Safety Literature 19th June 2022

A case management program at home to reduce fall risk in older adults (the MAGIC Study): protocol for a single-blind randomized controlled trial

Alberto SN, Ansai JH, Janducci AL, Florido JVB, Novaes ADC, Caetano MJD, Rossi PG, Tavares LRC, Lord SR, Gramani-Say K. JMIR Res. Protoc. 2022; 11(6): e34796.

Abstract

BACKGROUND: Individual case management programs may be particularly effective in reducing fall risk as they can better identify barriers and facilitators to health recommendations.

OBJECTIVE: This paper describes the protocol for a single-blind, parallel-group randomized controlled trial that aims to investigate the effectiveness and cost-effectiveness of a home-based multifactorial program targeting fall risk factors among people aged 60 years and over who have fallen at least twice in the past 12 months (the MAGIC trial).

METHODS: Older people with a history of at least 2 falls in the last year will be divided into 2 groups. The intervention group will receive case management at home for reducing the risk of falls, including a multidimensional assessment, explanation of fall risk factors, and elaboration and monitoring of an individualized intervention plan based on the identified fall risk factors, personal preferences, and available resources. The control group will be monitored once a month. Assessments (clinical data, fall risk awareness, physical and mental factors, safety at home, feet and shoes, and risk and rate of falls) will be carried out at baseline, after 16 weeks of the intervention, and at the posttrial 6-week and 1-year follow-up. After 16 weeks of the intervention, satisfaction and adherence to the intervention will also be assessed. Economic health will be evaluated for the period up to the posttrial 1-year follow-up.

RESULTS: Data collection started in April 2021, and we expected to end recruitment in December 2021. This case management program will address multifactorial assessments using validated tools and the implementation of individualized intervention plans focused on reducing fall risk factors.

CONCLUSIONS: This trial may provide reliable and valuable information about the effectiveness of case management for increasing fall risk awareness and reducing fall risk in older people. TRIAL REGISTRATION: Brazilian Clinical Trials Registry (ReBec) RBR-3t85fd; https://ensaiosclinicos.gov.br/rg/RBR-3t85fd. INTERNATIONAL REGISTERED REPORT IDENTIFIER (IRRID): DERR1-10.2196/34796.
Language: en

A new tool for assessing the risk of fall in children with severe disability: development of the ALICE scale

Terzoni S, Bianchi LC, Ferrara P, Di Bari A, Destrebecq A. Ann. Ig. 2022; 34(4): 375-383.

Abstract

INTRODUCTION: It is known in the literature that the main cause of physical impairment in children with severe disabilities is falling, which can worsen their already compromised condition. There are no specific scales for this population in the literature, neither in Italian nor in other languages. We created and validated a scale for assessing the risk of falling in children with severe disabilities. STUDY DESIGN: Observational prospective study.

METHODS: We enrolled children (inpatients or day-hospital) admitted to the "Santa Maria Bambina Centre" of the "Fondazione Onlus Sacra Famiglia" in Cesano Boscone, Milan; the Content Validity Index of the Scale was calculated to assess the content validity of a new scale (ALICE). Cronbach's alpha coefficient (α) was used to examine internal consistency, Spearman's rho coefficient to test inter-rater reliability. Sensitivity, specificity, positive and negative predictive values were calculated.

RESULTS: Out of 48 patients enrolled, 14 fell (29.2%). The ALICE scale, with cut-off set at 16, showed a sensitivity of 100%, a specificity of 88.2%, a positive predictive value of 77.8% and a negative predictive value of 100%. The Content Validity Index of the Scale (=0.93), inter-rater reliability (rho=0.91, $p<0.001$) and Cronbach's alpha (=0.72) were satisfactory.

CONCLUSIONS: The ALICE scale seems reliable and valid in the disabled population and can be applied by nurses. Further studies with larger samples and a multicentre design are needed.

Language: en

Keywords

Association of frailty with fall events in older adults: a 12-year longitudinal study in Korea

Kim YS, Yao Y, Lee SW, Veronese N, Ma SJ, Park YH, Ju SY. Arch. Gerontol. Geriatr. 2022; 102: e104747.

Abstract

BACKGROUND: Evidence has shown that frailty is associated with the risk of falls in older people. However, the components of frailty that have the highest association with fall events are largely unknown.

METHODS: This study analyzed panel data from the Korean Longitudinal Study of Aging. We used the Korean Frailty Instrument, which includes domains for social isolation, exhaustion and weakness estimated by grip strength, to assess frailty. Fall event data were collected during follow-up visits.

RESULTS: A total of 3122 community-dwelling adults aged 65 years or older were included at baseline in 2006 and were followed up every 2 years until 2018. The participants with frailty had a higher risk of falls than those without frailty (OR=1.31, 95% CI=1.11-1.54, P = 0.001; fully adjusted model). We found that three components of frailty, namely, social isolation, exhaustion, and weakness, were independently and significantly related to fall events in the unadjusted model. In the fully adjusted model, social isolation and exhaustion were significantly associated with fall events (OR=1.38, 95% CI=1.18-1.61, P < 0.001 and OR=1.28, 95% CI=1.10-1.51, P = 0.006, respectively), and there was no significant association between weakness and the risk of falls (OR=1.11, 95% CI=0.91-1.34, P = 0.307).

CONCLUSIONS AND IMPLICATIONS: Frailty was associated with more fall events in Korean older adults. Social isolation and exhaustion but not weakness were significantly associated with fall events. Our study suggests that interventions should be tailored to older adults with social and psychological frailty.

Language: en

Keywords

Epidemiology; Falls; Frailty

Blood pressure, orthostatic hypotension and falls in patients with advanced cancer

Worrall AP, Doyle CP, Ní Dhomhnall R, Lorton C, Barrett M, Uí Dhuibhir P, O'Higgins C, Brady B, Walsh D. Ir. Med. J. 2022; 115(5): e596.

Abstract

Aim Orthostatic Hypotension (OH) is an indicator of deteriorating autonomic dysfunction. Adherence to BP and OH measurement guidelines in an inpatient specialist palliative care unit (SPCU) was unknown. Compliance of BP and OH measurement in an advanced cancer cohort was audited.

METHODS A retrospective analysis of four consecutive months of patients admitted with an advanced cancer diagnosis to the inpatient SPCU was conducted. Data was obtained from 168 clinical records, and audited against current institutional clinical standards.

RESULTS Falls risk screening including BP and OH measurements were not measured on admission in 19% (n=32) cases as recommended by institutional guidelines. Where falls risks were identified in 94 (69%) patients only 71 (76%) of these had completed risk assessments. OH testing was incomplete or not conducted in 59% (n=42) of risk assessments. This had patient care and safety implications e.g. under-reporting falls risk. In addition, institutional guidelines were inflexible in clinical practice specific to a palliative care cohort of patient.

CONCLUSIONS Institutional guidelines need regular reviewing. In cases where a healthcare professional determines it is inappropriate to perform an assessment, we recommend a modification to the tools allowing for recording of this decision. OH is an underestimated reality in hospice populations and the impact on hospice services is worthy of further study.

Language: en

Changes in fall rates from before to during the COVID-19 pandemic: findings from the prospective AMBROSIA study

Bowling CB, Wei RX, Qian L, Shimbo D, Schwartz JE, Muntner P, Cannavale KL, Harrison TN, Reynolds K. J. Gerontol. A Biol. Sci. Med. Sci. 2022; ePub(ePub): ePub.

Abstract

BACKGROUND: COVID-19 social distancing policies resulted in reductions in community movement, however fall rates during this time have not been described.

METHODS: This prospective study included adults ≥65 years old participating in the Ambulatory Blood Pressure in Older Adults (AMBROSIA) cohort and who completed ≥1 monthly falls calendar (August 2019-March 2021; n=250). Months were grouped to correspond to the fall 2020 phased re-opening (August-October) and the shelter-in-place policy during the winter 2020 surge (November-January) in Los Angeles, California and compared to the same months, one year earlier (i.e., before the pandemic).

RESULTS: Participants had a mean (SD) age of 75.2 (6.1) years, 49.6% were White, and 53.2% were women. We obtained 2,795 falls calendars during follow-up. Overall, 110 (44.0%) participants reported a total of 421 falls (rate 15.1 per 100 calendar months). The highest monthly fall rate during the pandemic was 22.9 (95% CI 16.4-31.1) per 100 calendar-months in August 2020. The lowest fall rate during the pandemic was 8.6 (95% CI 3.5-17.8) per 100 calendar-months in February 2021. During the pandemic, fall rates in August, September, and October 2020 were higher than the previous year (rate ratio 1.8 [95% CI 1.1-2.9]) and fall rates in November and December 2020 and January 2021 were lower than the previous year (rate ratio 0.5 [95% CI 0.4-0.8]).

CONCLUSIONS: As the pandemic continues and older adults resume community mobility after a shelter-in-place period, providers should pay attention to the risk of falls.

Language: en

Keywords

older adults; COVID-19; falls

Drug-related falls and thraumatic brain injury in very old patients: antithrombotic drugs as new potential culpruit factors

Tuttolomondo A. Intern. Emerg. Med. 2022; ePub(ePub): ePub.

Abstract

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

Language: en

Keywords

Economic evaluation of the e-Health StandingTall balance exercise programme for fall prevention in people aged 70 years and over

Ambrens M, van Schooten KS, Lung T, Clemson L, Close JCT, Howard K, Lord SR, Zijlstra GAR, Tiedemann A, Valenzuela T, Vandelanotte C, Chow J, McInerney G, Miles L, Woodbury A, Delbaere K. Age Ageing 2022; 51(6): afac130.

Abstract

BACKGROUND: globally, falls and fall-related injuries are the leading cause of injury-related morbidity and mortality in older people. In our ageing society healthcare costs are increasing, therefore programmes that reduce falls and are considered value for money are needed.

OBJECTIVE: to complete an economic evaluation of an e-Health balance exercise programme that reduced falls and injurious falls in community-dwelling older people compared to usual care from a health and community-care funder perspective.

DESIGN: a within-trial economic evaluation of an assessor-blinded randomised controlled trial with 2 years of follow-up. SETTING: StandingTall was delivered via tablet-computer at home to older community-dwelling people in Sydney, Australia. PARTICIPANTS: five hundred and three individuals aged 70+ years who were independent in activities of daily living, without cognitive impairment, progressive neurological disease or any other unstable or acute medical condition precluding exercise. MAIN OUTCOME MEASURES: cost-effectiveness was measured as the incremental cost per fall and per injurious fall prevented. Cost-utility was measured as the incremental cost per quality-adjusted life year (QALY) gained. MAIN RESULTS: the total average cost per patient for programme delivery and care resource cost was $8,321 (standard deviation [SD] 18,958) for intervention participants and $6,829 (SD 15,019) for control participants. The incremental cost per fall prevented was $4,785 and per injurious fall prevented was $6,585. The incremental cost per QALY gained was $58,039 (EQ5D-5L) and $110,698 (AQoL-6D).

CONCLUSION: this evaluation found that StandingTall has the potential to be cost-effective in specific subpopulations of older people, but not necessarily the whole older population. TRIAL REGISTRATION: ACTRN12615000138583.

Language: en

Keywords

Falling into an identity crisis: integrating identity into the assessment and management of falls in older adults

Abstract

OBJECTIVES: This article examines the psychological effects of falls for older adults through the lens of identity and suggests these may be integrated in the assessment and management of older patients within acute care and rehabilitation settings post-fall. An illustrative vignette is described to demonstrate this approach.

CONCLUSION: Falls in older adults are complex phenomena which can lead to an identity threat, sometimes manifest as psychological symptoms and poor engagement in post-fall rehabilitation. A psychiatric formulation which incorporates an older person's self-identity and agency may inform interventions to address psychological and behavioural sequelae of falls.

Language: en

Keywords

falls; rehabilitation; psychological; geriatric; older persons

Falls at advanced age - the importance to search for benign paroxysmal positional vertigo (BPPV)

Abstract

INTRODUCTION: One of the most important geriatric syndromes is dizziness in conjunction with gait disorder and consequent falls. There are various differential diagnoses for dizziness, one of them is benign paroxysmal positional vertigo (BPPV).

OBJECTIVES: A targeted diagnostic work-up and treatment of BPPV can prevent subsequent falls and a decline in the patients' quality of life, prolonged hospitalization with unnecessary examinations and medication.

DESIGN: Prospective examination of patients with a positive medical history of BPPV. SETTING AND PARTICIPANTS: All patients treated within the Department of Geriatrics between 05/2015 and 03/2018 were included. A total of n = 5166 patients were screened (n = 2651 geriatrics; n = 2515 controls).

METHODS: All patients from other wards subjected to a neurological examination due to vertigo served as controls. Patients with typical hints in the medical history for a BPPV were subjected to the diagnostic Dix-Hallpike maneuver and, if positive, subsequent canalith repositioning maneuvers. The percentage of successful positional treatments was determined in both groups.

RESULTS: N = 254 patients (4.9 %) had indications in the medical history for a BPPV. For 71 of n = 254 patients (28 %; in total 1.4 %; mean age: 78.4 ± 12.3 years) the diagnosis of BPPV was proven by a positive Dix-Hallpike maneuver. N = 39 (54.9 %) patients belong to the geriatric group (mean age 82 years) and n = 32 (45.1 %) to the control group (mean age 73.9 years). The frequency of BPPV was similar in both groups (1.3-1.5 %). In 91.9 % of patients the BPPV was localized in the posterior semicircular canal. Up to 93 % were asymptomatic after one or repeated canalith repositioning maneuvers.

CONCLUSIONS AND IMPLICATIONS: The BPPV should be considered as an important differential diagnosis for geriatric patients with dizziness and falls. After therapeutic repositioning maneuvers most of the patients are asymptomatic. Therefore, targeted screening and therapy ("theragnostic") of BPPV at an advanced age increases diagnostic accuracy and prevents unnecessary examinations, medications and future falls.
Language: en

Falls in older adults requiring emergency services: mortality, use of healthcare resources, and prognostication to one year

Newgard CD, Lin A, Caughey AB, McConnell KJ, Bulger E, Malveau S, Staudenmayer K, Griffiths D, Eckstrom E. West. J. Emerg. Med. 2022; 23(3): 375-385.

Abstract

INTRODUCTION: Older adults who fall commonly require emergency services, but research on long-term outcomes and prognostication is sparse. We evaluated older adults transported by ambulance after a fall in the Northwestern United States (US) and longitudinally tracked subsequent healthcare use, transitions to skilled nursing, hospice, mortality, and prognostication to one year.

METHODS: This was a planned secondary analysis of a cohort study of community-dwelling older adults enrolled from January 1-December 31, 2011, with follow-up through December 31, 2012. We included all adults ≥ 65 years transported by 44 emergency medical services agencies in seven Northwest counties to 51 hospitals after a fall. We matched Medicare claims, state inpatient data, state trauma registry data, and death records. Outcomes included mortality, healthcare use, and new claims for skilled nursing and hospice to one year.

RESULTS: There were 3,159 older adults, with 147 (4.7%) deaths within 30 days and 665 (21.1%) deaths within one year. There was an initial spike in inpatient days, followed by increases in skilled nursing and hospice. We identified four predictors of mortality: respiratory diagnosis; serious brain injury; baseline disability; and Charlson Comorbidity Index ≥ 2. Having any of these predictors was 96.6% sensitive (95% confidence interval [CI]: 95.7, 97.5%) and 21.4% specific (95% CI: 19.9, 22.9%) for 30-day mortality, and 91.6% sensitive (95% CI: 89.5, 93.8%). and 23.8% specific (95% CI: 22.1, 25.5%) for one-year mortality.

CONCLUSION: Community-dwelling older adults requiring ambulance transport after a fall have marked increases in healthcare use, institutionalized living, and mortality over the subsequent year. Most deaths occur following the acute care period and can be identified with high sensitivity at the time of the index visit, yet with low specificity.

Language: en

Implementation of an evidence-based, Tai Ji Quan Fall Prevention Program in rural West Virginia churches: a RE-AIM evaluation

Jones DL, Selfe TK, Wen S, Eicher JL, Wilcox S, Mancinelli C. J. Aging Phys. Act. 2022; ePub(ePub): ePub.

Abstract

This study implemented a 16-week Tai Ji Quan: Moving for Better Balance® intervention for older adults in churches in hard-to-reach, medically underserved, rural communities, and evaluated the process using the RE-AIM Framework. Community-dwelling adults, aged 55 years, or older, were eligible. Data (N = 237) were collected at baseline, 16 weeks, and 32 weeks on falls efficacy, depression, physical/mental health-related quality of life, aerobic activity, gait speed, mobility, balance, and leg strength. Generalized/linear mixed models determined if outcomes improved. Eighteen churches sponsored 16 classes. Church adoption was 94%, instructor adoption was 86%, reach was 90%, and fidelity was good/fair. All outcomes improved except physical health-related quality of life and gait speed. Thirty-six percent of participants, 28% of churches, and 37% of instructors continued Tai Ji Quan: Moving for Better Balance at 32 weeks. Compared with two prior RE-AIM evaluations, adoption and reach rates, improvements in outcomes, and satisfaction were comparable; attendance, program completion, and continuation rates were lower.

Language: en

Keywords

physical activity; fall risk; exercise; physical function; Tai Chi

Implementing falls prevention in primary care: barriers and facilitators

Abstract

PURPOSE: Limited information is available concerning primary care providers' encountered barriers and facilitators when implementing falls prevention and providing interventions in a real-life setting. This study aimed to identify barriers and facilitators when i) implementing a falls risk assessment strategy at GP practices and among community nurses and ii) providing evidence-based falls prevention interventions in a real-life setting to independently living, frail older people.

METHODS: A researcher's journal was maintained during the implementation of a falls risk assessment strategy, which entailed notes from informal conversations with GPs, practice nurses and community nurses. After implementation, two online focus groups with GPs, practice and community nurses, physio- and exercise therapists were conducted. Data were thematically analyzed.

RESULTS: Data were collected from 32 GPs, 13 practice nurses, eight community nurses, nine physiotherapists, and two exercise therapists. The GPs and nurses acknowledged that falls prevention is part of their job, meaningful, and that they have sufficient knowledge and skills to offer falls prevention. Collaboration, a previously implemented care program for older people, resources, reimbursement for interventions, and patients' motivation, awareness and health issues were considered to be important factors for the implementation of falls prevention. Physio- and exercise therapists described collaboration with different disciplines, receiving sufficient referrals, reimbursements, intensity and set-up of the interventions, and patients' motivation, expectations, goals, self-confidence, awareness, and health issues as important factors when providing falls prevention interventions.

CONCLUSION: This study identified care provider-, context-, patient-, and innovation (strategy)-related barriers and facilitators when implementing falls prevention and providing interventions in primary care. Development of a more successful implementation strategy should focus on intensifying collaboration, reimbursement for interventions, availability of resources, and patients' lack of motivation and health issues. Hence, falls prevention may become more structurally applied, reducing a major threat for the quality of life of independently living older people.

Language: en

Keywords

Improved screening of fall risk using free-living based accelerometer data

Kelly D, Condell J, Gillespie J, Munoz Esquivel K, Barton J, Tedesco S, Nordström A, Åkerlund Larsson M, Alamäki A. J. Biomed. Inform. 2022; ePub(ePub): ePub.

Abstract

Falls are one of the most costly population health issues. Screening of older adults for fall risks can allow for earlier interventions and ultimately lead to better outcomes and reduced public health spending. This work proposes a solution to limitations in existing fall screening techniques by utilizing a hip-based accelerometer worn in free-living conditions. The work proposes techniques to extract fall risk features from periods of free-living ambulatory activity. Analysis of the proposed techniques is conducted and compared with existing screening methods using Functional Tests and Lab-based Gait Analysis. 1705 Older Adults from Umea (Sweden) were assessed. Data consisted of 1 Week of hip worn accelerometer data, gait measurements and performance metrics for 3 functional tests. Retrospective and Prospective fall data were also recorded based on the incidence of falls occurring 12 months before and after the study commencing respectively. Machine learning based experiments show accelerometer based measures perform best when predicting falls. Prospective falls had a sensitivity and specificity of 0.61 and 0.66 respectively while retrospective falls had a sensitivity and specificity of 0.61 and 0.68 respectively.

Language: en

Keywords

Accelerometer; Fall Risk

Knowledge about foot-specific foot falls risk factors and exercise among physiotherapists in the UK and Portugal: a cross-sectional survey

Abstract

BACKGROUND AND PURPOSE: Foot-related falls risk factors and specific foot and ankle exercise interventions are within the scope of Physiotherapy, yet little is known about United Kingdom (UK) and Portugal-based (PT) physiotherapists' self-perceived knowledge, confidence and practice of such interventions, or perceptions of patients' falls prevention knowledge. The purpose of this study was to assess levels of self-reported knowledge, confidence, and practices surrounding foot-specific falls risk and exercise for fall prevention in physiotherapists working in the UK and in Portugal. It also aimed to explore physiotherapists' views about their participants' falls prevention knowledge.

METHODS: A self-report online survey was developed, and pilot tested in both nations. Registered Physiotherapists were invited to participate through their professional associations, social media and snowballing. Mann-Whitney tests were used to compare mean ranks of ordinal variables between nations and Chi-square test to assess the independency between pairs of variables. Spearman's correlation coefficient (rs) was used to measure the association between pairs of variables (p < 0.05).
RESULTS: 682 physiotherapists participated in the survey [UK n = 229 (mean (SD) age = 43(10) years, 86.9% female]; PT n = 453 (mean (SD) age = 33(9) years, 78.3% female]. Among physiotherapists with a caseload of ≥70% older adults, more PT-based physiotherapists held postgraduate qualifications (p = 0.01). Most physiotherapists correctly identified generic and foot-specific risk factors (≥70% of participants for each item). More UK-based physiotherapists reported always prescribing ankle and foot exercises (42.6% vs. 33%, p =< 0.001) and displayed higher levels of self-reported confidence surrounding exercise-based interventions.
DISCUSSION: Our sample of UK and Portugal-based physiotherapists are aware of the contribution of foot-specific risk factors and exercise to falls prevention, with the former group being more confident in exercise-based interventions. Both groups of physiotherapists perceived that their older patients had little knowledge about these topics, with UK older adults having slightly better knowledge on generic falls risk factors at first contact. Future studies and strategies for knowledge translation and education in foot health and foot function screening and management for physiotherapists, within a falls prevention scope, may be informed by this study.
Language: en

Short physical performance battery and mediation of the effect of mild cognitive impairment on falls by community-dwelling older adults

Amini R, Counseller Q, Taylor R, Fayyad D, Naimi R. J. Neuropsychiatry Clin. Neurosci. 2022; ePub(ePub): ePub.

Abstract

OBJECTIVE: The authors examined the association among cognitive function, falling, and physical performance among community-dwelling older adults (ages ≥65 years).

METHODS: Eight waves of the National Health and Aging Trends Study (NHATS; 2011-2018) were assessed, with 1,225 respondents who participated in all waves. The outcomes were self-reported number of falls and NHATS Short Physical Performance Battery (SPPB) score. The Clock Drawing Test measured participants' executive function, and immediate and delayed word recall tests assessed memory.

RESULTS: The analyses indicated no direct correlation between executive function and fall risk when controlled for contributing factors. However, executive function and memory significantly predicted the risk for poor physical performance, defined by the NHATS SPPB score. The interaction between pain medication and memory worsened poor physical performance among participants with mild and severe memory impairment, as well as among those with mild to moderate impairment in executive function.

CONCLUSIONS: Screening older adults living in the community for executive function, memory impairment, and physical performance can predict the risk for falls and the subsequent consequences of falling.

Language: en

Keywords

Fall; Balance; Cognitive Impairment; Memory

What predicts falls, and what are the circumstances and consequences of falls in community-dwelling older adults who need walking aids or home help service

Abstract

The objective was to analyze predictive variables for falls in older community-dwelling adults who needed walking aids or home help service, to describe the circumstances and consequences of falls and fall injuries, and to describe the activities preceding falls, n = 175, mean age 83 years. Falls were self-reported monthly in a fall calendar and were followed up by a telephone interview. A logistic regression analysis was performed to investigate predictive baseline variables for falls. Injuries were reported in 82 of the 185 fall events. Previous falls and a high level of education had a significant association with falls odds ratios 1.9 (95% CI 1.3-2.7), and 2.7 (95% CI 1.4-5.3). Activities preceding the falls were classified according to the International Classification of Functioning (ICF). Falls and fall injuries were most common while moving around within the home and rising from sitting to standing.

Language: en

Keywords