Safety Literature 27th October 2019

An individualized low-intensity walking clinic leads to improvement in frailty characteristics in older veterans

Espinoza SE, Orsak B, Wang CP, MacCarthy D, Kellogg D, Powers B, Conde A, Moris M, Padala PR, Padala KP. J. Frailty Aging 2019; 8(4): 205-209.

Affiliation

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PMID 31637407

Abstract

BACKGROUND: Sedentary lifestyle leads to worse health outcomes with aging, including frailty. Older adults can benefit from regular physical activity, but exercise promotion in the clinical setting is challenging.

OBJECTIVES: The objective of this clinical demonstration project was to implement a Geriatric Walking Clinic for older adults and determine whether this clinical program can lead to improvements in characteristics of frailty.

DESIGN: This was a clinical demonstration project/quality improvement project. SETTING: Outpatient geriatrics clinic at the South Texas Veterans Health Care System (STVHCS). PARTICIPANTS: Older Veterans, aged ≥60 years. INTERVENTION: A 6-week structured walking program, delivered by a registered nurse and geriatrician. Patients received a pedometer and a comprehensive safety evaluation at an initial face-to-face visit. They were subsequently followed with weekly phone calls and participated in a final face-to-face follow-up visit at 6 weeks. MEASUREMENTS: Grip strength (handheld dynamometer), gait speed (10-ft walk), Timed Up and Go (TUG), and body mass index (BMI) were assessed at baseline and follow-up. Frailty status for gait speed was assessed using Fried criteria.

RESULTS: One hundred eighty five patients completed the program (mean age: 68.4 ±7 years, 88% male). Improvements from baseline to follow-up were observed in average steps/day, gait speed, TUG, and BMI. Improvement in gait speed (1.13 ±0.20 vs. 1.24 ± 0.23 meter/second, $p<0.0001$) resulted in reduced odds of meeting frailty criteria for slow gait at follow-up compared to the baseline examination (odds ratio = 0.31, 95% confidence interval: 0.13-0.72, $p = 0.01$).

CONCLUSIONS: Our findings demonstrate that a short duration, low-intensity walking intervention improves gait speed and TUG. This new clinical model may be useful for the promotion of physical activity, and for the prevention or amelioration of frailty characteristics in older adults.

Language: en

Keywords Frailty; gait speed; physical activity

Augmenting clinical outcome measures of gait and balance with a single inertial sensor in age-ranged healthy adults

O'Brien MK, Hidalgo-Araya MD, Mummidisetty CK, Vallery H, Ghaffari R, Rogers JA, Lieber R, Jayaraman A. Sensors (Basel) 2019; 19(20): s19204537.

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DOI

10.3390/s19204537

PMID

31635375

Abstract

Gait and balance impairments are linked with reduced mobility and increased risk of falling. Wearable sensing technologies, such as inertial measurement units (IMUs), may augment clinical assessments by providing continuous, high-resolution data. This study tested and validated the utility of a single IMU to quantify gait and balance features during routine clinical outcome tests, and evaluated changes in sensor-derived measurements with age, sex, height, and weight. Age-ranged, healthy individuals (N = 49, 20-70 years) wore a lower back IMU during the 10 m walk test (10MWT), Timed Up and Go (TUG), and Berg Balance Scale (BBS). Spatiotemporal gait parameters computed from the sensor data were validated against gold standard measures, demonstrating excellent agreement for stance time, step time, gait velocity, and step count (intraclass correlation (ICC) > 0.90). There was good agreement for swing time (ICC = 0.78) and moderate agreement for step length (ICC = 0.68). A total of 184 features were calculated from the acceleration and angular velocity signals across these tests, 36 of which had significant correlations with age. This approach was also demonstrated for an individual with stroke, providing higher resolution information about balance, gait, and mobility than the clinical test scores alone. Leveraging mobility data from wireless, wearable sensors can help clinicians and patients more objectively pinpoint impairments, track progression, and set personalized goals during and after rehabilitation.

Language: en

Keywords

Berg Balance Scale; Ten-Meter Walk Test; Timed Up and Go; fall risk; gait events; gait impairment; postural sway; rehabilitation; wearable sensors

Effects of home- and center-based exercise programs on the strength, function, and gait of prefrail older women: a randomized control trial

Costa SN, Vieira ER, Bento PCB. J. Aging Phys. Act. 2019; ePub(ePub): ePub.

DOI

10.1123/japa.2018-0363

PMID

31629355

Abstract

The aims of this study were to compare the effects of a multicomponent exercise program provided at a center (CB) versus done part at home and part at a center (H+CB) on frailty status, strength, physical function, and gait of prefrail older women. Twenty-five women were randomly allocated into the CB (n = 14; 69 ± 6 years) and the H+CB (n = 11; 69 ± 7 years) groups. Both groups completed an exercise program including strengthening, balance, and gait exercises. The program was 12 weeks long, done three times per week, for 60 min per session. Frailty, knee and hip muscle strength, spatiotemporal parameters of the usual and maximum speed dual-task gait, and physical function were assessed at baseline and after program completion. The exercise program reversed the prefrail status of most participants independently of the mode of delivery. Strength increased in both groups, but the CB group had more pronounced improvements in gait and physical function. H+CB exercise programs are good options for prefrail older women.

Language: en

Keywords

frailty; home-based exercise; older adults; supervised exercise

Effects of visual feedback training and visual targets on muscle activation, balancing, and walking ability in adults after hemiplegic stroke: a preliminary, randomized, controlled study

Pak NW, Lee JH. Int. J. Rehabil. Res. 2019; ePub(ePub): ePub.

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DOI

10.1097/MRR.0000000000000376

PMID

31633580

Abstract

The aim of this randomized, controlled study was to investigate the effect of visual feedback through visual targets on muscle activity, balance, and gait in stroke patients. Patients were recruited from the inpatient unit of a rehabilitation hospital. Twenty-one patients who had experienced hemiplegic stroke were randomly assigned to two groups: an experimental group (visual feedback training with visual targets on gradual weight shifting), and a control group (visual feedback training on gradual weight shifting). All patients performed 30 minutes of comprehensive rehabilitation therapy followed by an additional 20 minutes of gradual weight shifting using visual feedback training with or without visual targets: three sets per day, five times a week, for 4 weeks. Significantly larger gains were identified in the experimental group compared to the control group due to gluteus medius muscle activation and the weight-bearing ability of the paretic side. Visual feedback training with visual targets during gradual weight bearing on the paretic side appears to improve the muscle activation and balancing abilities of hemiplegic stroke patients compared to visual feedback training alone.

Language: en

Fall prevention initiative: a fall screening and intervention pilot study on the ambulatory setting

Kartiko S, Jeremitsky E, Cripps MW, Konderwicz I, Jarosz E, Minshall CT. J. Trauma Acute Care Surg. 2019; ePub(ePub): ePub.

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DOI

10.1097/TA.0000000000002514

PMID

31626026

Abstract

OBJECTIVE: Falling is the most common cause of trauma in the geriatric population. To identify patients that were at-risk for falling, we implemented a provider-directed fall prevention screening initiative in the ambulatory setting of a large tertiary care referral center. We used 3 clinician-directed questions from the STEADI toolkit. Our goal was to intervene on patients who were screened as at-risk for falling by referring them to our physical therapy program and evaluating its effects to these patients.

METHOD: Patients ≥ 55 yo who live in the community were screened from 6/2017-6/2018. Patients who answered yes to any of the 3 questions were identified as at-risk for falling, and referred to the Fall Prevention Initiative Physical Therapy Program (FPIPTP). The FPIPTP is a program that establishes a quantifiable fall risk using the Time Up and Go test (TUG), which then initiates PT treatments, designed to prevent future falls by improving, gait, balance, and fitness. The Wilcoxon signed rank test was used to determine significance ($p<0.05$).

RESULTS: We identified 112 patients with a median age of 76.5 yo (IQR 68-82) to be at-risk for falling. The initial median TUG score in this group of patients is 15.85 sec (12-20.33), which is consistent with a high fall-risk (time > 12 sec). After completing the FPIPTP, the median TUG score significantly improved to 12sec (9-15, $p<0.0001$).

CONCLUSION: We conclude that a provider can use the 3 specific questions from the STEADI toolkit to identify patients (≥55 yo) that are at-risk for falling. Additionally, the FPIPTP is able to significantly improve the TUG score in this group. We will need to confirm this conclusion with a larger population study. LEVEL IV EVIDENCE: diagnostic/therapeutic study.

Language: en

Fall-risk increasing drugs and recurrent injurious falls association in older patients after hip fracture: a cohort study protocol

Correa-Pérez A, Delgado-Silveira E, Martín-Aragón S, Cruz-Jentoft AJ. Ther. Adv. Drug Saf. 2019; 10: e2042098619868640.

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DOI

10.1177/2042098619868640

PMID

31632633

Abstract

Polypharmacy and fall-risk increasing drugs (FRIDS) have been associated with injurious falls. However, no information is available about the association between FRIDS and injurious falls after hospital discharge due to hip fracture in a very old population. We aim to assess the association between the use of FRIDS at discharge and injurious falls in patients older than 80 years hospitalized due to a hip fracture. A retrospective cohort study using routinely collected health data will be conducted at the Orthogeriatric Unit of a teaching hospital. Patients will be included at hospital discharge (2014), with a 2-year follow-up. Fall-risk increasing drugs will be recorded at hospital discharge, and exposure to drugs will be estimated from usage records during the 2-year follow-up. Injurious falls are defined as falls that lead to any kind of health care (primary or specialized care, including emergency department visits and hospital admissions). A sample size of 193 participants was calculated, assuming that 40% of patients who receive any FRID at discharge, and 20% who do not, will experience an injurious fall during follow up. This protocol explains the study methods and the planned analysis. We expect to find a relevant association between FRIDS at hospital discharge and the incidence of injurious falls in this very old, high risk population. If confirmed, this would support the need for a careful pharmacotherapeutic review in patients discharged after a hip fracture. However, results should be carefully interpreted due to the risk of bias inherent to the study design.

Language: en

Keywords

accidental fall; adverse drug event; elderly; fall-risk increasing drugs; hip fractures

Grip strength: an indispensable biomarker for older adults

Bohannon RW. Clin. Interv. Aging 2019; 14: 1681-1691.

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DOI

10.2147/CIA.S194543

PMID

31631989

Abstract

Grip strength has been proposed as a biomarker. Supporting this proposition, evidence is provided herein that shows grip strength is largely consistent as an explanator of concurrent overall strength, upper limb function, bone mineral density, fractures, falls, malnutrition, cognitive impairment, depression, sleep problems, diabetes, multimorbidity, and quality of life. Evidence is also provided for a predictive link between grip strength and all-cause and disease-specific mortality, future function, bone mineral density, fractures, cognition and depression, and problems associated with hospitalization. Consequently, the routine use of grip strength can be recommended as a stand-alone measurement or as a component of a small battery of measurements for identifying older adults at risk of poor health status.

Language: en

Keywords

aging; biomarker; epidemiology; health outcomes; mortality; muscle strength; rehabilitation

Mortality risk among older people who did vs. Did not sustain a fracture: baseline pre-fracture strength and gait speed as predictors in a 15-year follow-up

Koivunen K, Sillanpää E, von Bonsdorff M, Sakari R, Tormakangas T, Rantanen T. J. Gerontol. A Biol. Sci. Med. Sci. 2019; ePub(ePub): ePub.

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DOI

10.1093/gerona/glz251

PMID

31628484

Abstract

BACKGROUND: Physiological reserve, as indicated by muscle strength and gait speed, may be especially determinant of survival in people who are exposed to a health stressor. We studied whether the association between strength/speed and mortality risk would be stronger in the time period after a fracture compared to other time periods.

METHODS: Participants were population-based sample of 157 men and 325 women aged 75 and 80 years at baseline. Maximal 10-meter gait speed and maximal isometric grip and knee extension strength were tested at the baseline before the fracture. Subsequent fracture incidence and mortality were followed up for 15 years. Cox regression analysis was used to estimate fracture time-stratified effects of gait speed and muscle strength on mortality risk in three states: 1) non-fracture state, 2) the first post-fracture year and 3) after the first post-fracture year until death/end of follow-up.

RESULTS: During the follow-up, 20% of the men and 44% of the women sustained a fracture. In both sexes, lower gait speed and in women lower knee extension strength was associated with increased mortality risk in the non-fracture state. During the first post-fracture year, the mortality risk associated with slower gait and lower strength was increased and higher than in the non-fracture state. After the first post-fracture year, mortality risk associated with lower gait speed and muscle strength attenuated.

CONCLUSIONS: Lower gait speed and muscle strength were more strongly associated with mortality risk after fracture than during non-fracture time, which may indicate decreased likelihood of recovery.

Language: en

Keywords

Adverse events; Epidemiology; Fracture; Health stressors; Physical Function

Occupational therapist use of the 'Timed Up and Go' test in a memory clinic to compare performance between cognitive diagnoses and screen for falls risk

Harper KJ, Riley V, Petta A, Jacques A, Spendier N, Ingram K. Aust. Occup. Ther. J. 2019; ePub(ePub): ePub.

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DOI

10.1111/1440-1630.12617

PMID

31609001

Abstract

INTRODUCTION: Occupational therapists assess older patients attending Memory Clinics to address multiple facets, including memory, activities of daily living function, mobility and falls risk. Identifying deficits in motor and functional abilities represents a crucial and necessary component of cognitive diagnosis. The aim of this research was to compare performance on the TUG between patients with normal (NC), mild cognitive impairment (MCI) and dementia.

METHODS: A prospective single-blind single-centre cohort study was conducted in a Memory Clinic. Patients underwent comprehensive medical assessment, including the Mini Mental Status Examination (MMSE) to determine a cognitive diagnosis. The occupational therapist, blinded to any diagnosis, completed the TUG.

RESULTS: A total of 158 patients aged 60 years and older were recruited. The average TUG was 15.4 s, which was similar between men and women ($p = .87$). A TUG greater than ≥14 s was significantly associated with the use of a walking aid ($p \leq .001$). The TUG increased with age and a slower TUG was associated with a greater number of previous falls ($p = .023$). The TUG did not significantly differ between patients with dementia, MCI and NC ($p = .095$). However, there was a significant difference comparing patients with NC and MCI (14.3 s) to those with dementia (16.4 s) ($p = .048$). There was a significant weak negative correlation between the MMSE and the TUG of -0.253 ($p = .003$). Univariate models showed that a patient's ability to ambulate independently contributed to 33% of the variance in the TUG, whereas previous falls contributed to 4%, highlighting the importance of physical function and intervention to target this.

CONCLUSION: A simple TUG test should be considered for use by occupational therapists in a Memory Clinic to screen patients at risk of falling. Patients diagnosed with dementia have a significantly slower TUG. However, this tool cannot assist with the early detection of patients with MCI.

Language: en

Keywords accidental falls; cognition; memory; occupational therapy; walking

Osteoporosis, fear of falling, and restrictions in daily living. Evidence from a nationally representative sample of community-dwelling older adults

Meyer F, König HH, Hajek A. Front. Endocrinol. (Lausanne) 2019; 10: e646.

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DOI

10.3389/fendo.2019.00646

PMID

31616377

Abstract

Background: There is a lack of studies examining the relationship between osteoporosis and fear of falling as well as the association of osteoporosis and restrictions in daily life due to fear of falling. Thus, the aim of this study was to investigate whether there is an association between the presence of osteoporosis and fear of falling as well as restrictions in daily life due to fear of falling. **Methods:** Cross-sectional data were used from a population-based sample of community-dwelling individuals in the second half of life (40 to 95 years; *n* = 7,808) in Germany. GP-diagnosed osteoporosis was used. Fear of falling as well as the restrictions in daily life due to fear of falling were collected in self-administered questionnaires. Multiple regression models controlling for sociodemographic, lifestyle, and health-related variables were used to determine the association between osteoporosis and the outcome measures. **Results:** Logistic regressions showed that osteoporosis was associated with increased fear of falling in the total sample and in both sexes. In addition, regressions showed that osteoporosis was associated with restrictions in daily life due to fear of falling in the total sample and in women, but not in men. **Conclusions:** The present study showed that osteoporosis is associated with fear of falling and with restrictions in daily life due to fear of falling. Because effective interventions to treat the fear of falling are available, our study might help to address this target group more accurately.

Language: en

Keywords

Germany; aged; cross-sectional studies; fear of falling; osteoporosis; restrictions

Predictors of incident fear of falling in community-dwelling older adults

Rivasi G, Kenny RA, Ungar A, Romero-Ortuno R. J. Am. Med. Dir. Assoc. 2019; ePub(ePub): ePub.

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DOI

10.1016/j.jamda.2019.08.020

PMID

31610994

Abstract

OBJECTIVES: Fear of falling (FoF) is common in older people and may lead to physical decline, disability, poor quality of life, and falls. Several risk factors for FoF have been identified in cross-sectional studies, but evidence on predictors of its incidence is scarce. We investigated the latter in community-dwelling older people undergoing a comprehensive geriatric assessment at baseline and after a 2-year follow-up.

DESIGN: Longitudinal study. SETTING AND PARTICIPANTS: Convenience sample of community-dwelling people aged ≥60 years evaluated in an Irish university hospital.

METHODS: Participants were evaluated at baseline (August 2007-May 2009) and after a 2-year follow-up. FoF was measured using the Modified Falls Efficacy Scale. Predictors of incident FoF at 2 years were investigated.

RESULTS: At baseline, there were 563 participants (69% female, mean age 73 years). Among individuals that were not fearful at baseline, 105 (18.7%) developed FoF (incident FoF) after a median follow-up of 2.1 years. Individuals reporting incident FoF were older at baseline ($P < .001$), had worse performance in balance and physical function tests, and more frequently needed a walking aid ($P < .001$). Anxiety ($P = .012$) and depressive symptoms ($P < .001$) were more prevalent, as well as self-reported previous falls ($P < .001$). In multivariate analysis, older age, walking aid use, and a higher burden of depressive symptoms at baseline were predictors of incident FoF.

CONCLUSIONS AND IMPLICATIONS: Almost a fifth of older adults using a walking aid and reporting depressive symptoms at baseline developed FoF after 2 years. These identifiable prodromal factors could help design FoF prevention strategies.

Language: en

Keywords

Fear of falling; balance; depression; falls; older people

Prevalence of mild hyponatremia and its association with falls in older adults admitted to an emergency geriatric medicine unit (the MUPA unit)

Boyer S, Gayot C, Bimou C, Mergans T, Kajeu P, Castelli M, Dantoine T, Tchalla A. BMC Geriatr. 2019; 19(1): e265.

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PMID 31615437

Abstract

BACKGROUND: Hyponatremia is the most common electrolyte disorder in older adults and it can increase morbidity and mortality. Approximately one in three older adults fall each year; mild chronic hyponatremia can predispose this group to injurious falls and fractures and serum levels of sodium can also influence bone health. Little is known regarding the association between mild chronic hyponatremia and injurious fall prevalence in elderly patients admitted to the Emergency Department (ED). Therefore, the present study investigated the link between mild hyponatremia and the risk of injurious falls in elderly patients admitted to the Emergency Geriatric Medicine Unit (The MUPA Unit).

METHODS: This cross-sectional study was conducted over 4 months and included patients ≥75 years of age who were admitted to the MUPA Unit of University Hospital Center of Limoges (France). Sociodemographic factors, fall events, comorbidities, medications, and sodium levels were assessed (hyponatremia was considered as sodium level < 136 mEq/L). Additionally, the short Comprehensive Geriatric Assessment (short-CGA), the Frailty score on the Short Emergency Geriatric Assessment (SEGA), and the Katz Activity of Daily Living (ADL) scale were administered.

RESULTS: Of the 696 cases included in the final analysis, the mean age was 86.1 ± 5.6 years and 63.1% were female. The prevalence of falls was 27.9% (95% confidence interval [CI]: 24.6-31.2%) and that of mild hyponatremia was 15.9% (95% CI: 13.2-18.6%). The prevalence rate of mild hyponatremia was 13.2% (95% CI: 10.1-16.3%) in patients without falls and 26.1% (95% CI: 19.8-32.4%) in patients admitted for falls. Mild hyponatremia was significantly associated with falls (P < 0.001) and the adjusted odds ratio (OR) was 3.02 (95% CI: 1.84-4.96).

CONCLUSIONS: Because mild hyponatremia might be a risk factor for injurious falls and ED admission, determination of sodium levels during basic biomarker assessment on ED admission could be an important component of fall prevention strategies for the elderly.

Language: en

Keywords

Emergency department; Falls; Mild hyponatremia; Older adult; Prevalence; Prevention

Quality of daily-life gait: novel outcome for trials that focus on balance, mobility, and falls

van Schooten KS, Pijnappels M, Lord SR, van Dieen JH. Sensors (Basel) 2019; 19(20): s19204388.

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Copyright

DOI

10.3390/s19204388

PMID

31614440

Abstract

Technological advances in inertial sensors allow for monitoring of daily-life gait characteristics as a proxy for fall risk. The quality of daily-life gait could serve as a valuable outcome for intervention trials, but the uptake of these measures relies on their power to detect relevant changes in fall risk. We collected daily-life gait characteristics in 163 older people (aged 77.5 ± 7.5, 107♀) over two measurement weeks that were two weeks apart. We present variance estimates of daily-life gait characteristics that are sensitive to fall risk and estimate the number of participants required to obtain sufficient statistical power for repeated comparisons. The provided data allows for power analyses for studies using daily-life gait quality as outcome. Our results show that the number of participants required (i.e., 8 to 343 depending on the anticipated effect size and between-measurements correlation) is similar to that generally used in fall prevention trials. We propose that the quality of daily-life gait is a promising outcome for intervention studies that focus on improving balance and mobility and reducing falls.

Language: en

Keywords

accelerometry; accidental falls; activity monitoring; aged; intervention studies

Social position and geriatric syndromes among Swedish older people: a population-based study

Rausch C, Liang Y, Bültmann U, de Rooij SE, Johnell K, Laflamme L, Möller J. BMC Geriatr. 2019; 19(1): e267.

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DOI

10.1186/s12877-019-1295-8

PMID

31615441

Abstract

BACKGROUND: Older people with a low social position are at higher risk of poor health outcomes compared to those with a higher social position. Whether lower social position also increases the risk of geriatric syndromes (GSs) remains to be determined. This study investigates the association of social position with GSs among older community-dwellers.

METHODS: Three consecutive population-based health surveys in 2006, 2010 and 2014 among older community-dwellers (age 65-84 years) in Stockholm County were combined (n = 17,612) and linked with Swedish administrative registry information. Social position was assessed using registry information (i.e. education, country of origin and civil status) and by self-reports (i.e. type of housing and financial stress). GSs were assessed by self-reports of the following conditions: insomnia, urinary incontinence, functional decline, falls, depressive disorder, hearing or vision problems. Binomial logistic regression analyses were used to estimate the association between social position and GSs after adjusting for age, sex, health status, health behavior and social stress.

RESULTS: The prevalence of GSs was 70.0%, but varied across GSs and ranged from 1.9% for depression to 39.1% for insomnia. Living in rented accommodation, being born outside the Nordic countries, being widowed or divorced were associated with GS presence. Financial stress was most strongly associated with GSs (adjusted odds ratio, 2.59; 95% CI, 2.13-3.15).

CONCLUSION: GSs are highly prevalent among older Swedish community-dwellers with wide variations across syndromes and strong association with all measures of social position, most strikingly that of experiencing financial stress.

Language: en

Keywords

Elderly; Geriatric syndromes; Health inequality; Social position; Socio-economic status

The co-occurrence of frailty (accumulation of functional deficits) and depressive symptoms, and its effect on mortality in older adults: a longitudinal study

Chang HY, Fang HL, Ting TT, Liang J, Chuang SY, Hsu CC, Wu CY, Pan WH. Clin. Interv. Aging 2019; 14: 1671-1680.

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DOI

10.2147/CIA.S210072

PMID

31631988

PMCID

PMC6775497

Abstract

PURPOSE: The co-occurrence of frailty and depression in late life, the possibility for symptom reversal, their reciprocal relationship, and the effects on mortality have rarely been investigated. We aimed to examine the co-occurrence of frailty and depressive symptoms in late life, the possibility for symptom reversal, their reciprocal relationship, and the effects on mortality using all the information from a longitudinal study.

PATIENTS AND METHODS: We used the Taiwan Longitudinal Study of Aging (TLSA) for this study. TLSA was initiated in 1989 and followed periodically. We included participants from 1989 to 2007, who had data on frailty and depressive symptoms. Frailty was assessed by accumulation of functional deficits in 6 dimensions including disease status, sensory dysfunction, balance, functional limitations, health risk behaviors, and life satisfaction. Depressive symptoms were measured with the Center for Epidemiologic Studies Depression Scale (CES-D). A multistate model with interval censoring was used to examine the transition between states of frailty with or without depressive symptoms, and finally to death. A mixed model was used to examine the relationships between frailty and depressive symptoms.

RESULTS: The coexistence of frailty and depressive symptoms was associated with higher mortality. Individuals with depressive symptom had a lower probability of reversal to a better state. Previous depression score predicted current frailty, but the coefficient was smaller than that of previous frailty. Previous frailty predicted current depression score, and the coefficient was stronger than that of previous depression.

CONCLUSION: Depressive symptoms increased the mortality and decreased the probability of reversal in the frail older adults.

Language: en

Keywords

TLSA; cumulative functional deficits; depressive symptom; mortality; multistate model

The six-minute walk test as a fall risk screening tool in community programs for persons with stroke: a cross-sectional analysis

Regan E, Middleton A, Stewart JC, Wilcox S, Pearson JL, Fritz S. Top. Stroke Rehabil. 2019; ePub(ePub): ePub.

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DOI

10.1080/10749357.2019.1667657

PMID

31622172

Abstract

Background and Purpose
: Persons with stroke have increased risk for recurrent stroke. Group exercise programs like cardiac rehabilitation might reduce this risk. These programs commonly use the six-minute walk test to measure aerobic capacity. However, failure to assess fall risk may compromise safety for persons with stroke. The study aim was to determine the association between the six-minute walk test and fall risk in persons with stroke.
Methods
: Cross-sectional analysis measured the association between the six-minute walk test and fall risk in 66 persons with stroke with a mean age of 66 years (SD 12) and median stroke chronicity of 60.9 months (range 6.0-272.1). The six-minute walk test was evaluated using logistic regression. The best fit model was used in Receiver Operating Characteristic analysis. Likelihood ratios and post-test probabilities were calculated.
Results
: Lower six-minute walk test distance was associated with increased fall risk in logistic regression (p =.002). The area under the curve for the univariate six-minute walk test model (best fit) was 0.701 (p =.006). The cutoff for increased fall risk was six-minute walk test <331.65 m. The post-test probability of fall risk increased to 74.3% from a pre-test probability of 59.1%.
Discussion
: The moderate association between fall risk and six-minute walk test suggests that in addition to assessing capacity, the six-minute walk test provides insight into fall risk/balance confidence.
Conclusion
: Using the six-minute walk test cutoff to screen fall risk in community exercise programs may enhance safety for persons with stroke without additional testing required.

Language: en

Keywords

Stroke; community programs; fall risk

Influence of cochlear implantation on postural control and risk of falls

Louza J, Rösel C, Gürkov R, Krause E, Ihler F. Audiol. Neurootol. 2019; ePub(ePub): ePub.

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DOI 10.1159/000503165 **PMID** 31639802

Abstract

BACKGROUND: Cochlear implantation is an important method of hearing rehabilitation. Earlier studies have shown the influence of implantation on the vestibular system. However, until now, the effect of hearing rehabilitation with cochlear implants (CI) on postural control and body stability has not been sufficiently studied.

OBJECTIVE: To analyse the effect of hearing rehabilitation with activated CI and different sound inputs (music, speech text, and white noise) on postural control and risk of falls after implantation.

METHODS: This was a prospective clinical trial that included 33 adult patients with at least 6 months' use of a CI (mean time after implantation = 23 months). All patients underwent a standard or geriatric (for patients >60 years) balancing deficit test protocol with a mobile posturography system (VertiGuard®) in different situations (CI deactivated/activated and different sound inputs). As the main outcome measure, the risk of falls (%) after each protocol was calculated by evaluating body sway both forward to backward and side to side (°/s).

RESULTS: With the CI deactivated, the mean risk of falls was 45.5%. After activation of the CI, there was a small decrease in the mean risk of falls, but it was statistically significant. With an additional sound input (music or speech text) this decrease was more pronounced: 42.0 and 42.4%, respectively. This effect seems to be more pronounced in older patients. Regarding the individual patients, 72% had an improvement in the risk of falls with an activated CI, and 28% had a slight deterioration. An activated CI accompanied by sound input (music) further improved the individual risk of falls.

CONCLUSIONS: Compared with prior research, this study found that the risk of falls after implantation decreased over a longer time period. Furthermore, the use of a CI and different sound inputs had a positive effect on postural control. These findings support the need for optimal hearing rehabilitation, especially in elderly patients. Although this effect is relatively small, it is important to consider for further studies that rehabilitation with CI may reduce the risk of falls. While the auditory system supposedly contributes to postural control only to a small degree and the mechanism is still poorly understood, further studies with bigger samples are warranted to clarify these effects.

Language: en

Keywords Cochlear implantation; Hearing rehabilitation; Postural control; Posturography; Risk of falls; Vertigo

Over view of major traumatic injury in Australia--implications for trauma system design

Cameron PA, Fitzgerald MC, Curtis K, McKie E, Gabbe B, Earnest A, Christey G, Clarke C, Crozier J, Dinh M, Ellis DY, Howard T, Joseph AP, McDermott K, Matthew J, Ogilvie R, Pollard C, Rao S, Reade M, Rushworth N, Zalstein S. Injury 2019; ePub(ePub): ePub.

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PMID

31607442

Abstract

BACKGROUND: Trauma registries are known to drive improvements and optimise trauma systems worldwide. This is the first reported comparison of the epidemiology and outcomes at major centres across Australia.

METHODS: The Australian Trauma Registry was a collaboration of 26 major trauma centres across Australia at the time of this study and currently collects information on patients admitted to these centres who die after injury and/or sustain major trauma (Injury Severity Score (ISS) > 12). Data from 1 July 2016 to 30 June 2017 were analysed. Primary endpoints were risk adjusted length of stay and mortality (adjusted for age, cause of injury, arrival Glasgow coma scale (GCS), shock-index grouped in quartiles and ISS).

RESULTS: There were 8423 patients from 24 centres included. The median age (IQR) was 48 (28-68) years. Median (IQR) ISS was 17 (14-25). There was a predominance of males (72%) apart from the extremes of age. Transport-related cases accounted for 45% of major trauma, followed by falls (35.1%). Patients took 1.42 (1.03-2.12) h to reach hospital and spent 7.10 (3.64-15.00) days in hospital. Risk adjusted length of stay and mortality did not differ significantly across sites. Primary endpoints across sites were also similar in paediatric and older adult (>65) age groups.

CONCLUSION: Australia has the capability to identify national injury trends to target prevention and reduce the burden of injury. Quality of care following injury can now be benchmarked across Australia and with the planned enhancements to data collection and reporting, this will enable improved management of trauma victims.

Language: en

Keywords

Epidemiology; Injury burden; Major trauma; Older adults; Quality improvement; Risk adjustment; System of care; Trauma registries; Trauma system

Standing balance of professional ballet dancers and non-dancers under different conditions

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Abstract

Ballet training has been reported to positively influence balance ability. It is not entirely clear how improved balance ability manifests under standing conditions with different demands on postural control. The aim of the study was to compare balance of ballet dancers and non-dancers in a unipedal stance under different conditions. Twenty-five professional ballet dancers and twenty-five controls completed four unipedal standing balance tests: firm surface with eyes open and closed; foam mat surface with eyes open; and firm surface with eyes open immediately after performing ten 360° whole-body turns. The centre of pressure (COP) data were obtained with a force platform and the direction-specific standard deviations, velocities, and sample entropy of the COP displacement were computed. A three-way analysis of variance was used to compare groups, genders, and conditions. For standing immediately after performing ten turns, the postural sway parameters were significantly larger in the control group compared to the ballet dancers in both men and women. In this stance condition the values of postural sway and COP velocities in the control group were larger in the men compared to the women. For both genders in the control group all postural sway and COP velocity parameters were larger in standing with eyes closed and standing after performing 10 turns compared to standing with eyes open on both firm and foam surface. In the ballet dancers all COP velocity parameters were larger in standing with eyes closed compared to all other conditions. The results from the present study indicate that professional ballet dancers do not have a better general balance ability than untrained subjects.

Language: en