Safety Literature 26th January 2022

Associations between physical function, falls, and the fear of falling among older adults participating in a community-based physical exercise program: a longitudinal multilevel modeling study

Abstract

OBJECTIVES: Exercises that target muscle strength, balance, and gait prevent falls in older people. Moreover, exercise may reduce fear of falling by improving physical function. Many studies have examined the risk factors for falls and fear of falling separately. However, few studies have examined the associations between physical function, falls, and fear of falling simultaneously. This study aimed to identify the key physical functions influencing falls and fear of falling.

DESIGN: Longitudinal observational study SETTING AND PARTICIPANTS: This study included 2,397 older adults (women: 82.8%, mean age: 74.3 ± 8.0 years) who participated in community-based physical exercise.

METHODS: Physical functions such as muscle strength, balance, gait speed, and flexibility were measured regularly during the program. A questionnaire regarding falls and fear of falling was also administered simultaneously. Multilevel modeling was used to investigate the association between physical function and falls and fear of falling.

RESULTS: The prevalence of falls and fear of falling at enrolment were 27.1% and 49.8%, respectively. Statistical analyses revealed that (1) falls were significantly associated with balance, age, fall history, fear of falling, and duration of participation; (2) fear of falling was significantly associated with muscle strength, balance, gait speed, age, and fall history. Long-term participation was significantly associated with an improvement in balance.

CONCLUSIONS AND IMPLICATIONS: The risk factors for falls and fear of falling were different. Our research showed the importance of including balance training in all prevention programs.

Language: en

Basic mobility, accidental falls, and lifetime physical activity among rural and urban community-dwelling older adults: a population-based study in Northern Iceland

Abstract

The objective of this research was to investigate late-life physical functioning and lifetime history of physical activity (PA) among older adults in rural and urban Arctic communities. Data was collected in a cross-sectional, population-based study among 65 to 92-year-old community-dwelling Icelanders (N = 175, 41% ≥75-year-old, 43% women, 40% rural). Late-life physical functioning was operationalised as: basic mobility (Timed Up and Go in seconds, TUG); fall risk (TUG≥12 sec); a fall (≥1 fall/year); and recurrent falls (≥2 falls/year). PA history was based on a self-assessment. Compared to urban participants, rural participants were more likely to have fallen recently, be at fall risk, and describe more PA history. Among urban participants, no fall in the past year was independently associated with more PA in middle adulthood; and worse basic mobility and late-life fall risk were independently associated with being in the ≥75-year-old group. Among rural participants, recurrent falls were independently associated with being a man; and better basic mobility was independently associated with more PA in late adulthood. To conclude, this evidence supports an important association between better late-life physical functioning and more mid- and late-life PA and encourages further research to understand high fall risk among older men in Arctic rural areas.

Language: en

Keywords

Adult; Aged; Humans; Female; Male; Cross-Sectional Studies; Aged, 80 and over; Exercise; accidental falls; *Accidental Falls; *Independent Living; Basic mobility; Geriatric Assessment; healthy ageing; Iceland/epidemiology; physical exertion; residence characteristics; rural health

Do levels of self-efficacy affect urinary incontinence, falls, quality of life, sleep, and physical activity in elderly people with urinary incontinence?

Abstract

BACKGROUND: Our study aims to determine whether different self-efficacy (SE) levels affect urinary incontinence symptoms, falls, quality of life, sleep, and physical activity in elderly individuals with incontinence. Our secondary aim is to examine the relationship between SE levels and urinary incontinence severity, quality of life, sleep status, fear of falling, and physical activity level.

METHODS: One hundred twenty elderly individuals (median age: 71 years) with urinary incontinence participated in the cross-sectional study. Participants were divided into 3 groups as levels of low, moderate, and high according to their Geriatric SE Index for Urinary Incontinence (GSE-UI). Urogenital Distress Inventory (UDI-6), Incontinence Impact Questionnaire (IIQ-7), Incontinence Quality of Life Scale (I-QOL), Pittsburgh Sleep Quality Index (PSQI), Fall Efficacy Scale (FES), Rapid Assessment Physical Activity (RAPA), and International Physical Activity Questionnaire Short Form (IPAQ-SF) assessments associated with incontinence were performed. Data were analyzed using Mann-Whitney U, Kruskal-Wallis tests, and Spearman's correlation.

RESULTS: A significant difference was found in UDI-6, IIQ-7, I-QOL, and FES belonging to three groups according to GSE-UI levels (p <0.01, p <0.01, p <0.01). It was determined that the group with low GSE-UI level had the highest incontinence symptoms, fear of falling, and the lowest quality of life statistically significant. A negative moderate significant correlation was found between GSE-UI scores and UDI-6 (r: - .67, p <0.01), IIQ-7 (r: - .67, p <0.01), and FES (r: - .46, p <0.01).

CONCLUSION: In elderly individuals with urinary incontinence, the level of SE may affect incontinence symptoms, severity, fear of falling, and quality of life and may be an important factor for incontinence. An increased level of SE may lead to positive effects on the user interface. Further studies in this field are needed.

Language: en

Keywords

Quality of life; Fear of falling; Geriatric self-efficacy; Urinary incontinence

Effect of a home-based resistance exercise program in elderly participants with osteoporosis: a randomized controlled trial

Abstract

The effectiveness of home-based resistance exercise in elder participants with osteoporosis remains unclear. This study demonstrates the beneficial effects of this mode of exercise on improving physical function, increasing confidence in exercise, and reducing fear of falling.

INTRODUCTION: This study aims to evaluate the effect of a home-based resistance exercise (HBRE) program versus control on physical function, exercise self-efficacy, falling efficacy, and health-related quality of life (HRQOL).

METHODS: This randomized controlled trial included 72 elderly participants with osteoporosis. Participants in the intervention group received a 12-week HBRE program, and the control group received usual care. The primary outcome was physical function, including muscle strength and balance ability; secondary outcomes were exercise self-efficacy, falling efficacy, and HRQOL. Within-group and between-group changes in outcome were evaluated by t-test and rank-sum test.

RESULTS: A total of 68 subjects were included in the final analysis. Improvement in physical function was significantly greater in the HBRE group compared with controls. On a psychological level, exercise self-efficacy and falling efficacy improved significantly in the HBRE group; no significant change was observed in the control group. Most of the dimensions of HRQOL demonstrated improvements as well. The adherence was 85.29%, with no adverse events related to the exercise.

CONCLUSION: A 12-week HBRE program was safe non-pharmacological therapy for elderly participants with osteoporosis, improving physical function, exercise self-efficacy, reduced fear of falling, and improved HRQOL. TRIAL REGISTRATION: Chinese Clinical Trial Register: ChiCTR2100051455. Registered 23.09.21. Retrospectively registered.

Language: en

Falls in Parkinson's disease: the impact of disease progression, treatment, and motor complications

Lima DP, de-Almeida SB, Bonfadini JC, Carneiro AHS, de Luna JRG, de Alencar MS, Viana-Júnior AB, Rodrigues PGB, Pereira IS, Roriz-Filho JS, Sobreira-Neto MA, Braga-Neto P. Dement. Neuropsychol. 2022; 16(2): 153-161.

Abstract

The prevalence of Parkinson's disease (PD) tends to increase worldwide in the coming decades. Thus, the incidence of falls is likely to increase, with a relevant burden on the health care system.

OBJECTIVE: The objective of this study was to evaluate clinical factors and drug use associated with falls in PD patients.

METHODS: We conducted a cross-sectional study at the Movement Disorders outpatient clinic of a tertiary hospital in Northeast Brazil. We performed structured interviews to collect sociodemographic and clinical data. Functional capacity was assessed using the Schwab and England Activities of Daily Living Scale and the modified Hoehn and Yahr Staging Scale. We divided the study sample into non-fallers (no falls) and fallers (≥1 fall), and non-recurrent (≤1 fall) and recurrent fallers (>1 fall).

RESULTS: The study population comprised 327 PD patients (48% women), with a mean age of 70 years. The mean disease duration was 9.9±6.9 years. The most prevalent comorbidities were depression (47.2%), hypertension (44.0%), and type 2 diabetes mellitus (21.5%). The logistic regression analysis revealed that hallucinations, amantadine, and catechol-O-methyltransferase inhibitors (entacapone) were independently associated with falls in PD patients. Also, hallucinations, dyskinesia, and the use of amantadine were independently associated with recurrent falls.

CONCLUSIONS: Health care providers play an essential role in fall prevention in PD patients, particularly by identifying older adults experiencing dyskinesia and visual hallucinations. Prospective studies should investigate the use of amantadine as a risk factor for falls in PD patients.

Language: en

Guidelines to prevent falls among older workers in the manufacturing industry

Abstract

Although occupational injuries in the manufacturing industry have decreased overall, the occurrence of fall-related injuries has remained unchanged. This may be due to a higher number of older workers, and an increased ratio of older workers to total employees. Therefore, it is necessary to develop workflow guidelines to prevent fallrelated accidents involving older employees. Based on the results of our literature review, we developed some key questions (KQ) for older factory workers. Furthermore, we described a draft guideline for each KQ. In our proposal, we combined (1) conventional strategies for mitigating environmental harm, and (2) individual exercise interventions to improve the workers' fitness. We believe that these tentative recommendations will further aid fall-prevention initiatives. In the future, to investigate the effectiveness of our guidelines, we hope to conduct external surveys of occupational health staff within several manufacturing establishments. These will be followed by an expert panel discussion to formally complete them. Our current guidelines will be helpful for industry workers, and employers who wish to reduce injuries and liabilities in the workplace.

Language: en

Prediction of future falls among full-time wheelchair and scooter users with multiple sclerosis: a prospective study

Abou L, Sosnoff JJ, Peterson EW, Backus D, Willingham TB, Rice LA. Mult. Scler. Relat. Disord. 2022; 64: e103962.

Abstract

BACKGROUND: Seventy-five percent (75%) of full-time wheelchair or scooter users with multiple sclerosis (MS) experience at least one fall in a period of 6 months. Falls are detrimental for the independence, quality of life, and community participation. No previous prospective study has evaluated fall risk factors in this segment of MS community.

OBJECTIVE: To develop a multivariable falls risk prediction model for people with MS (PwMS) who use a wheelchair or scooter full-time.

METHODS: This prospective cohort study is a secondary data analysis that recruited PwMS from the community across the US. Forty-eight adults with MS who use a wheelchair or scooter as their main form of mobility were included. Dependent variable was fall incidence over 3-month recorded through diaries. Dependent variable was categorized as fallers (≥ 1 fall) and non-fallers (0 fall). Predictors were demographics, history of falls in the past 6 months, measures of fear of falling, Spinal Cord Injury- Falls Concern Scale, California Verbal Learning Test II, and Multiple Sclerosis Quality of Life- mental health. Multivariable logistic regression analyses were conducted to identity predictors of future falls.

RESULTS: In total, 63 falls (range 0 - 8) were reported over the 3-month period from a total of 26 fallers (54%). Multivariate logistic regression analyses indicated that the risk factor with the best predictive ability of future falls included history of falls in the past 6 months (sensitivity 77%, specificity 54%, and area under the receiving operating curve statistic = 0.76, 95% CI 0.62 to 0.89).

CONCLUSION: Findings highlight the importance of asking full-time wheelchair and scooter users with MS if they have fallen in the past 6 months to quickly identify those who are at increased fall risk and in need of follow up assessment and intervention to identify and address modifiable risk factors. More attention to fall risks among full-time wheelchair or scooter users with MS is suggested to increase the understanding among clinicians and researchers of modifiable risk factors.

Language: en

Keywords

Prompt access to cataract surgery is vital for preventing falls in older people

Abstract

[The publisher has not provided an abstract for this article.]

Language: en

Keywords

Falls; Cataract

The incidence of falls after first and second eye cataract surgery: a longitudinal cohort study

Keay L, Ho KC, Rogers K, McCluskey P, White AJ, Morlet N, Ng JQ, Lamoureux E, Pesudovs K, Stapleton FJ, Boufous S, Huang-Lung J, Palagyi A. Med. J. Aust. 2022; ePub(ePub): ePub.

Abstract

OBJECTIVE: To compare fall incidence, and visual acuity and refractive status, before surgery and after first and second eye cataract surgery. DESIGN, SETTING: Prospective observational study in eight tertiary referral ophthalmology clinics in public hospitals in Sydney, Melbourne, and Perth. PARTICIPANTS: People aged 65 years or more referred for bilateral age-related cataract surgery during 2013-16, followed for maximum of 24 months after study entry or until six months after second eye surgery, whichever was shorter. MAIN OUTCOME MEASURES: Primary outcome: age- and sex-adjusted incidence of falls. SECONDARY OUTCOMES: visual acuity and refractive error.

RESULTS: The mean age of the 409 included participants was 75.4 years (SD, 5.4 years); 220 were women (54%). Age- and sex-adjusted fall incidence prior to surgery was 1.17 (95% CI, 0.95-1.43) per year, 0.81 (95% CI, 0.63-1.04) per year after first eye surgery, and 0.41 (95% CI, 0.29-0.57) per year after second eye surgery. For the 118 participants who underwent second eye surgery and participated in all follow-up visits, age- and sex-adjusted incidence before (0.80 [95% CI, 0.55-1.15] falls per year) and after first eye surgery (0.81 [95% CI, 0.57-1.15] falls per year) was similar, but was lower after second eye surgery (0.32 [95% CI 0.21-0.50] falls per year). Mean habitual binocular visual acuity (logMAR) was 0.32 (SD, 0.21) before surgery, 0.15 (SD, 0.17) after first eye surgery, and 0.07 (SD, 0.15) after second eye surgery.

CONCLUSIONS: First eye surgery substantially improves vision in older people with cataract, but second eye surgery is required to minimise fall incidence. Timely cataract surgery for both eyes not only optimises vision in older people with cataract, but also reduces their risk of injury from falls.

Language: en

Keywords

Accident prevention; Falls; Hospitals; Cataract; Health planning

Variation in mean arterial pressure increases falls risk in elderly physically frail and prefrail individuals treated with antihypertensive medication

Hussain SM, Ernst ME, Barker AL, Margolis KL, Reid CM, Neumann JT, Tonkin AM, Phuong TLT, Beilin LJ, Pham T, Chowdhury EK, Cicuttini FM, Gilmartin-Thomas J, Carr PR, McNeil JJ. Hypertension 2022; ePub(ePub): ePub.

Abstract

BACKGROUND: Impaired cerebral blood flow has been associated with an increased risk of falls. Mean arterial pressure (MAP) and variability in MAP have been reported to affect cerebral blood flow but their relationships to the risk of falls have not previously been reported.

METHODS: Utilising data from the aspirin in Reducing Events in the Elderly trial participants, we estimated MAP and variability in MAP, defined as within-individual SD of MAP from baseline and first 2 annual visits. The relationship with MAP was studied in 16 703 participants amongst whom 1539 falls were recorded over 7.3 years. Variability in MAP was studied in 14 818 of these participants who experienced 974 falls over 4.1 years. Falls were confined to those involving hospital presentation. Cox regression was used to calculate hazard ratio and 95% CI for associations with falls.

RESULTS: Long-term variability in MAP was not associated with falls except amongst frail or prefrail participants using antihypertensive medications. Within this group each 5 mm Hg increase in long-term variability in MAP increased the risk of falls by 16% (hazard ratio, 1.16 [95% CI, 1.02-1.33]). Amongst the antihypertensive drugs studied, beta-blocker monotherapy (hazard ratio, 1.93 [95% CI, 1.17-3.18]) was associated with an increased risk of falls compared with calcium channel blockers.

CONCLUSIONS: Higher levels of long-term variability in MAP increase the risk of serious falls in older frail and prefrail individuals taking antihypertensive medications. The observation that the relationship was limited to frail and prefrail individuals might explain some of the variability of previous studies linking blood pressure indices and falls.

Language: en