

Safety Literature 26th May 2019

A practical guide to geriatric syndromes in older adults with cancer: a focus on falls, cognition, polypharmacy, and depression

Magnuson A, Sattar S, Nightingale G, Saracino R, Skonecki E, Trevino KM. Am. Soc. Clin. Oncol. Educ. Book 2019; ePub(39): e96-e109.

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DOI

10.1200/EDBK_237641

PMID

31099668

Abstract

Geriatric syndromes are multifactorial conditions that are prevalent in older adults. Geriatric syndromes are believed to develop when an individual experiences accumulated impairments in multiple systems that compromise their compensatory ability. In older adults with cancer, the presence of a geriatric syndrome is common and may increase the complexity of cancer treatment. In addition, the physiologic stress of cancer and cancer treatment may precipitate or exacerbate geriatric syndromes. Common geriatric syndromes include falls, cognitive syndromes and delirium, depression, and polypharmacy. In the oncology setting, the presence of geriatric syndromes is relevant; falls and cognitive problems have been shown to be predictive of chemotherapy toxicity and overall survival. Polypharmacy and depression are more common in older adults with cancer compared with the general geriatric population. Multiple screening tools exist to identify falls, cognitive problems, polypharmacy, and depression in older adults and can be applied to the oncology setting to identify patients at risk. When recognized, several interventions exist that could be considered for this vulnerable population. We review the available evidence of four geriatric syndromes in the oncology setting, including clinical implications, validated screening tools, potential supportive care, and therapeutic interventions.

Assessing the fall risks of community-dwelling stroke survivors using the Short-form Physiological Profile Assessment (S-PPA)

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DOI

10.1371/journal.pone.0216769

PMID

31112580

Abstract

INTRODUCTION: Fall is common after stroke. The Short-form Physiological Profile Assessment (S-PPA) was developed to assess the fall risks and underlying physiological factors, and it has been used in healthy older adults and older adults with stroke. This study aimed to establish the psychometric properties of the S-PPA among cognitively intact and ambulant community-dwelling older adults with stroke.

METHODS: The S-PPA, Chinese version of the Activities-specific Balance Confidence (ABC-C) scale and 3 balance measures, namely the Berg Balance Scale (BBS), Timed "Up & Go" (TUG) and Functional Reach Test (FRT), were administered. Inter- and intra-rater reliability were assessed at baseline and after a 1-week interval, respectively. The validity of the S-PPA was assessed through correlations with balance measures and the ABC-C and by comparing the S-PPA scores between the stroke and healthy groups and between fallers and non-fallers in the stroke group. A receiver operating characteristic (ROC) curve analysis was used to assess the ability of balance measures to distinguish fall status in the stroke group.

RESULTS: The S-PPA yielded good inter-rater (intraclass correlation coefficient (ICC) = 0.83) and moderate intra-rater reliability (ICC = 0.74), correlated significantly with the 3 balance measures ($\rho = 0.49-0.70$) and ABC-C ($\rho = 0.35$) and revealed significant differences between stroke survivors and controls and between stroke survivors with and without a fall history. However, the ROC analysis revealed that the S-PPA had a poor ability to distinguish the fall statuses of community-dwelling stroke survivors.

CONCLUSIONS: The S-PPA is reliable and valid for evaluating fall risks but cannot adequately distinguish the fall statuses of stroke survivors.

Assessment of factors that increase risk of falling in older women by four different clinical methods

Dokuzlar O, Koc Okudur S, Smith L, Soysal P, Yavuz I, Aydin AE, Isik AT. Aging Clin. Exp. Res. 2019; ePub(ePub): ePub.

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(Copyright © 2019, Editrice Kurtis)

DOI

10.1007/s40520-019-01220-8

PMID

31115877

Abstract

BACKGROUND: Women aged 65 years and over are at increased risk of falling. Falls in this age group increase the risk of morbidity and mortality. **AIMS:** The aim of the present study was to find the most common factors that increase the risk of falling in older women, by using four different assessment methods.

METHODS: 682 women, who attended a geriatric outpatient clinic and underwent comprehensive geriatric assessment, were included in the study. History of falling last year, the Timed Up and Go (TUG) test, Performance-Oriented Mobility Assessment (POMA), and 4-m walking speed test were carried out on all patients.

RESULTS: The mean age (SD) of patients were 74.4 (8.5) years. 31.5% of women had a history of falling in the last year. 11%, 36.5%, and 33.3% of patients had a falling risk according to POMA, TUG and 4-m walking speed test, respectively. We identified the following risk factors that increase the risk of falling, according to these four methods: urinary incontinence, dizziness and imbalance, using a walking stick, frailty, dynapenia, higher Charlson Comorbidity Index and Geriatric Depression Scale score, and lower basic and instrumental activities of daily living scores ($p < 0.05$). We found a significant correlation between all the assessment methods ($p < 0.001$).

CONCLUSION: There is a strong relationship between fall risk and dizziness, using a walking stick, dynapenia, high number of comorbidities, low functionality, and some geriatric syndromes such as depression, frailty, and urinary incontinence in older women. Therefore, older women should routinely be screened for these risk factors.

Keywords

Falls; Older; Risk factors; Women

Balance and functional fitness benefits of a Thai boxing dance program among community-dwelling older adults at risk of falling: a randomized controlled study

Areudomwong P, Saysalum S, Phuttanurattana N, Sripoom P, Buttagat V, Keawduangdee P. Arch. Gerontol. Geriatr. 2019; 83: 231-238.

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(Copyright © 2019, Elsevier Publishing)

DOI

10.1016/j.archger.2019.04.010

PMID

31102925

Abstract

OBJECTIVE: The present study aimed at examining the effects of a Thai Boxing dance (TBD) program on balance performances and functional fitness in community-dwelling older adults at risk of falling who have no comorbidities leading to falls.

METHODS: Seventy-eight participants were randomly equally assigned either to a 4-week TBD program or to a control group receiving a fall prevention booklet. Static and dynamic balance performances, and functional fitness including lower limb muscle strength, body flexibility, and agility were evaluated before and after the intervention, and at 4-month follow-up.

RESULTS: After receiving 4-week TBD intervention, participants showed significantly greater improvements in static balance with eyes open, dynamic balance and all functional fitness when compared to the control group ($p < 0.05$), and these effects except for body flexibility were still maintained at 4-month follow-up ($p < 0.05$).

CONCLUSIONS: This study highlights TBD as an intervention for improving balance and functional fitness of community-dwelling seniors at risk of falling.

Language: en

Keywords

Balance; Dance; Functional fitness; Seniors; Thai boxing



Caregivers' views of older adult fall risk and prevention during hospital-to-home transitions

Hoffman GJ, Shuman CJ, Montie M, Anderson CA, Titler MG. *Appl. Nurs. Res.* 2019; 47: 10-15.

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DOI 10.1016/j.apnr.2019.03.006

PMID 31113538

A family-centered transitional fall prevention model addressing patient and family education, home modification and safety, and educational information encouraging functional recovery and activity engagement could connect at-risk older patients to needed educational and interventional resources to help tackle the growing public health issue of older adult falls.

Does cognitive impairment influence visual-somatosensory integration and mobility in older adults?

Mahoney JR, Verghese J. *J. Gerontol. A Biol. Sci. Med. Sci.* 2019; ePub(ePub): ePub.

(Copyright © 2019, Gerontological Society of America)

DOI 10.1093/gerona/glz117

PMID 31111868

Abstract

BACKGROUND: Deficits in visual-somatosensory (VS) integration are linked to poor mobility. Given that sensory, motor, and cognitive processes rely on overlapping neural circuitry that are compromised in dementia and pre-dementia stages like mild cognitive impairment (MCI), we hypothesize that cognitive impairment will be associated with reduced VS integration, which will in turn impact the relation between VS integration and mobility.

METHODS: A total of 345 older adults (mean age 76.88 ± 6.45 years; 52% female) participated in the current study. Cognitive impairment was defined as presence of MCI or dementia. Magnitude of VS integration was quantified using probability models. All participants completed assessments of general cognition (Repeatable Battery for the Assessment of Neuropsychological Status; RBANS), quantitative gait, and balance (unipedal stance).

RESULTS: The magnitude of VS integration was lower in the 40 individuals with MCI ($p = 0.02$) and 12 with dementia ($p = 0.04$), relative to the 293 individuals without cognitive impairment. In fully-adjusted models, magnitude of VS integration was only a strong predictor of performance on attention-based tests of the RBANS ($\beta=0.161$; $p<0.01$), regardless of cognitive status.

RESULTS from mediation analyses, however, reveal that cognitive impairment causes variation in magnitude of VS integration, which in turn causes variation in unipedal stance 95% CI [-.265, -.002] and spatial aspects of gait 95% CI [-.087, -.001].

CONCLUSIONS: Cognitive impairment influences multisensory integration, which adversely impacts balance and gait performance in aging. Future studies should aim to uncover the precise neural circuitry involved in multisensory, cognitive, and mobility processes.

Keywords

mobility; ;; cognition; dementia; multisensory processing; sensorimotor integration; y

Gait asymmetry assessment for older adults by measuring circular gait speed

Ichihashi N, Ikezoe T, Sato S, Ibuki S. *Geriatr. Gerontol. Int.* 2019; ePub(ePub): ePub.

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(Copyright © 2019, Japan Geriatrics Society, Publisher John Wiley and Sons)

DOI

10.1111/ggi.13691

PMID

31106945

Abstract

AIM: The aim of the present study was to evaluate the effectiveness of the circular gait test as a method for detecting side-to-side straight-line gait asymmetry in older adults.

METHODS: A total of 25 healthy older adults and 20 healthy young adults participated in this study. Walking speeds, right- and left-leg step lengths, and stance durations were measured during straight-line walking using a triaxial accelerometer (G-walk from Bertec Japan). Step length and stance duration laterality were calculated using the side-to-side difference ($|\text{Left} - \text{Right}|$) and asymmetry index ($|\text{Left} - \text{Right}| / \text{mean right and left values} \times 100$). For circular gait, the time required to walk twice around a 1-m diameter circle for right and left rotations was measured, and the laterality was calculated using the same formula as that described for the straight-line gait.

RESULTS: The results showed no differences in straight-line step length or stance duration laterality between groups. However, circular gait asymmetry was significantly higher for older participants. A significant correlation was confirmed between circular gait time and straight-line step length for older adults ($r = 0.404$).

CONCLUSIONS: The present study suggested that the circular gait test had better potential to detect age-related changes in gait laterality than straight-line gait step length or stance duration, and it might work as a simple assessment method for detecting laterality in straight-line walking. *Geriatr Gerontol Int* 2019;

© 2019 Japan Geriatrics Society.

Language: en

Keywords

circular gait; cost-effective; gait assessment; older adults; side-to-side asymmetry



Home modifications for older people with cognitive impairments: mediation analysis of caregivers' information needs and perceptions of fall risks

Kim H, Zhao YL, Kim N, Ahn YH. *Int. J. Older People Nurs.* 2019; ePub(ePub): ePub.

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(Copyright © 2019, John Wiley and Sons)

DOI

10.1111/opn.12240

PMID

31099499

Abstract

AIMS AND OBJECTIVES: The aims were to (a) identify how many older people with cognitive impairments are living in modified homes and (b) explore associated factors, and (c) examine the mediating effects that their caregivers' information needs and perceptions of fall risk and other factors.

BACKGROUND: Older people and their informal caregivers may consider implementing home modifications as an effective strategy for fall prevention. However, there is a lack of information on which older people's homes receive modifications and the various factors associated with such modifications among community-dwelling older people with cognitive impairments.

DESIGN: This cross-sectional and correlational study utilises a secondary data analysis.

METHODS: The data for this secondary analysis were taken from the 2015 National Online Survey of Caregivers, which includes information provided by 226 adult caregivers for older people with cognitive impairments. Descriptive analyses, hierarchical binary logistic regression and structural equation modelling were performed based on the Andersen and Newman framework of health services utilisation.

RESULTS: Overall, 46.5% of the older people lived in modified homes. Older people's impaired activities for daily living (ADLs), caregivers' information needs and perceptions of fall risk were all associated with home modifications (all p values < 0.05). Caregivers' information needs mediated the relationship between impaired ADLs and home modifications (indirect effect = 0.026, $p < 0.05$), whereas the caregivers' perceptions of fall risk did not.

CONCLUSIONS: Older people with both cognitive and functional impairments are more likely to modify their home on behalf of care recipient's staying at home. Caregivers' information needs should thus be prioritized when considering home modifications to facilitate caring for older people with impaired ADLs. **IMPLICATION FOR PRACTICE:** Nurses and other healthcare professionals should be prepared to offer appropriate information and comprehensive assessments of older people's conditions with regard to home modifications.

Keywords

activities of daily living; caregivers; cognitive impairment; falls; homes for the aged; older people



Polypharmacy and gait speed in individuals with mild cognitive impairment

Umegaki H, Yanagawa M, Komiya H, Matsubara M, Fujisawa C, Suzuki Y, Kuzuya M. *Geriatr. Gerontol. Int.* 2019; ePub(ePub): ePub.

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(Copyright © 2019, Japan Geriatrics Society, Publisher John Wiley and Sons)

DOI

10.1111/ggi.13688

PMID

31106973

Abstract

AIM: Polypharmacy has been reported to be associated with poor outcomes, including falls and frailty, in older populations. Past studies have found that slower walking speed is a good predictor of progression to frank dementia in mild cognitive impairment (MCI). Some studies of the general population reported that polypharmacy was associated with slower gait speed; however, it remains to be elucidated whether polypharmacy affects gait speed even in individuals with MCI, who already have some deterioration in gait compared with cognitively preserved individuals. The current study explored the association between the number of medications and gait speed in older adults with MCI who have a Clinical Dementia Rating score of 0.5.

METHODS: A total of 128 individuals with MCI were included in the present study. The participants were divided into three groups according to the number of medications they were taking: up to four medications was non-polypharmacy; five to nine medications was polypharmacy; and ≥ 10 medications was hyperpolypharmacy. The background characteristics were compared by analysis of variance for numerical numbers, and by χ^2 analysis for categorical factors. Multiple regression and logistic analysis were applied to investigate the association between gait speed and polypharmacy status or number of medications.

RESULTS: Gait speed was significantly negatively associated with hyperpolypharmacy status and the number of medications. Slow gait speed (< 1 m/s) was also significantly associated with polypharmacy status and the number of medications.

CONCLUSIONS: We found that polypharmacy was associated with slow gait speed in older adults with MCI. *Geriatr Gerontol Int* 2019; ●●: ●●-●●.

Language: en

Keywords

Clinical Dementia Rating; comorbidity; executive function; potentially inappropriate medication



Risk factors of repeated falls in the community dwelling old people

Yoo JS, Kim CG, Yim JE, Jeon MY. J. Exerc. Rehabil. 2019; 15(2): 275-281.

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(Copyright © 2019, Korean Society of Exercise Rehabilitation)

DOI

10.12965/jer.1938086.043

PMID

31111013

PMCID

PMC6509467

Abstract

This study aimed to provide evidence for the development of an algorithm to identify older adults with a high risk for repeated falls, along with strategies to prevent repeated falls, by analyzing the known physical, psychological, and environmental factors related to falls in older adults. One hundred fifty-seven community-dwelling older adults aged 65 years or older who experienced a fall within the past year were enrolled in this study. Participants' physical, psychological, environmental, and fall prevention-related characteristics were surveyed using structured questionnaires to identify the risk factors for repeated falls. The use of antidepressants, depression score, and compliance with fall prevention behaviors were found to differ significantly between the two groups, and the use of antidepressants and depression were found to be significant predictors of repeated falls. Depression should be considered as a major variable when developing an algorithm to identify the risk of repeated falls among older adults living at home. Also, the practice of fall prevention behaviors was higher in the repeated-falls group, likely due to that group's efforts to prevent additional falls.

Language: en

Keywords

Depression; Fall prevention; Older adults; Repeated falls; Risk factors

The relationship of balance disorders with falling, the effect of health problems, and social life on postural balance in the elderly living in a district in Turkey

Değer TB, Saraç ZF, Savaş ES, Akçiçek SF. *Geriatrics (Basel)* 2019; 4(2): e4020037.

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

DOI

[10.3390/geriatrics4020037](https://doi.org/10.3390/geriatrics4020037)

PMID

31108836

Abstract

The aim of this study was to determine the prevalence of balance disorders; the effects of sociodemographic, medical, and social conditions on postural balance; and the relationship between balance and falls in elderly individuals. The study design was cross-sectional. A total of 607 community-dwelling elderly individuals with a mean age of 73.99 ± 6.6 years were enrolled after being selected by stratified random sampling. The study was performed as a face-to-face survey in the homes of elderly individuals. Sociodemographic and medical data were obtained from elderly individuals using the Elderly Identification Form. Balance disorders were determined using the Berg Balance Scale (BBS). In this study, the prevalence of balance disorders was found to be 34.3% in the community-dwelling elderly. Older age, physical disability, having four or more chronic illnesses, the presence of incontinence, having a history of falls, not walking regularly, absence of free time activity, and obesity were found to be associated with an increased prevalence of balance disorders. Balance disorders are commonly seen in the elderly and may be triggered by a variety of biological and social factors. It is crucial to develop and implement national health and social policies to eliminate the causes of this problem, as well as to prioritize preventive health services in the ever-increasing elderly population.

Language: en

Keywords

balance disorder; elderly; fall; medical conditions; prevalence; social mobility



Reliability of measures of dynamic stability for the assessment of balance recovery after a forward loss of balance

Ringhof S, Arensmann A, Stein T. *Gait Posture* 2019; 71: 261-266.

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(Copyright © 2019, Elsevier Publishing)

DOI

[10.1016/j.gaitpost.2019.04.029](https://doi.org/10.1016/j.gaitpost.2019.04.029)

PMID

31100614

Abstract

BACKGROUND: Falls are common and serious events, which mostly occur during locomotion, that are associated with deficient dynamic balance. An experimental approach that simulates falling forward has become increasingly popular to investigate dynamic balance. However, research has not been conducted to examine the test-retest reliability of this experimental approach. **RESEARCH QUESTION:** What is the reliability of dynamic stability measures that are used for the assessment of balance recovery after forward loss of balance? **METHODS:** Nineteen healthy young adults (24.3 ± 2.8 yrs; nine females) volunteered for this study. They reported twice to the laboratory to perform two tests: (i) a stepping task, in which they were instructed to recover balance by taking a step after being suddenly released from an inclined forward position; and (ii) a standing task, in which we aimed to identify the maximum forward leaning angle they were able to compensate for without taking a step. Intra-class correlation coefficients (ICC) were calculated for the margin of stability (MoS) and spatiotemporal parameters for both tests.

RESULTS: The reliability of the stepping task variables ranged from poor to excellent, with ICCs tending to increase with the number of trials included in the analysis. Intra-session analysis (one-way rm ANOVA) revealed a significant trial effect for the MoS, indicating that stepping responses changed across repeated trials. With respect to the standing task, test-retest reliability was only fair for the maximal initial leaning angle. **SIGNIFICANCE:** In essence, these results indicate that the inter-session reliability of the stepping task is acceptable, depending on the measures used and the number of trials conducted. However, one must be aware that behavioral adaptations arise with repeated exposure to simulated forward falls. Finally, this study's results suggest that the reproducibility of the standing task is limited.

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Language: en

Keywords

Dynamic balance; Falls; Postural strategies; Stepping

