

SafetyLit 30th March 2019

Associations of sarcopenia and its components with bone structure and incident falls in Swedish older adults

Scott D, Johansson J, McMillan LB, Ebeling PR, Nordström P, Nordström A. *Calcif. Tissue Int.* 2019; ePub(ePub): ePub.

Affiliation

School of Sport Sciences, UiT The Arctic University of Norway, Tromsø, Norway.

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DOI

10.1007/s00223-019-00540-1

PMID

30899995

Abstract

The aim of this study was to compare bone structure parameters and likelihood of falls across European Working Group on Sarcopenia in Older People (EWGSOP2) sarcopenia categories. 3334 Swedish 70-year olds had appendicular lean mass (normalized to height; ALM_{Ht}), lumbar spine and total hip areal BMD (aBMD) estimated by dual-energy X-ray absorptiometry. Volumetric BMD (vBMD) and structure at the distal and proximal tibia and radius were estimated by peripheral quantitative computed tomography. Hand grip strength and timed up-and-go were assessed, and sarcopenia was defined according to EWGSOP2 criteria. Incident falls were self-reported 6 and 12 months after baseline. Only 0.8% and 1.0% of participants had probable and confirmed sarcopenia, respectively. Almost one-third of participants with confirmed sarcopenia reported incident falls, compared with 20% for probable sarcopenia and 14% without sarcopenia ($P = 0.025$). Participants with confirmed sarcopenia had poorer bone parameters (all $P < 0.05$) except endosteal circumference at the proximal radius and tibia, while those with probable sarcopenia had lower cortical area at the proximal radius ($B = -5.9$; 95% CI $-11.7, -0.1 \text{ mm}^2$) and periosteal and endosteal circumferences at the proximal tibia (-3.3 ; $-6.4, -0.3$ and -3.8 ; $-7.5, -0.1 \text{ mm}^2$, respectively), compared with those without sarcopenia. Compared with probable sarcopenia, confirmed sarcopenic participants had significantly lower lumbar spine and total hip aBMD, distal radius and tibia total vBMD, and proximal radius and tibia cortical vBMD, area and thickness (all $P < 0.05$). Swedish 70-year olds with confirmed sarcopenia demonstrate poorer BMD and bone architecture than those with probable and no sarcopenia, and have increased likelihood of incident falls.

Language: en

Keywords

Bone; Falls; Muscle; Older adults; Osteoporosis; Sarcopenia

Characteristics for gait parameters of community-dwelling elderly Japanese with lower cognitive function

Taniguchi Y, Watanabe Y, Osuka Y, Kitamura A, Seino S, Kim H, Kawai H, Sakurai R, Inagaki H, Awata S, Shinkai S. PLoS One 2019; 14(3): e0212646.

Affiliation

Research on Social and Human Science, Tokyo Metropolitan Institute of Gerontology, Tokyo, Japan.
(Copyright © 2019, Public Library of Science)

DOI

10.1371/journal.pone.0212646

PMID

30917138

Abstract

OBJECTIVES: Recent studies reported that several gait parameters were associated with lower cognitive function or cognitive decline, however, known gait parameters were limited and no study has used large-scale data. We identified the characteristics for gait parameters of community-dwelling elderly Japanese with lower cognitive function.

METHODS: 1,240 community-dwelling adults (mean [SD] age, 77.2 [4.8] years; women, 59.4%) aged 70 or older participated in geriatric health assessments in 2016. We measured comprehensive gait parameters using resistive pressure platform. Cognition was assessed by Mini-Mental State Examination (MMSE).

RESULTS: There are possible correlations between gait measures (gait speed, stride length, step length, step width, average foot pressure, double support duration, and single support duration) and CVs (CV of stride length, step length, average foot pressure, and single support duration) with MMSE score, respectively. After adjustment for important confounders, multiple regression models showed that gait speed ($\beta = .080$, $p = 0.006$), stride length ($\beta = .123$, $p < 0.001$), step length ($\beta = .123$, $p < 0.001$), average foot pressure ($\beta = .060$, $p = 0.040$), double support duration ($\beta = -.082$, $p = 0.004$), single support duration ($\beta = .086$, $p = 0.003$), CV of stride length ($\beta = -.091$, $p < 0.001$), CV of step length ($\beta = -.090$, $p < 0.001$), and CV of single support duration ($\beta = -.058$, $p = 0.037$) had significant association with MMSE score, respectively.

CONCLUSIONS: Our findings suggest that person with lower cognitive function tend to have unsteady gait such as erratic length and time of one step, in addition to decreasing the vertical displacement of the center of gravity and slower speed.

Language: en

Effect of physical exercise on physical performance and fall incidents of individuals living with dementia in nursing homes: a randomized controlled trial

Brett L, Stapley P, Meedya S, Traynor V. *Physiother. Theory Pract.* 2019; ePub(ePub): ePub.

Affiliation

Faculty of Science Medicine and Health , University of Wollongong , Wollongong , Australia.

(Copyright © 2019, Informa - Taylor and Francis Group)

DOI

10.1080/09593985.2019.1594470

PMID

30912690

Abstract

OBJECTIVE: To determine the effects of an exercise intervention on physical performance and reported fall incidents among individuals living with dementia in nursing homes.

METHODS: The study was a randomized controlled trial to determine the effect of the physical activity on physical performance and reported fall incidents. A sample of 60 participants from two nursing homes in Australia were randomly allocated to either: (1) Intervention Group 1: physical exercise intervention for 45 min, once a week; (2) Intervention Group 2: physical exercise intervention for 15 min, three times a week; or (3) usual care Control Group. Physical performance was assessed before and after the intervention (12 weeks) using: Six Meter Walk test, Five-Times-Sit-to-Stand test, Timed Up and Go (TUG) test, (Modified) Functional Reach test, timed static pedaling (TSP). The number of reported falls was determined by review of incident reports completed by nursing home staff.

RESULTS: The physical performance outcome measures demonstrated positive trends over time in favor of the intervention groups, though the observed changes were only statistically significant for TSP and TUG Test. The number of reported falls demonstrated a significant difference between groups during the intervention period.

CONCLUSIONS: The results demonstrated that the physical exercise intervention could be beneficial for individuals living with dementia, and as little as 45 min per week could be effective for this population group. However, cautious interpretation was drawn as the pool of participants was not sufficiently large enough to generate a meaningful effect size.

Language: en

Keywords

Dementia; exercise; falls; nursing homes; physical performance

Effects of tai chi exercise on reducing falls and improving balance performance in Parkinson's disease: a meta-analysis

Liu HH, Yeh NC, Wu YF, Yang YR, Wang RY, Cheng FY. Parkinsons Dis. 2019; 2019: e9626934.

Affiliation

Institute of Long-Term Care, Mackay Medical College, New Taipei City 252, Taiwan.

(Copyright © 2019, SAGE Publishing)

DOI

10.1155/2019/9626934

PMID

30918623

PMCID

PMC6409066

Abstract

INTRODUCTION: Parkinson's disease (PD) is a common neurodegenerative disorder that may increase the risk of falls, functional limitation, and balance deficits. Tai Chi was used as an option for improving balance in people with PD. The aim of this meta-analysis was to evaluate the effects of Tai Chi on falls, balance, and functional mobility in individuals with PD.

METHOD: The literature search was conducted in PubMed, the Cochrane Library, CINAHL, PEDro, Medline, Embase, sportDISCUS, Trip, and the National Digital Library of Theses and Dissertations in Taiwan. Randomized controlled trials (RCTs) analyzing the effects of Tai Chi, compared to no intervention or to other physical training, on falls, functional mobility, and balance in PD patients were selected. The outcome measurements included fall rates, Berg Balance Scale (BBS), Functional Reach (FR) test, and the Timed Up and Go (TUG) test. Two reviewers independently assessed the methodological quality and extracted data from the studies using the PEDro scale.

RESULTS: Five RCTs that included a total of 355 PD patients were included in this review. The quality of evidence in these studies was rated as moderate to high. Compared to no intervention or other physical training, Tai Chi significantly decreased fall rates (odds ratio = 0.47, 95% confidence interval (CI) 0.30 to 0.74, and $p=0.001$) and significantly improved balance and functional mobility (BBS mean difference (MD) = 3.47, 95% CI 2.11 to 4.80, and $p < 0.001$; FR MD = 3.55 cm, 95% CI 1.88 to 5.23, and $p < 0.001$; TUG MD = -1.06 s, 95% CI -1.61 to -0.51, and $p < 0.001$) in people with PD.

CONCLUSION: This meta-analysis provides moderate- to high-quality evidence from five RCTs that Tai Chi could be a good physical training strategy for preventing falls and improving balance and functional mobility in people with PD.

Language: en

Evaluation of implementing a home-based fall prevention program among community-dwelling older adults

Olij BF, Erasmus V, Barmantloo LM, Burdorf A, Smilde D, Schoon Y, van der Velde N, Polinder S. *Int. J. Environ. Res. Public Health* 2019; 16(6): e16061079.

Affiliation

Department of Public Health, University Medical Center Rotterdam, Erasmus MC, 3000 CA Rotterdam, The Netherlands. s.polinder@erasmusmc.nl.

(Copyright © 2019, MDPI: Multidisciplinary Digital Publishing Institute)

DOI

10.3390/ijerph16061079

PMID

30917558

Abstract

We aimed to describe and evaluate the implementation of a home-based exercise program among community-dwelling adults aged ≥ 65 years. In an observational study, the twelve-week program was implemented in a community setting. The implementation plan consisted of dialogues with healthcare professionals and older adults, development of an implementation protocol, recruitment of participants, program implementation, and implementation evaluation. The dialogues consisted of a Delphi survey among healthcare professionals, and of individual and group meetings among older adults. The implementation of the program was evaluated using the framework model RE-AIM. In the dialogues with healthcare professionals and older adults, it was found that negative consequences of a fall and positive effects of preventing a fall should be emphasized to older adults, in order to get them engaged in fall prevention activities. A total of 450 older adults enrolled in the study, of which 238 started the program. The process evaluation showed that the majority of older adults were recruited by a community nurse. Also, a good collaboration between the research team and the local primary healthcare providers was accomplished, which was important in the recruitment. Future fall prevention studies may use this information in order to translate an intervention in a research project into a community-based program.

Language: en

Keywords

accidental falls; aged; exercise; implementation science; independent living; prevention and control

Factors associated with participation of community-dwelling older adults in a home-based falls prevention program

Olij BF, Barmantloo LM, Smilde D, van der Velde N, Polinder S, Schoon Y, Erasmus V. *Int. J. Environ. Res. Public Health* 2019; 16(6): e16061087.

Affiliation

Erasmus MC, Department of Public Health, University Medical Center Rotterdam, Rotterdam 3000 CA, The Netherlands. v.erasmus@erasmusmc.nl.

(Copyright © 2019, MDPI: Multidisciplinary Digital Publishing Institute)

DOI

10.3390/ijerph16061087

PMID

30917618

Abstract

This observational study was conducted to determine which factors are associated with frequent participation in a home-based exercise program. The effects of frequent participation on health-related outcomes over time are investigated, as well. Community-dwelling adults aged ≥ 65 years participated in a twelve-week home-based exercise program. The program consisted of an instruction book with exercises that were performed individually at home. Frequent participation was classified as performing exercises of the instruction book daily or a few days a week during the study period. A logistic regression analysis was performed to determine the association between factors (i.e., demographic and health-related characteristics) and frequent participation. Furthermore, to investigate the effects of frequent participation on health-related outcomes, generalized linear and logistic regression models were built. A total of 238 participants (mean age 81.1 years (SD \pm 6.7), 71% female) were included in the study. Frequent participation during the study period was indicated by fifty-two percent of participants. Analyses showed that a higher degree of pain (OR: 1.02, 95% CI: 1.1–1.04) was associated with frequent participation. In addition, the effect of frequent participation over time was a significant improvement in current health perceptions (B: 4.46, SE: 1.99).

Language: en

Keywords

accidental falls; aged; exercise; independent living; prevention and control

How do general practitioners (GPs) engage in falls prevention with older people? A pilot survey of GPs in NHS England suggests a gap in routine practice to address falls prevention

Mackenzie L, McIntyre A. *Front. Public Health* 2019; 7: e32.

Affiliation

Occupational Therapy, College of Health and Life Sciences, Brunel University London, Uxbridge, United Kingdom.

(Copyright © 2019, Frontiers Editorial Office)

DOI

10.3389/fpubh.2019.00032

PMID

30915322

PMCID

PMC6421941

Abstract

Falls are highly prevalent amongst older people and have substantial financial and social costs for health services and the community. Prevention of falls is the key to managing this threat to older people. General practitioners can identify older people at risk of falls on their caseloads. Once identified, actions can be taken to reduce the risk of falls by referring to appropriate services available in the community, such as allied health practitioners. However, the level of engagement in evidence based falls prevention by GPs is unknown. This study aimed to explore how British general practitioners (GPs) address falls prevention with older people, and to determine if there are any gaps in practice. As a pilot study, another aim was to test the feasibility of methods to survey GPs, if a larger survey was warranted from the findings. An on-line cross-sectional survey was distributed by email to all the Clinical Commissioning Groups in NHS England ($n = 213$) and individual general practices listed on the NHS Choices website, supplemented by invitations distributed to CCGs through Twitter and LinkedIn sites. Thirty-seven responses were received. Most GPs were unfamiliar with the 2013 NICE guidelines on assessment and prevention of falls in older people (51.4%, $n = 19$), and only 29.7% ($n = 11$) asked older people if they had fallen during consultations. If falls risk was identified, 81.1% ($n = 30$) frequently made referrals to physiotherapy (PT) and 56.8% ($n = 21$) to occupational therapy (OT). Most GPs did not identify older people on their caseloads as being at risk of falls unless they presented with a fall, and referral rates to relevant AHPs or falls prevention programs were low. Barriers to implementation of falls prevention best practice were identified. Alternative methods are needed to capture the falls prevention practice of a wider sample of GPs.

Language: en

Keywords

accidental falls; aging; allied health practitioners; general practice; primary health

Medication and medical diagnosis as risk factors for falls in older hospitalized patients

Wedmann F, Himmel W, Nau R. Eur. J. Clin. Pharmacol. 2019; ePub(ePub): ePub.

Affiliation

Institute of Neuropathology, University Medical Center, Göttingen, Germany. rnau@gwdg.de.

(Copyright © 2019, Holtzbrinck Springer Nature Publishing Group)

DOI

10.1007/s00228-019-02668-3

PMID

30915520

Abstract

OBJECTIVE: To examine the impact of medication and medical conditions on the fall risk in older hospitalized patients.

DESIGN: Matched case-control study. **SETTING:** Large regional hospital in a mid-sized German city. **SUBJECTS:** Four hundred eighty-one inpatients aged ≥ 65 years who fell during hospitalization ("cases") and a control group of 481 controls, matched for age, gender, and hospital department.

METHODS: Diagnosis, medication, vital parameters, and injuries were compared between cases and controls. Univariate and multivariable odds ratios (ORs) and their corresponding 95% confidence intervals (CIs) were calculated. **MAIN RESULTS:** Several drugs were significantly associated with falls in multivariate analyses: long-acting benzodiazepines (adjusted OR = 3.49; 95%-CI = 1.16-10.52), serotonin-noradrenalin reuptake inhibitors (SNRI) (2.57; 1.23-5.12), Z-drugs (2.29; 1.38-3.59), low-potency neuroleptics (1.87; 1.08-3.23), ACE inhibitors/sartans (1.42; 1.07-1.89). Digoxin (0.32; 0.11-0.99) and aldosterone receptor antagonists (0.54; 0.33-0.88) were negatively associated with falls. No significant association in multivariate analyses was found for short- and intermediate-acting benzodiazepines, mirtazapine, and opioids. Hyponatremia (1.52; 1.15-2.03) and leukocytosis (1.39; 1.05-1.87) in blood examination on admission showed significant association with falls. As secondary diagnoses, Parkinson syndrome (2.38; 1.27-4.46) and delirium (3.74; 2.26-6.21) were strongly associated with falls. The use of more than one psychoactive drug was a separate risk factor for falls ($p < 0.0001$).

CONCLUSION: Several drugs including SNRI, neuroleptics, and Z-drugs showed a significant association with inpatient falls. The frequently prescribed tetracyclic antidepressant mirtazapine did not appear to increase the risk of falls. Psychoactive polypharmacy should be avoided.

Language: en

Keywords

Accidental falls; Aged; Hospital; Matched case-control study; Mirtazapine; Psychotropic drugs; Serotonin and noradrenaline reuptake inhibitors; Z-drugs

Mortality and its risk factors in nonagenarians after hip fractures

Kim JW, Kim DH, Jang EC, Lee YK, Koo KH, Ha YC. J. Orthop. Sci.2019; ePub(ePub): ePub.

Affiliation

Department of Orthopaedic Surgery, Chung-Ang University College of Medicine, Seoul, South Korea.
Electronic address: hayongch@naver.com.

(Copyright © 2019, Holtzbrinck Springer Nature Publishing Group)

DOI

10.1016/j.jos.2019.02.019

PMID

30904205

Abstract

BACKGROUND: The purpose of this study was to assess mortality with a minimum of 2-year follow-up, related risk factors for mortality, and functional outcomes after surgical interventions in nonagenarian patients with hip fractures at the latest follow up.

METHODS: Between June 2003 and November 2015, 260 nonagenarians (271 hips) with femoral neck and intertrochanteric fractures were included in this retrospective study. Cumulative mortality using the Kaplan-Meier method and risk factors for mortality using Cox proportional-hazards regression model were estimated. As functional outcome, ambulatory ability was assessed before injury and at the latest follow-up.

RESULTS: Six-teen patients (16 hips) were lost to follow-up. The mean age at the time of surgery was 92.2 years (range 90-108 years). Mortality rates were 23.4% (57 of 244 patients) at 1 year and 40.6% (99 of 244 patients) at 2 years. Both genders had elevated standardized mortality ratio at 2-year post-fracture compared to that a 1-year post fracture. Multivariate analysis showed that American Society of Anesthesiologists (OR, 1.371; 95% CI, 1.021-1.843; P = 0.036) and time interval from trauma to operation (OR, 1.043; 95% CI, 1.002-1.086; P = 0.039) were significantly associated with risk of mortality. Of 58 patients alive, 13 patients (22.4%) had the same ambulatory ability before and after injury.

CONCLUSIONS: This study demonstrates that mortality is higher in nonagenarians with hip fracture. Risk factors for mortality in nonagenarians with hip fracture are American Society of Anesthesiologists and time interval from trauma to operation. And, nonagenarians with hip fractures have lower rate of maintaining pre-injury ambulatory ability.

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Language: en

Older patients with low-energy falls presenting to the emergency department: characteristics and outcomes

Vera P, Lampart A, Kammerlander C, Boecker W, Nickel CH, Bingisser R. *J. Am. Geriatr. Soc.* 2019; ePub(ePub): ePub.

Affiliation

Department of Emergency Medicine, University Hospital Basel, Basel, Switzerland.

(Copyright © 2019, John Wiley and Sons)

DOI

10.1111/jgs.15915

PMID

30920651

Abstract

Low-energy falls (LEFs) constitute a common reason for emergency department (ED) presentation in older adults. Their incidence increases with age, and they are the leading mechanism of injury in older patients. Studies from trauma registry databases suggest that injury severity in these individuals is similar to younger patients with high-energy mechanisms, and that LEFs are associated with morbidity and mortality increasing with age. Moreover, initial prehospital and ED assessments seem to underestimate severity. As these studies were based on trauma registries, results may be biased, as only a minority of LEFs triggers trauma-team activation. Therefore, we analyzed baseline demographics and outcomes in a large consecutive cohort of older individuals presenting to the ED after an LEF, focusing on patients undergoing computed tomographic (CT) examination without trauma-team activation in two larger urban level I trauma centers in Germany and Switzerland.

Language: en

Prevalence of falls in frail elderly users of ambulatory assistive devices: a comparative study

Cruz AO, Santana SMM, Costa CM, Gomes da Costa LV, Ferraz DD. *Disabil. Rehabil. Assist. Technol.* 2019; ePub(ePub): ePub.

Affiliation

Department of Physiotherapy , Federal University of Bahia , Salvador , Brazil.

(Copyright © 2019, Informa - Taylor and Francis Group)

DOI

[10.1080/17483107.2019.1587016](https://doi.org/10.1080/17483107.2019.1587016)

PMID

30907182

Abstract

AIM: The aim of this study was to verify the prevalence of falls in frail users of ambulatory assistive devices (AAD) and compare with controls.

MATERIALS AND METHODS: Nineteen frail elderly users of AAD (G1) and 31 non-users (G2) participated in the study. The occurrence of falls, at the last 6 months, was collected by an interview with the patient and the caregiver. Cognitive status was assessed by the Mini Mental State Examination, functional capacity by the Pfeffer's Questionnaire and Modified Barthel's Index, the frail level by a functional stratification and the risk of falls by the Timed Up and Go (TUG) test. T-Student test was used to compare independent variables. The significance level was set at 5%.

RESULTS: Both groups G1 and G2 were homogeneous in relation to the functional and sociodemographic variables. G1 reported more falls in the last 6 months, but most of the participants did not use AAD at the time of the fall. Transferences were the main reason for falls in G1 and stumble in the street in G2.

CONCLUSION: Elderly users of AAD fall out when they are not using the walk device. IMPLICATIONS FOR REHABILITATION Falling is the second leading cause of death from unintentional injuries in the world. Fall prevention programmes prescribe ambulatory assistive devices, such as walking sticks, crutches and walkers device and walking training with a physiotherapist to provide independence, safety, satisfaction, adherence and psychosocial benefits. However, studies have showed a higher prevalence of falls in frail elderly users of ambulatory-assistive devices. In our study, we verified if users of the ambulatory-assistive devices were using it at the moment of the fall. We found that frail elderly fall down when they are not using the walk device during their activities of day living. Thus, education strategies should be developed to encourage the use of ambulatory-assistive devices by the frail elderly previously evaluated by physiotherapists. Prevalence of falls in this population could reduce if frail elderly users of ambulatory assistive devices really use it during the activities of daily living.

Language: en

Keywords

Accidental falls; aged; frailty; self-help devices

Reproducibility and responsiveness of gait initiation in Parkinson's disease

Papa EV, Addison O, Foreman KB, Dibble LE. *J. Biomech.* 2019; ePub(ePub): ePub.

Affiliation

University of Utah, Department of Physical Therapy and Athletic Training, 520 Wakara Way, Salt Lake City, UT 84108, USA. Electronic address: lee.dibble@hsc.utah.edu.

(Copyright © 2019, Elsevier Publishing)

DOI

[10.1016/j.jbiomech.2019.03.009](https://doi.org/10.1016/j.jbiomech.2019.03.009)

PMID

30910362

Abstract

Persons with Parkinson's disease (PD) have significant impairments in functional mobility, including the ability to initiate gait. Three-dimensional analysis of kinetic and kinematic outcomes has become one of the most powerful tools in evaluating abnormalities in gait initiation for persons with PD. Surprisingly however, the psychometric properties of spatial and temporal measures of gait initiation for persons with PD have not been established using force-platforms. The purposes of this study were to determine the reliability of kinetic and kinematic measures of gait initiation and to identify the minimal detectable change of these measures in persons with PD during On and Off medication conditions. Sixteen participants with idiopathic PD performed a series of 3 repeated trials of gait initiation by starting from a quiet stance position on 2 AMTI OR-6 force platforms, and walking forward across the floor following a signal from the investigators. Testing was performed first in the Off medication condition, after which participants took their medication and waited 60 min before repeating the gait initiation assessments. Relative test-retest reliability was good-to-excellent for most outcome measures (range 0.417-0.960). Bland-Altman analysis revealed no systematic variance in the majority of outcome measures when tested in distinct medication conditions (On vs. Off medication). Most outcome measures required low-to-moderate amounts of change (<50%) to indicate true change in individual participants. These results suggest that spatial and temporal measures of gait initiation using force-platforms are highly reliable and responsive to changes in performance for persons with PD, regardless of whether individuals are optimally medicated.

Language: en

Keywords

Dopamine; Gait initiation; Minimal detectable change; Parkinson's disease; Reliability

Service organisation for people with dementia after an injurious fall: challenges and opportunities

Wheatley A, Bamford C, Shaw C, Boyles M, Fox C, Allan L. *Age Ageing* 2019; ePub(ePub): ePub.

Affiliation

Institute of Health Research, University of Exeter, Exeter, UK.

(Copyright © 2019, Oxford University Press)

DOI

[10.1093/ageing/afz010](https://doi.org/10.1093/ageing/afz010)

PMID

30921459

Abstract

INTRODUCTION: people with dementia are more likely to fall and less likely to recover well after a fall than cognitively intact older people. Little is known about how best to deliver services to this patient group. This paper explored current service provision to help inform the development of a new intervention.

METHODS: qualitative approaches were used to explore the views and experiences of people with dementia, family carers and professionals providing services to people with dementia following an injurious fall. These data were analysed using a thematic, iterative analysis.

FINDINGS: while a wide range of services potentially relevant to people with dementia was identified, there were no dedicated services for people with dementia with fall-related injuries in our three geographical areas. Factors influencing service uptake included a lack of knowledge of local provision amongst professionals and underdeveloped information sharing systems. Some aspects of current service organisation were incompatible with the needs of people with dementia. These include an emphasis on time-limited interventions; lack of longer-term follow-up; and service delivery in environments that could be challenging for people with dementia.

CONCLUSIONS: care pathways for people with dementia who fall are fragmented and unclear. This is likely to preclude people with dementia from receiving all appropriate support and contribute to poor recovery following a fall. The findings highlight the need for new approaches to service organisation and delivery which address the specific needs of people with dementia who fall.

Language: en

Keywords

care pathways; dementia; falls; older people

The relation between falls and medication use among elderly in assisted living facilities

Hamza SA, Adly NN, Abdelrahman EE, Fouad IM. *Pharmacoepidemiol. Drug Saf.* 2019; ePub(ePub): ePub.

Affiliation

Geriatrics and Gerontology department, Faculty of Medicine, Ain Shams University, Cairo, Egypt.

(Copyright © 2019, John Wiley and Sons)

DOI

[10.1002/pds.4775](https://doi.org/10.1002/pds.4775)

PMID

30920085

Abstract

PURPOSE: Many elderly are concerned about falling transfer to assisted living facilities (ALF). Previous literatures studied the medication use and falls in the community, hospitals, or nursing homes, with scanty data about ALF. Therefore, the aim of the current case-control study was to assess the relation between medication use and falls among elderly in ALF.

METHODS: A matched case-control study was conducted. The study was conducted in ALF in Cairo, Egypt. The study participants were 188 individuals; they were subdivided into two groups: fallers and nonfallers; timed up and go test (TUGT) was performed by all subjects. Medication data were collected according to the fall risk-increasing drugs list and the list of drugs that cause or worsen orthostatism. Other fall risk factors, as suggested by American Geriatric Society, were assessed.

RESULTS: The use of vasodilators, diuretics, alpha blockers, opioids, antipsychotics, and sedative hypnotics were more common in fallers than in nonfallers ($P < 0.001$, $P = 0.03$, $P < 0.001$, $P = 0.013$, $P < 0.001$, and $P < 0.001$, respectively). Vasodilators, alpha blockers, and antipsychotics were significant predictors of falls even after adjustment for the possible confounding factors. Vasodilators, alpha blockers, opioids, sedative hypnotics, and recent dose changes in oral hypoglycemics were significant predictors of higher TUGT after adjustment for the possible confounding factors.

CONCLUSION: The current study supported the risk of psychotropic and cardiovascular medications, with especial emphasis on vasodilators, alpha blockers, and antipsychotics, with raising concern about opioids, sedative hypnotics, and recent dose change in oral hypoglycemics.

Language: en

Keywords

TUGT; assisted living facilities; elderly; falls; medications; pharmacoepidemiology

Walking adaptability for targeted fall-risk assessments

Geerse DJ, Roerdink M, Marinus J, van Hilten JJ. *Gait Posture* 2019; 70: 203-210.

Affiliation

Department of Neurology, Leiden University Medical Center, Leiden, the Netherlands.

(Copyright © 2019, Elsevier Publishing)

DOI

[10.1016/j.gaitpost.2019.02.013](https://doi.org/10.1016/j.gaitpost.2019.02.013)

PMID

30901621

Abstract

BACKGROUND: Most falls occur during walking and are due to trips, slips or misplaced steps, which suggests a reduced walking adaptability. The objective of this study was to evaluate the potential merit of a walking-adaptability assessment for identifying prospective fallers and risk factors for future falls in a cohort of stroke patients, Parkinson's disease patients, and controls (n = 30 for each group). **RESEARCH QUESTION:** Does an assessment of walking-adaptability improve the identification of fallers compared to generic fall-risk factors alone? **METHODS:** This study comprised an evaluation of subject characteristics, clinical gait and balance tests, a quantitative gait assessment and a walking-adaptability assessment with the Interactive Walkway. Subjects' falls were registered prospectively with falls calendars during a 6-month follow-up period. Generic and walking-related fall-risk factors were compared between prospective fallers and non-fallers. Binary logistic regression and Chi-square Automatic Interaction Detector analyses were performed to identify fallers and predictor variables for future falls.

RESULTS: In addition to fall history, obstacle-avoidance success rate and normalized walking speed during goal-directed stepping correctly classified prospective fallers and were predictors of future falls. Compared to the use of generic fall-risk factors only, the inclusion of walking-related fall-risk factors improved the identification of prospective fallers. **SIGNIFICANCE:** If cross-validated in future studies with larger samples, these fall-risk factors may serve as quick entry tests for falls prevention programs. In addition, the identification of these walking-related fall-risk factors may help in developing falls prevention strategies.

Language: en

Keywords

Control; Fall-risk assessment; Parkinson's disease; Stroke; Walking adaptability

Falls and fractures in diabetes-more than bone fragility

Rasmussen NH, Dal J. Curr. Osteoporos. Rep. 2019; ePub(ePub): ePub.

Affiliation

Department of Endocrinology, Aalborg University Hospital, Aalborg, Denmark.

(Copyright © 2019, Current Science)

DOI

[10.1007/s11914-019-00513-1](https://doi.org/10.1007/s11914-019-00513-1)

PMID

30915638

Abstract

PURPOSE OF REVIEW: Based on a systematic literature search, we performed a comprehensive review of risk factors for falls and fractures in patients with diabetes. **RECENT FINDINGS:** Patients with diabetes have an increased risk of fractures partly explained by increased bone fragility. Several risk factors as altered body composition including sarcopenia and obesity, impaired postural control, gait deficits, neuropathy, cardiovascular disease, and other co-morbidities are considered to increase the risk of falling. Diabetes and bone fragility is well studied, but new thresholds for fracture assessment should be considered. In general, the risk factors for falls in patients with diabetes are well documented in several studies. However, the fall mechanisms among diabetic patients have only been assessed in few studies. Thus, a gap of knowledge exists and may influence the current understanding and treatment, in order to reduce the risk of falling and thereby prevent fractures.

Language: en

Keywords

Bone fragility; Falls; Fractures; Sarcopenia; Type 1 diabetes; Type 2 diabetes

The effects of a community-based walking program on walking ability and fall-related self-efficacy of chronic stroke patients

Lee JM, Moon HH, Lee SK, Lee HL, Park YJ. *J. Exerc. Rehabil.* 2019; 15(1): 20-25.

Affiliation

School of Global Sport Studies, Korea University, Sejong, Korea.

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DOI

[10.12965/jer.1836502.251](https://doi.org/10.12965/jer.1836502.251)

PMID

30899731

PMCID

[PMC6416491](https://pubmed.ncbi.nlm.nih.gov/30899731/)

Abstract

The objectives of this study were to evaluate the effects of community-based walking training (CWT) on the walking ability and fall-related self-efficacy of chronic stroke patients and compare the effects of CWT to the conventional walking programs in stroke patients. Previous studies focused on walking speed, walking endurance, and balance. However, no studies have examined the changes in fall-related self-efficacy after CWT. In order to achieve purpose of this study, 45 chronic stroke patients, who were hospitalized at National Rehabilitation Center, were randomly divided into the CWT group (CWTG, n=15), the treadmill walking training group (TWTG, n=15), and the control group (CG, n=15). The treatment was conducted 3 times per week (30 min each) for 4 weeks. CWT was carried out by gradually increasing the difficulty level in various environments outside the hospital room. The results revealed that the CWTG was more effective in enhancing the walking ability and fall-related self-efficacy than the TWTG and the CG. These findings demonstrated that the CWTG increased the walking ability and fall-related self-efficacy of chronic stroke patients. Therefore, we suggest that adding CWT to standard rehabilitation might be an effective method for improving walking ability and fall-related self-efficacy in chronic stroke patients.

Language: en

Keywords

Dynamic balance; Fall-related self-efficacy; Walking ability; Walking endurance; Walking speed