roll (lateral) and pitch (sagittal) planes were recorded using an inertial sensor mounted on their lower backs. The Gaussian Mixture Models (GMM), Expectation-Maximisation (EM) and the Minimum Message Length (MML) algorithms were applied to the acquired data to obtain an index indicative of the body sway. The standing with feet together and standing with one foot in front, sway index distinguished older fallers from non-fallers with specificity of 75.7% and 77.7%, respectively, and sensitivity of 78.6% and 82.1%, respectively. This compares favourably with the Berg Balance Scales (BBS) with specificity of 70.5% and sensitivity of 75.3%. The results suggest that the proposed method has potential as a protocol to diagnose balance disorder in older people.

PDF Y Endnote Y

Cost analysis of a brief intervention for the prevention of falls after discharge from an emergency department

Harper KJ, Arendts G, Geelhoed EA, Barton AD, Celenza A.

J. Eval. Clin. Pract. 2018; ePub(ePub): ePub.

Affiliation: Emergency Medicine, University of Western Australia, Perth, Australia.

(Copyright © 2018, John Wiley and Sons)

DOI 10.1111/jep.13041 PMID 30259596

Abstract

RATIONALE, AIMS AND OBJECTIVES: There is considerable uncertainty around the cost-effectiveness of interventions for preventing secondary falls in older people presenting to emergency departments (ED). The objective was to complete an economic evaluation of a brief educational ED intervention aimed at preventing falls in older people post discharge.

METHODS: A net cost analysis was completed from the health system perspective, using data from a controlled clinical trial, where an education intervention was compared to standard care. Patients aged 65 and older presenting to the ED with any diagnosis were enrolled. The costs, using Australian dollars (A\$) at 2015 values, included resources required for the intervention and any health care cost incurred in the 6-month follow-up period (time horizon). Cost data were sourced through institutional billing records and liaison with the patient and their general practitioner. Mean costs and differences were analysed through nonparametric bootstrapping.

RESULTS: The total costs in the control group (n = 201) were A\$1 576 496 compared to A\$1 292 130 in the intervention group (n = 211). The mean net cost per patient was A\$7749 and A\$6187 (P = 0.68) respectively resulting in a mean difference of A\$1580 per patient in the intervention group (95% CI: A\$-2806 to A\$6150). Patients who presented to the ED with a fall diagnosis were reviewed through subgroup analysis. Total costs for patients who presented with a fall in the control group (n = 69) were A\$708 995 compared to A\$512 874 in the intervention group (n = 97). The mean net cost per patient was A\$10 326 and A\$5343 respectively (P = 0.33) with an overall saving of A\$4624 per patient in the intervention group (95% CI: A\$-2868 to A\$15 426).



CONCLUSIONS: A brief intervention had no net cost benefit across the whole study population, but is more cost effective in older people presenting to the ED with a fall.

© 2018 John Wiley & Sons, Ltd.

PDF Y Endnote Y

Decomposing sensorimotor variability changes in ageing and their connection to falls in older people

Lin CH, Faisal AA.

Sci. Rep. 2018; 8(1): e14546.

Affiliation: MRC London Institute of Medical Sciences, W12 0NN, London, UK.

a.faisal@imperial.ac.uk.

(Copyright © 2018, Nature Publishing Group)

DOI 10.1038/s41598-018-32648-z **PMID** 30267026

Abstract

The relationship between sensorimotor variability and falls in older people has not been well investigated. We developed a novel task having shared biomechanics of obstacle negotiation to quantify sensorimotor variability related to locomotion across age. We found that sensorimotor variability in foot placement increases continuously with age. We then applied sensory psychophysics to pinpoint the visual and somatosensory systems associated with sensorimotor variability. We showed increased sensory variability, specifically increased proprioceptive variability, the vital cause of more variable foot placement in older people (greater than 65 years). Notably, older participants relied more on the vision to judge their own foot's height compared to the young, suggesting a shift in multisensory integration strategy to compensate for degenerated proprioception. We further modelled the probability of tripping-over based on the relationship between sensorimotor variability and age and found a correspondence between model prediction and community-based data. We reveal increased sensorimotor variability, modulated by sensation precision, a potentially vital mechanism of raised tripping-over and thus fall events in older people. Analysis of sensorimotor variability and its specific components may have the utility of fall risk and rehabilitation target evaluation.

PDF Y Endnote Y

Disease-related outcomes influence prevalence of falls in people with rheumatoid arthritis

Gaino JZ, Bértolo MB, Nunes CS, Barbosa CM, Sachetto Z, Davitt M, Magalhães EP.

Ann. Phys. Rehabil. Med. 2018; ePub(ePub): ePub.

Affiliation: Orthoses and Prostheses Unit, Clinical Hospital, State University of Campinas Unicamp, Campinas, São Paulo, Brazil. Electronic address: dreduardomagalhaes@gmail.com.

(Copyright © 2018, Elsevier Publishing)

DOI 10.1016/j.rehab.2018.09.003 **PMID** 30278237

Abstract

BACKGROUND: Patients with rheumatoid arthritis (RA) are at increased risk of falls, with potential adverse outcomes. There is a considerable variation across studies regarding the prevalence of falls and its correlation with clinical data, disease-related outcomes and physical performance tests.



OBJECTIVE: The aim of this study was to evaluate the prevalence of falls and its association with clinical data, disease-related outcomes and physical performance tests.

METHODS: In this cross-sectional study, 113 RA patients were divided into 3 groups - "non-fallers", "sporadic fallers" and "recurrent fallers" - and compared in terms of clinical data, Clinical Disease Activity Index (CDAI), lower-limb tender and swollen joint count, disability (Health Assessment Questionnaire-Disability Index [HAQ-DI]), Foot Function Index (FFI), Berg Balance Scale (BBS), Timed-up-and-go Test (TUG) and 5-Time Sit Down-To-Stand Up Test (SST5). Logistic regression analysis was performed to analyze the associations between the studied variables and the occurrence of falls, estimating odds ratios (ORs). We also analyzed the correlation between disease outcome measures (HAQ-DI and CDAI) and physical tests (BBS, TUG, SST5).

RESULTS: Falls and fear of falling were reported by 59 (52.21%) and 71 (64.5%) patients, respectively. Significant associations were found between "recurrent fallers" and vertigo (OR=3.42; $p=0.03$), fear of falling (OR=3.44; $p=0.01$), low income (OR=2.02; $p=0.04$), CDAI (OR=1.08; $p<0.01$), HAQ-DI (OR=3.66; $p<0.01$), Lower-limb HAQ (OR=3.48; $p<0.01$), FFI-pain (OR=1.24; $p=0.03$), FFI-total (OR=1.23; $p=0.04$), lower-limb tender joint count (OR=1.22; $p<0.01$), BBS score (OR=1.14; $p<0.01$), TUG score (OR=1.13; $p=0.03$) and SST5 score (OR=1.06; $p=0.02$). On multivariate analysis, CDAI was the only significant predictor of recurrent falls (OR= 1.08; $p<0.01$). Physical performance test scores (BBS, TUG, SST5) were correlated with the CDAI and HAQ-DI.

CONCLUSION: The prevalence of falls in RA is high, most influenced by disease-related outcomes and linked to worse performance on physical tests (BBS, TUG and SST5).

Copyright © 2018 Elsevier Masson SAS. All rights reserved.

PDF Y Endnote Y

Effect of rhythmic auditory cueing on aging gait: a systematic review and meta-analysis

Ghai S, Ghai I, Effenberg AO.

Aging Dis. 2018; 9(5): 901-923.

Affiliation: Institute for Sports Science, Leibniz University Hannover, Germany.

(Copyright © 2018, JKL International)

DOI 10.14336/AD.2017.1031 **PMID** 30271666 **PMCID** PMC6147584

Abstract

Rhythmic auditory cueing has been widely used in gait rehabilitation over the past decade. The entrainment effect has been suggested to introduce neurophysiological changes, alleviate auditory-motor coupling and reduce cognitive-motor interferences. However, a consensus as to its influence over aging gait is still warranted. A systematic review and meta-analysis was carried out to analyze the effects of rhythmic auditory cueing on spatiotemporal gait parameters among healthy young and elderly participants. This systematic identification of published literature was performed according to PRISMA guidelines, from inception until May 2017, on online databases: Web of science, PEDro, EBSCO, MEDLINE, Cochrane, EMBASE, and PROQUEST. Studies were critically appraised using PEDro scale. Of 2789 records, 34 studies, involving 854 (499 young/355 elderly) participants met our inclusion criteria. The meta-analysis revealed enhancements in spatiotemporal parameters of gait i.e. gait velocity (Hedge's g : 0.85), stride length (0.61), and cadence (1.1), amongst both age groups. This review, for the first time, evaluates the effects of auditory

entrainment on aging gait and discusses its implications under higher and lower information processing constraints. Clinical implications are discussed with respect to applications of auditory entrainment in rehabilitation settings.

PDF Y Endnote Y

Effect of two different participant information sheets on recruitment to a falls trial: an embedded randomised recruitment trial

Witham MD, Band MM, Price RJG, Fulton RL, Clarke CL, Donnan PT, Soiza RL, Cvoro V.

Clin. Trials 2018; ePub(ePub): ePub.

Affiliation: NHS Fife, Kirkcaldy, UK.

(Copyright © 2018, Society for Clinical Trials, Publisher Sage Publications)

DOI 10.1177/1740774518803558 **PMID**30260246

Abstract

BACKGROUND/AIMS Recruitment to trials of intervention for older people who fall is challenging. Evidence suggests that the word falls has negative connotations for older people, and this may present a barrier to engaging with trials in this area. We therefore tested whether a participant information sheet that minimised reference to falls could improve recruitment rates.

METHODS We conducted a study within a trial, embedded within a randomised controlled trial of vitamin K versus placebo to improve postural sway in patients aged 65 and over with a history of falls. Potential participants were identified from primary care lists in 14 practices and were randomised to receive either a standard participant information sheet or an information sheet minimising use of the word falls, instead focussing on maintenance of health, fitness and balance. The primary outcome for this embedded trial was the proportion of responses expressing interest in participating received in each arm. Secondary outcomes were the proportion of those contacted attending a screening visit, consenting at screening, and the proportion contacted who were randomised into the main trial.

RESULTS In all, 4145 invitations were sent, with an overall response rate of 444 (10.7%). In all, 2148 individuals received the new information sheet (minimising reference to falls); 1997 received the standard information sheet. There was no statistically significant difference in response rate between those individuals sent the new information sheet and those sent the standard information sheet (10.1% vs 11.4%; difference 1.3% (95% confidence interval -0.6% to 3.2%); $p = 0.19$). Similarly, we found no statistically significant difference between the percentage of those who attended and consented at screening in the two groups (2.1% vs 2.7%; difference 0.6% (95% confidence interval: -0.4% to 1.6%); $p = 0.20$), and no statistically significant difference between the percentage randomised in the two groups (2.0% vs 2.6%; difference 0.6% (95% confidence interval -0.4% to 1.6%); $p = 0.20$) **Conclusions** Use of a participant information sheet minimising reference to falls did not lead to a greater response rate in this trial targeting older people with a history of falls.

PDF Y Endnote Y

Fall-risk increasing drugs and prevalence of polypharmacy in older patients discharged from an orthogeriatric unit after a hip fracture

Correa-Pérez A, Delgado-Silveira E, Martín-Aragón S, Rojo-Sanchís AM, Cruz-Jentoft AJ.

Aging Clin. Exp. Res. 2018; ePub(ePub): ePub.

Affiliation: Servicio de Geriátrica, Hospital Universitario Ramón y Cajal (IRYCIS), Crta. Colmenar Km 9.1, 28034, Madrid, Spain.

(Copyright © 2018, Editrice Kurtis)

DOI 10.1007/s40520-018-1046-2 **PMID** 30276631

Abstract

BACKGROUND: Polypharmacy and fall-risk increasing drugs (FRIDS) have been associated with injurious falls. We aimed to estimate the prevalence of polypharmacy and FRIDS in older patients discharged from an Orthogeriatric Unit after a hip fracture surgery.

METHODS: This study describes the baseline findings of a 2-year retrospective cohort study. We included patients older than 80 years discharged from an Orthogeriatric Unit who were able to walk before surgery. Patient's baseline variables, total number of drugs, and FRIDS at hospital discharge were collected.

RESULTS: We included 228 patients. The mean number of drugs and FRIDS prescribed at discharge was 11.6 ± 3.0 and 2.9 ± 1.6 , respectively. Polypharmacy was prevalent in all patients except in three: 23.3% (5-9 drugs) and 75.9% (≥ 10 drugs). Only 11 patients had no FRIDS and 35.5% were on > 3 FRIDS. The most prevalent FRIDS were: agents acting on the renin-angiotensin system (43.9%) and anxiolytics (39.9%). The number of FRIDS was higher in patients with extreme polypharmacy (3.4 ± 1.5) than in those on 5-9 drugs (1.5 ± 1.0 , $p < 0.05$). Independent people in performing instrumental activities had lower risk of extreme polypharmacy (≥ 10 drugs) or > 3 FRIDS: OR 0.39 (95% CI 0.18-0.83) and OR 0.41 (95% CI 0.20-0.84), respectively. People living in a nursing home had higher risk of > 3 FRIDS: OR 4.03 (95% CI 1.12-14.53).

CONCLUSIONS: Polypharmacy and fall-risk increasing drugs are prevalent in patients discharged from orthogeriatric care after surgery for a hip fracture. Interventions on drug use at hospital discharge could have a potential impact on falls in this high-risk population.

PDF Y Endnote Y

Hip fractures in the oldest old. Comparative study of centenarians and nonagenarians and mortality risk factors

Barceló M, Francia E, Romero C, Ruiz D, Casademont J, Torres OH.

Injury 2018; ePub(ePub): ePub.

Affiliation: Internal Medicine Department, Althaia Xarxa Assistencial Universitària Manresa, Universitat Autònoma de Barcelona, Spain. Electronic address: OTorres@santpau.cat.

(Copyright © 2018, Elsevier Publishing)

DOI 10.1016/j.injury.2018.09.043 **PMID**30274759

Abstract

INTRODUCTION: Centenarians and nonagenarians constitute a rapidly growing age group in Western countries and they are expected to be admitted to hospital with hip fractures. The aim of this study was to compare outcomes of centenarian and nonagenarian patients following a hip fracture and to

identify risk factors related to in-hospital and post-discharge mortality in both groups.

ATIENS AND METHODS: A prospective evaluation of centenarian patients and nonagenarian controls admitted to a tertiary university hospital in Barcelona with hip fractures over a period of 5 years and 9 months. Baseline characteristics and outcomes in both patient groups were compared. Variables associated with in-hospital, 30-day, 3-month and 1-year mortality were also analyzed.

RESULTS: Thirty-three centenarians and 82 nonagenarians were included. The most relevant statistically significant differences found were: Barthel index at admission (61.90 vs. 75.22), number of drugs before admission (4.21vs 5.55), in-hospital complication rates (97 vs. 78%), readmissions at 3 months and 1 year (0 vs 11.7% and 3.4 vs. 19.5% respectively) and mortality at 3 months and 1 year (41.4 vs. 20.8% and 62.1 vs. 29.9%, respectively). Mean number of complications, rapid atrial fibrillation, mean age, and urinary tract infection were risk factors associated with mortality.

CONCLUSIONS: Centenarian patients had similar in-hospital outcomes to nonagenarians, but experienced more complications and twice the 3-month and 1-year mortality rate. The mean number of complications was the risk factor most consistently related to in-hospital and post-discharge mortality. These findings emphasize the need to improve care in very old patients to prevent complications.

Copyright © 2018 Elsevier Ltd. All rights reserved.

PDF Y Endnote Y

Initial validation of the Toulouse St. Louis University Mini Falls Assessment in older adults

Rouck JE, Malmstrom TK, Morley JE.

J. Nutr. Health Aging 2018; 22(8): 880-884.

Affiliation: John E. Rouck, BS. Division of Geriatric Medicine, 1402 South Grand Blvd., Room M238 St. Louis, MO 63110-0250, Personal Phone: 314-477-8462, Email: John.Rouck@health.slu.edu .
(Copyright © 2018, Holtzbrinck Springer Nature Publishing Group)

DOI 10.1007/s12603-018-1073-x **PMID** 30272087

Abstract

BACKGROUND/OBJECTIVES: Falls are one of the most prevalent health issues facing older adults. This study examines the validity of the Toulouse-St. Louis University Mini Falls Assessment (TSLUMFA).

OBJECTIVES were to validate the TSLUMFA by testing if it differentiates between prior non fallers (n=80) and fallers (n=23), and predicts future falls as well as or better than the gold standard Tinetti Gait and Balance Instrument (TGBI). Examine if the subset of FRAIL Scale items on the TSLUMFA distinguishes between previous non fallers (n=75) and fallers (n=20), and predicts future falls as well as or better than the TGBI. Identify TSLUMFA cut offs scores for fall risk.

DESIGN: Prospective validation study.

SETTING: Participants were ambulatory patients presenting to the SLU Geriatrics Clinic.

PARTICIPANTS: 103 ambulatory older adults.

MEASUREMENTS: Fall risk was assessed using the three assessments. Outcome measures were previous falls and follow up falls.

RESULTS: TSLUMFA, FRAIL, and TGBI differentiated between previous fallers and non fallers. A TSLUMFA score <23 stratified patients as moderate risk (Sensitivity=0.806 Specificity=0.776) and a

score <21 stratified patients as high risk (Sensitivity=0.929 Specificity=0.897). 78% of patients (n=80) participated in follow up and 20% (n=16) of these patients fell during follow up. TSLUMFA and TGBI absolute scores were lower among patients who fell during the follow up period versus non fallers but the observed differences were not statistically significant (TSLUMFA P=0.123 and TGBI P=0.074). CONCLUSION: This study validated the TSLUMFA and FRAIL. No test predicted falls with statistical significance (most likely due to the low follow up participation) but a positive trend was seen. Clinical recommendations from this study are to use the FRAIL as an initial fall screen and patients scoring > 3 should be analyzed by TSLUMFA. The TSLUMFA's advantage is that it pinpoints areas that will directly benefit from therapy to reduce falls.

PDF Y Endnote Y

Knowledge about risk factors for falls and practice about fall prevention in older adults among physiotherapists in Nigeria

Kalu ME, Vlachantoni A, Norman KE.

Physiother. Res. Int. 2018; 2018: e1742.

Affiliation: School of Rehabilitation Therapy, Queen's University, Kingston, Canada.

(Copyright © 2018, John Wiley and Sons)

DOI 10.1002/pri.1742 **PMID** 30280457

Abstract

BACKGROUND AND OBJECTIVE: Falling is a major health concern that has contributed significantly to older people's injury and loss of life worldwide, warranting the development of fall-prevention strategies, the success of which has been attributed to the levels of knowledge and practice about fall prevention among physiotherapists and other health professionals. The objective of this study was to determine the self-reported levels of knowledge on risk factors of fall and practices about fall prevention in older adults among physiotherapists in Nigeria.

METHODS: Physiotherapists (N = 237) recruited from the six geopolitical zones of Nigeria completed a three-part structured questionnaire that asked questions about risk factors for fall and common practices for fall prevention using a 5-point-rated Likert scale. Data were analysed using descriptive analysis, chi-square, and Kruskal-Wallis tests.

RESULTS: Among physiotherapists in Nigeria, 89% rated their level of knowledge about preventing falls among older adults as high, and 64% of them rated their level of practice on this topic as high. Among the individual items that measured knowledge, 40% of the participants reported a moderate level of knowledge about multiple medications as a risk factor for falls. Fifty percent of the participants reported a low level of practice of referral to other health care professionals, whereas 40% and 41% reported a moderate level of practice on documenting risk factors and treatment plans, respectively. There was no association between age, gender, or years of practice with levels of knowledge or practice.

CONCLUSION: This study suggests that physiotherapists in Nigeria have adequate knowledge and practice for fall prevention in older adults. However, there are potential gaps in knowledge of risk factors, documentation, and referrals to other professions that may be addressed through developing context-specific fall-prevention clinical guidelines for practice in Nigeria.

PDF Y Endnote Y

Low-dose trazodone, benzodiazepines, and fall-related injuries in nursing homes: a matched-cohort study

Bronskill SE, Campitelli MA, Iaboni A, Herrmann N, Guan J, Maclagan LC, Watt J, Rochon PA, Morris AM, Jeffs L, Bell CM, Maxwell CJ.

J. Am. Geriatr. Soc. 2018; ePub(ePub): ePub.

Affiliation: Public Health and Health Systems, University of Waterloo, Waterloo, Ontario, Canada. (Copyright © 2018, John Wiley and Sons)

DOI 10.1111/jgs.15519 **PMID** 30247773

Abstract

OBJECTIVES: To evaluate whether risk of fall-related injuries differs between nursing home (NH) residents newly dispensed low-dose trazodone and those newly dispensed benzodiazepines.

DESIGN: Retrospective, matched cohort study in linked, population-based administrative data. Matching was based on propensity score (± 0.2 standard deviations of the score as a caliper), age (± 1 year), sex, frailty status, and history of dementia. The derived propensity score included demographic characteristics, clinical comorbidities, cognitive and functional status, and risk factors for falls.

SETTING: All NHs in Ontario, Canada.

PARTICIPANTS: Propensity score-matched pairs of residents aged 66 and older who received a full clinical assessment between April 1, 2010, and March 31, 2015 (N=7,791).

MEASUREMENTS: Hospitalization (emergency department visit or acute care admission) for a fall-related injury within 90 days of exposure. Subdistribution hazard functions accounted for competing risk of death. Sensitivity analyses were used to examine falls resulting in hip or wrist fracture only, as well as different lengths of follow-up at 30, 60, and 180 days.

RESULTS: Cumulative incidence of a fall-related injury in the 90 days after index was 5.7% for low-dose trazodone users and 6.0% for benzodiazepine users (between-group change=-0.29, 95% confidence interval (CI)=-1.02-0.44]; hazard ratio=0.94, 95% CI=0.83-1.08).

FINDINGS were consistent across sensitivity analyses.

CONCLUSION: New use of low-dose trazodone was no safer with respect to a risk of a fall-related injury than new use of benzodiazepines. Additional studies to compare the effectiveness and risks of low-dose trazodone with those of a variety of psychotropic drug therapies are required in light of increasing trends in the use of trazodone in NHs.

© 2018, Copyright the Author Journal compilation © 2018, The American Geriatrics Society.

PDF Y Endnote Y

Major trauma in older persons

Beck B, Cameron P, Lowthian J, Fitzgerald M, Judson R, Gabbe BJ.

BJS Open 2018; 2(5): 310-318.

Affiliation: Farr Institute Swansea University Medical School Swansea UK.

(Copyright © 2018, John Wiley and Sons)

DOI 10.1002/bjs5.80 **PMID** 30263982 **PMCID** PMC6156159

Abstract



BACKGROUND: Globally, populations are ageing, creating challenges for trauma system design. Despite this, little is known about causes of injury and long-term outcomes in older injured patients. This study aims to describe temporal trends in the incidence, causes and functional outcomes of major trauma in older adults.

METHODS: The population-based Victorian State Trauma Registry was used to identify patients with major trauma aged 65 years and older with a date of injury between 1 January 2007 and 31 December 2016. Temporal trends in population-based incidence rates were evaluated. Functional outcome was measured using the Glasgow Outcome Scale - Extended.

RESULTS: There were 9250 older adults with major trauma during the study period. Low falls were the most common mechanism of injury (62.5 per cent), followed by transport-related events (22.2 per cent) and high falls (9.5 per cent). The number of patients with major trauma aged 65 years and older more than doubled from 2007 to 2016, and the incidence increased by 4.3 per cent per year (incidence rate ratio 1.043, 95 per cent c.i. 1.035 to 1.050; $P < 0.001$). At 12 months after injury, 41.8 per cent of older adults with major trauma had died, and 52.2 per cent of those who survived to hospital discharge were not living independently.

CONCLUSIONS: The number and proportion of older adults with major trauma are increasing rapidly and this will impact on trauma system design. Given the poor long-term outcomes, there needs to be greater emphasis on ensuring that appropriate interventions are targeted to the right patients and enhanced efforts in primary prevention.

PDF Y Endnote Y

Physical function tests predict incident falls: a prospective study of 2969 men in the Swedish Osteoporotic Fractures in Men study

Cöster ME, Karlsson M, Ohlsson C, Mellström D, Lorentzon M, Ribom E, Rosengren B.

Scand. J. Public Health 2018; ePub(ePub): ePub.

Affiliation: Clinical and Molecular Osteoporosis Research Unit, Department of Orthopedics and Clinical Sciences, Lund University, Skåne University Hospital, Sweden.

(Copyright © 2018, Associations of Public Health in the Nordic Countries Regions, Publisher Sage Publications)

DOI 10.1177/1403494818801628 **PMID**30269679

Abstract

AIMS: Falls are common in the elderly population, and fall-related injuries are a major health issue. We investigated the ability of simple physical tests to predict incident falls.

METHODS: The Swedish Osteoporotic Fractures in Men (MrOS) study includes 3014 population-based men aged 69–81 years at the start of the study. These men performed five different physical tests at baseline: right-hand grip strength, left-hand grip strength, timed stand test, 6 m walking test (time and steps) and narrow walking test. During the first study year, we asked participants to fill out questionnaires regarding falls 4, 8 and 12 months after baseline. A total of 2969 men completed at least one questionnaire and were included in this study. We used generalised estimating equations and logarithmic regression models to estimate odds ratios for fallers and recurrent fallers (more than one fall during the one-year examination period) in each quartile of men for each physical test.

RESULTS: The proportions of fallers and recurrent fallers were higher in the lowest quartile of the

physical tests than in the other three quartiles combined for all physical tests. A reduction of one standard deviation in respective physical test resulted in a 13-21% higher risk of becoming a faller and a 13-31% higher risk of becoming a recurrent faller.

CONCLUSIONS: Low results on simple physical tests is a risk factor for incident falls in elderly Swedish men and may facilitate identification of high-risk individuals suitable for fall-intervention programs.

PDF Y Endnote y

Reducing falls among people living with dementia: a systematic review

Peek K, Bryant J, Carey M, Dodd N, Freund M, Lawson S, Meyer C.

Dementia (Sage) 2018; ePub(ePub): ePub.

Affiliation: Bolton Clarke Research Institute, Australia.

(Copyright © 2018, Sage Publications)

DOI 10.1177/1471301218803201 **PMID**30269532

Abstract

BACKGROUND: People diagnosed with dementia are at greater risk of falls. Given the increasing incidence of dementia globally, high quality and methodologically rigorous research is needed to inform evidence-based practice initiatives.

AIMS: To describe the published literature related to describing, reducing or preventing fall incidences for people living with dementia including: (1) trends in the total number of intervention and non-intervention studies between 1997 and 2016; (2) the methodological quality of identified intervention studies; and (3) the effectiveness of interventions designed to reduce the incidence of falls among people living with dementia.

METHODS: A systematic review of five databases was conducted to identify studies reporting any aspect of falls incidence for people with a diagnosis of dementia. Studies meeting the eligibility criteria were coded as intervention or non-intervention studies. Intervention studies were assessed using Cochrane's Effective Practice and Organisation of Care tool. Data about the effectiveness of interventions meeting Effective Practice and Organisation of Care criteria were extracted.

RESULTS: Seventy-two eligible studies were identified; 57 were non-intervention studies, and 15 were intervention studies. The number of published studies increased between 1997 and 2016, peaking in 2013 (n = 10). Of the 15 intervention studies, seven studies met Effective Practice and Organisation of Care design criteria with one study rated low risk on all eight Effective Practice and Organisation of Care risk of bias domains. One high-risk exercise-based intervention study demonstrated a significant reduction in falls among people living with dementia.

CONCLUSIONS: There is currently insufficient evidence to endorse any intervention to reduce falls for people living with dementia in any setting. More high-quality intervention studies are needed.

PDF Y Endnote Y

The case for mobility assessment in hospitalized older adults: American Geriatrics Society white paper executive summary

Wald HL, Ramaswamy R, Perskin MH, Roberts L, Bogaisky M, Suen W, Mikhailovich A.

J. Am. Geriatr. Soc. 2018; ePub(ePub): ePub.

Affiliation: American Geriatrics Society, New York, New York.

(Copyright © 2018, John Wiley and Sons)

DOI 10.1111/jgs.15595 **PMID** 30276809

Abstract

Mobility can be defined as the ability to move or be moved freely and easily. In older adults, mobility impairments are common and associated with risk for additional loss of function. Mobility loss is particularly common in these individuals during acute illness and hospitalization, and it is associated with poor outcomes, including loss of muscle mass and strength, long hospital stays, falls, declines in activities of daily living, decline in community mobility and social participation, and nursing home placement. Thus, mobility loss can have a large effect on an older adult's health, independence, and quality of life. Nevertheless, despite its importance, loss of mobility is not a widely recognized outcome of hospital care, and few hospitals routinely assess mobility and intervene to improve mobility during hospital stays. The Quality and Performance Measurement Committee of the American Geriatrics Society has developed a white paper supporting greater focus on mobility as an outcome for hospitalized older adults. The executive summary presented here focuses on assessing and preventing mobility loss in older adults in the hospital and summarizes the recommendations from that white paper. The full version of the white paper is available as Text S1.

© 2018, Copyright the Author Journal compilation © 2018, The American Geriatrics Society.

PDF Y Endnote Y

Traumatic brain injury and dementia

Caye A, Axelrud LK, Salum GA.

Lancet Psychiatry 2018; 5(10): 782-783.

Affiliation: Department of Psychiatry and Legal Medicine, Universidade Federal do Rio Grande do Sul, Hospital de Clínicas de Porto Alegre, Porto Alegre 90035-903, Brazil.

(Copyright © 2018, Elsevier Publishing)

DOI 10.1016/S2215-0366(18)30187-1 **PMID** 30274671

Abstract [Abstract unavailable]

PDF Y Endnote Y

Traumatic brain injury and dementia

Owens TS, Corkill R, Berg RMG, Bailey DM.

Lancet Psychiatry 2018; 5(10): 782.

Affiliation: Neurovascular Research Laboratory, Faculty of Life Sciences and Education, University of South Wales, Pontypridd, UK. Electronic address: damian.bailey@southwales.ac.uk.

(Copyright © 2018, Elsevier Publishing)

DOI 10.1016/S2215-0366(18)30183-4 **PMID** 30274670

Abstract [Abstract unavailable] **PDF Y Endnote Y**

Traumatic brain injury and dementia - Authors' reply

Fann JR, Ribe AR, Pedersen HS, Fenger-Grøn M, Christensen J, Benros ME, Vestergaard M.
Lancet Psychiatry 2018; 5(10): 783.

Affiliation: The Research Unit and Section for General Practice, Department of Public Health, Aarhus University, Aarhus, Denmark.

(Copyright © 2018, Elsevier Publishing)

DOI 10.1016/S2215-0366(18)30341-9 **PMID** 30274672

Abstract [Abstract unavailable]

PDF Y Endnote Y

Visual cueing using laser shoes reduces freezing of gait in Parkinson's patients at home

Barthel C, van Helvert M, Haan R, Janssen AM, Delval A, de Vries NM, Weerdesteyn V, Debû B, van Wezel R, Bloem BR, Ferraye MU.

Mov. Disord. 2018; ePub(ePub): ePub.

Affiliation: Biomedical Signal and Systems Group, MIRA Institute for Biomedical Technology and Technical Medicine, University of Twente, Enschede, The Netherlands.

(Copyright © 2018, Movement Disorders Society, Publisher John Wiley and Sons)

DOI 10.1002/mds.27455 **PMID** 30269367

Abstract [Abstract unavailable]

PDF Y Endnote Y

Working to Increase Stability through Exercise (WISE): study protocol for a pragmatic randomized controlled trial of a coached exercise program to reduce serious fall-related injuries

Sciamanna C, Ballentine NH, Bopp M, Brach JS, Chinchilli VM, Ciccolo JT, Conroy MB, Fisher A, Fox EJ, Greenspan SL, Jan De Beur Suzanne M, Kearcher K, Kraschnewski JL, McTigue KM, McAuley E, Morone NE, Paranjape A, Rodriguez-Colon S, Rosenzweig A, Smyth JM, Stewart KJ, Stuckey HL.
Contemp. Clin. Trials 2018; ePub(ePub): ePub.

Affiliation: Penn State College of Medicine, United States.

(Copyright © 2018, Elsevier Publishing)

DOI 10.1016/j.cct.2018.09.006 **PMID** 30261294

Abstract

Approximately one-third of older adults fall each year and fall-related injuries are a leading cause of death and disability among this rapidly expanding age group. Despite the availability of bisphosphonates to reduce fractures, concerns over side effects have dramatically reduced use, suggesting that other treatment options are needed. Though many smaller studies have shown that physical activity programs can reduce falls, no study has been adequately powered to detect a reduction in fall-related injuries. We present the design of a three-year randomized controlled clinical trial of 1130 adults age 65 and older with a past history of fragility fractures (e.g., vertebral, fall-related). The main aim is to determine the impact of a community-based multicomponent (strength, balance, aerobic) physical activity program led by trained volunteers (or delivered via DVD) and accompanied by coaching and oversight, by telephone and in-person, by a fitness professional. The main outcome measure is serious fall-related injuries. Secondary outcomes

include health care utilization, bone and muscle mass, loneliness, health-related quality of life and mood. The study represents the first large clinical trial of a comprehensive physical activity program to reduce secondary injuries among patients with a history of fragility fracture.

Copyright © 2018. Published by Elsevier Inc.

PDF Y Endnote Y

Catching quality before it falls: preventing falls and injuries in the adult emergency department

Stoeckle A, Iseler JI, Havey R, Aebersold C.

J. Emerg. Nurs. 2018; ePub(ePub): ePub.

(Copyright © 2018, Emergency Nurses Association, Publisher Elsevier Publishing)

DOI 10.1016/j.jen.2018.08.001 **PMID** 30268339

Abstract

PROBLEM: Although hospital falls and injuries are a significant patient safety concern, research is limited regarding falls and injuries in the emergency department. The purpose of this quality improvement project is to identify and implement evidence-based interventions to prevent patient falls and injuries in the emergency department.

METHODS: Literature was reviewed to identify best practices for fall prevention in the emergency department. Data sources included Journal Storage, PubMed, Cumulative Index for Nursing and Allied Health Literature, and Cochrane Database of Systematic Reviews. A retrospective chart review and root cause analysis was completed on fall-related risk reports over a 19-month period at a specific emergency department. Multifactorial fall prevention interventions were implemented in March 2017, which included nursing educational sessions, patient education handout, and high-fall-risk patient identification signs.

RESULTS: Post-implementation, zero falls were sustained in April 2017. The average number of falls between April and December 2017 was 5.2 falls/month. Completion of the fall-risk assessment tool ranged between 47 to 90 percent. The patient education handout was provided up to 40 percent of the time. The use of fall risk signs outside patient rooms occurred up to 43 percent of the time.

DISCUSSION: The emergency department is a unique environment with complex patient populations. Multifactorial interventions should be used to identify and prevent patient falls and injuries. Multiple change strategies and leadership support are essential to sustain changes. Future research should be conducted regarding the use of fall risk assessments and fall prevention strategies specific to the emergency department.

Copyright © 2018 Emergency Nurses Association. Published by Elsevier Inc. All rights reserved.

PDF Y Endnote Y

Comparison of alternative falls data collection methods in the Prevention of Falls Injury Trial (PreFIT)

Griffin J, Lall R, Bruce J, Withers E, Finnegan S, Lamb SE.

J. Clin. Epidemiol. 2018; ePub(ePub): ePub.

Affiliation: Warwick Clinical Trials Unit, Warwick Medical School, University of Warwick, Coventry, CV4 7AL, UK; Kadoorie Centre for Critical Care Research and Education, John Radcliffe Hospital, NDORMS, University of Oxford.



(Copyright © 2018, Elsevier Publishing)

DOI 10.1016/j.jclinepi.2018.09.006 PMID 30266633

Abstract

BACKGROUND: Prospective, monthly diaries are recommended for collecting falls data but are burdensome and expensive.

OBJECTIVE: To compare characteristics of fallers and estimates of fall rates by method of data collection.

DESIGN: and Setting: A methodology study nested within a large cluster RCT. We randomised 9803 older adults from 63 general practices across England to receive one of three fall prevention interventions. Participants provided a retrospective report of falls in postal questionnaires mailed every four months. A separate randomisation allocated participants to receive prospective monthly falls diaries for one simultaneous four month period.

RESULTS: Falls diaries were returned by 7762/9375 (83%); of which 6306/9375 (67%) participants reported the same number of falls on both data sources. Diary non-responders were older and had poorer levels of physical and mental health. Analysis of time-points where both data sources were available showed the falls rate on diaries was consistently higher than on the questionnaire (mean rate: 0.16 v 0.12 falls per person month observation). Diary allocation was associated with a higher rate of withdrawal from the main trial.

CONCLUSIONS: Diary completion was associated with sample attrition. We found on average a 32% difference in falls rates between the two data sources. Retrospective and prospective falls data are not consistently reported when collected simultaneously.

Copyright © 2018. Published by Elsevier Inc.

PDF Y Endnote

In-hospital sequelae of injurious falls in 24 medical/surgical units in four hospitals in the United States

Hill AM, Jacques A, Chandler AM, Richey PA, Mion LC, Shorr RI.

Jt. Comm. J. Qual. Patient Saf. 2018; ePub(ePub): ePub.

(Copyright © 2018, Joint Commission on Accreditation of Healthcare Organizations)

DOI 10.1016/j.jcjq.2018.08.005 PMID 30269964

Abstract

BACKGROUND: Up to 50% of patient falls in the hospital result in injury. This study was conducted to determine whether injurious falls were associated with increased hospital length of stay (LOS), discharge to a place other than home, and in-hospital mortality.

METHODS: A secondary data analysis from a prospective case-control study was conducted in 24 medical/surgical units in four hospitals in the United States. Patients who fell and sustained an injury were matched with at least one control patient who was on the same unit, at the same time, for a similar number of days on the unit at the time of the fall. Data were collected by viewing patients' electronic health records, as well as the hospitals' incident reporting systems. Logistic regression and Cox regression analyses were conducted.

RESULTS: The 1,033 patients (mean age, 63.7 years; 510 males [49.4%]) who sustained an injurious fall were matched with 1,206 controls (mean age, 61.6 years; 486 males [40.3%]). Fallers were

significantly more likely than controls to stay longer than 10 days in the hospital (odds ratio [OR], 1.59; 95% confidence interval [CI] = 1.46-1.74) and to be discharged to a place other than home (OR, 1.52; 95% CI = 1.21-1.91).

CONCLUSION: Compared to controls, hospital patients who sustained an injurious fall had longer LOS and were more likely discharged to a place other than home. These associations remained when controlling for patient-level confounders, suggesting that the fall altered trajectory was sustained toward these outcomes. Injurious falls were not significantly associated with increased risk of mortality.

Copyright © 2018 The Joint Commission. All rights reserved.

PDF Will get copy Endnote

What can we learn about fall risk factors from EHR nursing notes? A text mining study

Bjarnadottir RI, Lucero RJ.

EGEMS (Wash. DC) 2018; 6(1): e21.

Affiliation: University of Florida, US.

(Copyright © 2018, Berkeley Electronic Press)

DOI 10.5334/egems.237 **PMID** 30263902 **PMCID** PMC6157016

Abstract

INTRODUCTION: Hospital falls are a continuing clinical concern, with over one million falls occurring each year in the United States. Annually, hospital-acquired falls result in an estimated \$34 billion in direct medical costs. Falls are considered largely preventable and, as a result, the Centers for Medicare and Medicaid Services have announced that fall-related injuries are no longer a reimbursable hospital cost. While policies and practices have been implemented to reduce falls, little sustained reduction has been achieved. Little empirical evidence supports the validity of published fall risk factors. While chart abstraction has been used to operationalize risk factors, few studies have examined registered nurses' (RNs') narrative notes as a source of actionable data. Therefore, the purpose of our study was to explore whether there is meaningful fall risk and prevention information in RNs' electronic narrative notes.

METHODS: This study utilized a natural language processing design. Data for this study were extracted from the publicly available Medical Information Mart for Intensive Care (MIMIC-III) database. The data comprises deidentified EHR data associated with patients who stayed in critical care units between 2001 and 2012. Text mining procedures were performed on RN's narrative notes following the traditional steps of knowledge discovery.

RESULTS: The corpus of data extracted from MIMIC-III database was comprised of 1,046,053 RNs' notes from 36,583 unique patients. We identified 3,972 notes (0.4 percent) representing 1,789 (5 percent) patients with explicit documentation related to fall risk/prevention. Around 10 percent of the notes (103,685) from 23,025 patients mentioned intrinsic (patient-related) factors that have been theoretically associated with risk of falling. An additional 1,322 notes (0.1 percent) from 692 patients (2 percent) mentioned extrinsic risk factors, related to organizational design and environment. Moreover, 7672 notes (0.7 percent) from 2,571 patients (7 percent) included information on interventions that could theoretically impact patient falls.

CONCLUSIONS: This exploratory study using a NLP approach revealed that meaningful information

related to fall risk and prevention may be found in RNs' narrative notes. In particular, RNs' notes can contain information about clinical as well as environmental and organizational factors that could affect fall risk but are not explicitly recorded by the provider as a fall risk factors. In our study, potential fall risk factors were documented for more than half of the sample. Further research is needed to determine the predictive value of these factors.

IMPLICATIONS FOR POLICY OR PRACTICE: This study highlights a potentially rich but understudied source of actionable fall risk data. Furthermore, the application of novel methods to identify quality and safety measures in RNs' notes can facilitate inclusion of RNs' voices in patient outcomes and health services research.

PDF Y Endnote

