Welcome

This issue features:

- Falls Network Forum 2014
- Websites, Meetings and Conferences
- Recent Abstracts from the research literature

“Falls Prevention is everyone’s business®”

FOR YOUR DIARY:

ANZFPS Conference
16-18 November 2014
Luna Park Sydney
Earlybird registration closes 12th September

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NSW Falls Prevention Network Forum

The NSW Falls Prevention Network Forum was held on Friday May 23, 2014, at the SMC Conference Centre, 66 Goulburn St, Sydney and was opened (via video) by The Hon. Jillian Skinner, Minister for Health and Minister for Medical Research. This year the special focus was on *Balancing – falls research into practice*. A copy of the program with abstracts and plenary presenters biographies and PDFs of all presentations are available at: [http://fallsnetwork.neura.edu.au/events/2014-events/](http://fallsnetwork.neura.edu.au/events/2014-events/). A DVD/CD of the Plenary Sessions presentations will be available in July and information on ordering copies will be circulated through the Falls Network email list.

Forum Summary
Participants: 341 from hospitals, community services, residential aged care, health promotion, local government and consumer representatives and including the 27 presenters and session chairpersons.

Professor Jacqueline Close was invited to deliver the Pam Albany Guest Lecture on *Falls & Injury prevention – reflections and projections*.

Web-streaming
- The morning Plenary Sessions were web streamed with 22 participants taking part in the live web-streaming including a number from interstate and overseas.
- There have been over 200 views post event to June 2014.
- Feedback was positive with those joining finding the sessions informative and relevant and almost as good as being at the forum.

Trade Displays
There were 10 trade exhibits with 20 representatives manning the exhibit stalls.

Evaluation
206 evaluations were completed and returned, a return rate of 60.5% which is acceptable.

Evaluation Summary:
Professional Groups
- Allied Health (55%)
- Nursing (16%)
- Health Promotion (9%) and
- Other (11%) which included Exercise Physiologists, Falls prevention coordinator’s, Orientation and mobility instructors, Day therapy staff, education staff, Health Service Managers, Ambulance Officers, Mental health staff, Pharmacist and Podorthist.

Work Settings
This forum engages with professionals from each of the care settings.
- Community (46%)
- Hospital (37%)
- Residential Aged Care (RAC) (14%).
- A number of respondents worked across settings including Hospital and Community (10.6%), Community and RAC (5.3%) and across all settings (3.3%).

Fall Prevention activities
82% of respondents indicated they were involved in a number of falls prevention initiatives in their work area, with;
- 39% involved in exercise programs (either group or individually prescribed and in all care settings),
- 20% were involved with Stepping On programs,
- 18% with screening/or assessment and referral and
- 12% providing education for clients or staff.
Other falls prevention activities included being part of a falls committee (9.4%), rounding program in hospital (5.8%), research (4.7%), home assessment (4%), involved in Falls and/or Fracture Clinics (3%) and falls prevention across all sectors (2.4%).

Overall the majority of respondents enjoyed the meeting and found the information provided relevant to their work area.

The key messages that respondents gained from attending the forum included (% of respondents):
• Importance of update of the research evidence and practice in falls prevention for their practice (15%)
• Interventions need to be appropriate for populations (i.e. post discharge, frailer people, etc.) (10%)
• Importance of multifaceted/multifactorial and multidisciplinary approach to falls prevention (10%)
• Exercise as a single intervention may not be the best strategy (9.4%)
• Exercise needs to be targeted to specific populations (8.8%)
• Exercise needs to challenge balance and be of sufficient dose for falls prevention (8.2%)
• Importance of sustained interventions and continuing to engage with patients/clients to implement strategies (6.3%)
• Importance of individual approach to falls prevention (5.7%).

The main suggestions for further information on falls prevention included:
• More practical aspects, research into practice, case studies, panel discussions (19.3%)
• Falls prevention in specific populations e.g. CALD, Mental health, amputees, frail aged, intellectual and physical disability, over 85+ age group (10.2%)
• Regular updates of research and new information (8%)
• Falls prevention in RACF (7%)
• More information on exercise e.g. barriers to participation, dance and yoga for falls prevention, exercise options for males (6.8%)
• Dementia and falls prevention (5.7%)
• Further information on how to assist people in creating behaviour change (5.7%)
• Multidisciplinary approach including podiatrists, Exercise Physiologists, dieticians etc. (4.5%)
• Falls prevention in patients with other neurological conditions e.g. motor and sensory neuropathy, brain injury (3.4%)
• Use of technology such as video games and dance mats (3.4%)

Other suggestions included:
• Risk screening and assessment tools and post fall tools
• Promoting falls prevention programs
• Comprehensive list of falls prevention programs in the community
• Initiatives for rural community settings
• Role and benefits of falls committees and engagement of management
• Hospital and community fall rates data and trends

These suggestions will be used in planning future forums and webinars.

Future Communication
Respondents indicated that the best way to communicate falls prevention information to them was through (multiple responses were allowed):
• forums (28%),
• webinars (24%),
• workshops (21%), emails (20%),
• website (18.9%)
• on-line module (6%).
PLENARY SESSION 1
This session was chaired by Dr Jo Mitchell, the Acting Director, Centre for Population Health, NSW Ministry of Health.

The Pam Albany Lecture on ‘Falls & Injury prevention – reflections and projections’ was delivered by Professor Jacqueline Close, Consultant in Orthogeriatrics, Prince of Wales Hospital and Principal Research Fellow and Director, Falls and Injury Prevention Group, Neuroscience Research Australia.

This presentation provided some historical context around falls prevention in that only 20 years ago the first RCT was published on preventing falls. This study by Tinetti et al 1994 used a multifactorial approach to reduce the risk of falling among older adults living in the community. An overwhelming amount of evidence has emerged since with updates of Cochrane reviews on interventions for older people living in the community (Gillespie et al 2012) and for older people in care facilities and hospitals (Cameron et al 2013). These can be accessed at: http://fallsnetwork.neura.edu.au/resources/research/. Professor Close provided a summary of the main interventions for each of the care settings and emphasized the importance of understanding the targeted populations to provide the most suitable intervention.

Some data was highlighted from the provided from the Trends in fall related hospitalisations persons-aged 65 years and over NSW 1998-99-2011-12 report including the annual 3.8% increase in falls related hospitalisations in NSW since 1998 using aged standardised data. The rates varied in Local Health Districts (LHDs) in NSW.

Professor Close finished the presentation with a brief overview the current projects within her Falls and Injury Prevention Group at NeuRA.

For further information go to: http://neura.edu.au/research/themes/close-group

Information on the Australian & New Zealand Hip Fracture Registry can be accessed at: http://anzhfr.org

A selection of overall comments on the forum are in Box 1 below.

Box 1 Overall Comments on the Forum
‘large number attending indicates the significance of falls and the desire for professionals to improve knowledge and skills to help implement strategies’
‘great day I have learnt a lot that I can use to improve practice’
‘highly credentialed researchers presented material clearly succinctly and still interesting’
‘hearing of projects that are trialing is very effective for inspiration’
‘great variety of speakers’
‘obtained funding to come from rural setting and have enjoyed it thoroughly’
‘excellent and interesting presentations, very motivating’
‘making the course cost effective enables clinicians to attend’
Professor Stephen Lord, NHMRC Senior Principal Research Fellow, Falls and Balance Research Group, Neuroscience Research Australia. This presentation was an update of the falls prevention research and included the roles of cognition, dual tasking and obesity in increasing fall risk and exercise interventions.

Stephen reported that a large population study in NSW with a random sample found a higher rate of falls in those people who were obese (a 31% increase) but there was no increase in fall related injury compared to healthy weight older adults. A number of mediating factors were identified, these included:

- sleeping tablet use
- sitting for 8+ hours/day on weekdays
- heart disease/angina
- anti-depressant use
- moderate/extreme anxiety or depression
- diabetes

Interventions aimed at weight reduction and increased activity may have benefits not only for falls prevention but also for mediating health, mood and lifestyle factors.

A systematic review on dual-tasking (Menant et al 2014, see page of 12 this newsletter) of 31 studies (4524 participants) found that the dual tasking gait speed test did not predict falls better than a single task gait speed test. There are a number of reasons for this and these may be manifested in other measures such as gait variability.

A study by Schoene et al (Age & Ageing 2013) showed that the Stroop stepping test may be able to better discriminate the contribution of neuropsychological and physical factors for increasing falls risk. This test found that fallers had slower speed and worse accuracy in the cognitive task. This study demonstrated the feasibility of using a low-cost computer game device to screen older people for risk of falls.

A study published in Nature (Anguera et al 2013) has found that video game training using a multitasking game enhanced cognitive control in older adults and that the effect was still present 6 months post training.

A pilot study of Yoga (Tiedemann et al, J Gerontol Med Sci, 2013) found that it improved balance and mobility and that adherence was above average, this was an encouraging result.

Professor Lord finished with an update of his gold bar evidence of falls prevention interventions. A PDF of this presentation can be accessed at: http://fallsnetwork.neura.edu.au/events/2014-events/

PLENARY SESSION 2
This session was chaired by Professor Stephen Lord.

Parkinson’s disease and falls prevention was presented by Associate Professor Colleen Canning, Discipline of Physiotherapy, Faculty of Health Sciences, The University of Sydney.

Parkinson's Disease (PD) is a multisystem complex constellation of motor and non-motor impairments. Falls are very common in those with Parkinson’s with 60% being recurrent fallers and 20% with 10 or more falls per year.

Colleen summarised the evidence for PD on interventions to prevent falls, falls risk factors, predictions of falls and considered the implications of these for assessment and intervention.
The effectiveness of exercise interventions in PD depended on a range of factors including:

- Disease severity, the high disease severity group did not benefit from exercise and it may even be detrimental in this group and other more targeted interventions are required.
- Levels of supervision of the exercise program, higher levels of supervision decreased falls rates.

Medications such as Cholinesterase inhibitors were effective in reducing falls however it was not statistically significant. The use of Bisphosphonates in women with PD significantly reduced the incidence of hip fracture but not the number of falls.

Colleen’s group are currently undertaking a Cochrane systematic review on emerging evidence of the efficacy of interventions in preventing falls in PD.

In PD it was also important to address the remediable risk factor for falls such as:

- freezing of gait
- impaired balance
- impaired executive function
- impulsivity

A risk screening tool has been developed by Colleen’s group (Paul et al, Movement Disorders, 2013; 28:655,) This tool has an 80% accuracy in predicting falls within the next 6 months in people with PD. This tool looks at history of falls in the previous 6 months, freezing of gait in the last month and timed 4m section of the 6m walk test. (<1.1 m/s).

PD patients who are assessed as high risk by this screening tool require a comprehensive assessment and medication review and interventions need to be targeted at remediable risk factors and introduced sequentially.

PD patients, identified at moderate risk need to have further investigations. These include:

- Falls history (ie multiple falls, injurious falls or falls associated with dizziness and syncope).
- Screening for evidence of the key risk factors (such as freezing of gait, impaired cognition and balance and impulsiveness).
- Where there is evidence of these additional risk factors then these PD patients should be treated as high risk, if no evidence then treated as low risk.

PD patients identified as low risk, need to have any identified risk factors addressed with targeted interventions and referred to group or minimally supervised exercise programs that challenge balance.

Colleen concluded her presentation with examples of a few novel methods that have been used in PD including the use of dual tasking using a treadmill augmented with a virtual reality task on a monitor and a home based interactive video game based on the dance mat developed at NeuRA.

Exercise prescription for falls prevention was presented by Professor Cathie Sherrington, NHMRC Senior Research Fellow, Musculoskeletal Division, The George Institute for Global Health and Sydney Medical School, The University of Sydney.

This presentation provided an update of the recommendations for exercise to prevent falls in older adults. These recommendations include:

1. Exercise must provide a moderate or high challenge to balance (and be progressive).
2. Exercise must be of sufficient dose to be effective (>50 hours over 6 months).
3. Ongoing exercise is necessary (at least 26 weeks in duration).
4. Falls prevention exercise should be targeted at the general community as well as those at some increased falls risk.
- Exercise as a single intervention may not prevent falls in special populations (e.g. low vision)
- Home exercise as a single intervention may be harmful in people who have recently been in hospital.
5. Falls prevention exercise may be undertaken in a group or home-based setting.
6. Walking training may be included in addition to balance training but high risk individuals should not be prescribed brisk walking programs.
7. Strength training may be included in addition to balance training.
8. Exercise providers should make referrals for other risk factors to be addressed.

Strategies for better implementation of physical activity programs for older people include:
- **Individual** - prescribing realistically and safely and working with people and using behavioural change strategies if necessary.
- **Program** - availability of a range of suitable programs.
- **Advocacy** - by the general public and health professionals.
- **Collaboration** - promoting physical activities that address other conditions such as heart disease, arthritis etc.


Cathie concluded that:
- Falls were preventable in community dwelling older people with ongoing exercise that targets balance.
- Widespread implementation of fall prevention strategies in community dwellers was urgently needed.
- Greater understanding of more optimal falls prevention strategies in high risk groups was also needed.

**State initiatives - Driving change** was presented by Ms Lorraine Lovitt, Leader, NSW Falls Prevention Program, Clinical Excellence Commission. This presentation highlighted the importance of partnerships and that the NSW Falls Prevention program works with a range of organisations including LHDs and LHD Falls Prevention Coordinators, Researchers and the NSW Falls Network based at NeuRA, Ambulance NSW, the Agency for Clinical Innovation (ACI) Health Networks (particularly the Aged Health, Musculoskeletal and Chronic Diseases Networks), HETI (Health Education Training Institute), residential aged care and other external agencies.

Lorraine highlighted some collaborative work with Home Care Services whose clients were participating in the Stepping On program. Care workers were enlisted and trained to provide encouragement and facilitate participation of their clients in the Stepping On program. Focus interviews of clients and care workers found that clients were more motivated to attend the Stepping On program due to the interest and encouragement provided by their care workers. Care workers also indicated that they had acquired new skills through the training and enjoyed encouraging their clients and had increased awareness of potential hazards in their client’s homes.

Lorraine provided information on a suite of resources developed by the NSW Falls Prevention Program to support the implementation of the Australian Commission on Safety and Quality in Health Care (ACSQHC) National Safety and Quality Health Standards (NSQHS) Standard 10: Preventing falls and harm from falls. These can be accessed at: [http://www.cec.health.nsw.gov.au/programs/falls-prevention/falls-resources](http://www.cec.health.nsw.gov.au/programs/falls-prevention/falls-resources)

Lorraine reported on the results of a recent Quality Systems Assessment (QSA) that included falls at Facility and Unit level. This survey found through self assessment that 56% of units reviewed the current medications of patients identified at risk of falling and recommended that more work be done to ensure
that medication review and complex clinical assessments be included in standard falls risk management processes. This survey also found that good systems were in place across LHDs around standardised protocols for assessing malnutrition, cognition and delirium. However there was still work to be done around understanding confusion and managing delirium and some key principles for this have been developed through the Care of Confused Hospitalised Older Persons (CHOPs) program and resources can be accessed at [http://www.aci.health.nsw.gov.au/chops](http://www.aci.health.nsw.gov.au/chops).

**How did it happen? A patient’s perspective** was presented by Dr Joanne Rowley, Nurse Researcher, Coffs Harbour Health Campus, Mid North Coast LHD.

This presentation highlighted the importance of including patient’s experiences when improving falls prevention strategies.

The Essentials of Care Program highlighted that this 48 bed Medical/MAU ward at Coffs Harbour Health Campus had the highest rate of inpatient falls in the Hospital and that there was room for improvement with respect to falls prevention strategies and the culture on the ward where falls were considered inevitable for older people on the ward. Gaps in practice were identified and summaries of ward falls data was used as an educational tool with staff to discuss priorities in delivering care. The NUM of the ward showed amazing engagement and commitment to improving fall rates on the ward.

After analysing data from a fall where falls prevention strategies had been put in place they identified that it was important to be open in conversations around falls with patients and/or carers and to use these conversations as opportunities to support patients in hospital. This process gave patients a voice about their experiences of having a fall in hospital.

This process also led staff to a shift away from the inevitability of falls, recognising the importance of post medical reviews and opportunities to discuss ways to minimise falls risk. This was about working with people, sharing responsibility and being creative and innovative so everyone felt there was a degree of empathy involved. The changes made have led to a reduction in fall rates on this ward.

All presentations (as PDFs) from both Plenary and Concurrent Sessions can be accessed at: [http://fallsnetwork.neura.edu.au/events/2014-events/](http://fallsnetwork.neura.edu.au/events/2014-events/)
Falls Network Forum 2014

Ausmedic Display

Active Mobility Display

Statina Healthcare Display

Parkinson’s NSW Display

Networking

Invisa-Beam Display

Shelley Moor mansing the Falls Network table

ACI Aged Health Network

Vision Australia’s simulating eye glasses

Banquet Hall with trade displays and catering

Participants in the upper level of the Grand Lodge

NSW Falls Prevention Network

Falls Links Vol 9, Issue 3, 2014
Websites, Meetings & Conferences

AIHW - NEW REPORTS

Australia’s Health 2014

Australia’s Health 2014 is the 14th biennial health report of the Australian Institute of Health and Welfare. This edition combines analytical feature articles on highly topical health issues with short statistical snapshots in the following areas: Understanding health and illness; The Australian health system; How healthy are we?; Leading types of ill health; Health behaviours and risks; Health through your life; Indigenous health; Preventing and treating ill health; Indicators of Australia’s health. Section 4.12 (pages 148-150) provides an update on Injury including falls.

AIHW also has a range of reports Indigenous populations including:

‘Aboriginal and Torres Strait Islander Health Performance Framework 2012 Report: New South Wales’,

This report provides the latest information on how Aboriginal and Torres Strait Islander people in New South Wales are faring according to a range of indicators on health status, determinants of health and health system performance and includes falls injury (Section 1.03 page 17) and physical activity levels (Section 2.18, pp 90-91).

CONFERENCE

Australian and New Zealand Falls Prevention Society

6th Biennial Australasian Falls Prevention Conference, Sydney , 16-18 November 2014

http://www.anzfpconference.com.au

The Australian and New Zealand Falls Prevention Society 6th Biennial Conference will be held at Luna Park Sydney NSW, 16th – 18th November. An exciting program is being developed, with the following high profile speakers already confirmed:

- Professor Stephen Robinovitch, Simon Fraser University, Canada
- Professor Jeffrey Hausdorff, Tel-Aviv Sourasky Medical Center, Israel
- Dr Anna Barker, Monash University
- Professor Adrian Bauman, University of Sydney
- Professor Henry Brodaty, University of New South Wales
- Associate Professor Lesley Day, Monash University
- Dr Anne-Marie Hill, Notre Dame University
- Dr Jasmine Menant, Neuroscience Research Australia
- Dr Sabrina Pit, University of Sydney
- Professor Cathie Sherrington, University of Sydney
- Dr Morag Taylor, Prince of Wales Clinical School
- Ms Caroline Gall, Manager Public Insurance, Accident Compensation Corporation, NZ

For further information see the website or contact conference organisers – East Coast Conferences

Phone: (+61 2) 6650 9800 or email fallsconference@eastcoastconferences.com.au

www.anzfpconference.com.au
**Abstract**

**BACKGROUND:** Older people living in nursing care facilities or older adults living at home are at high risk of falling and a hip fracture may occur after a fall. Hip protectors have been advocated as a means to reduce the risk of hip fracture. Hip protectors are plastic shields (hard) or foam pads (soft), usually fitted in pockets in specially designed underwear. This is an update of a Cochrane review first published in 1999, and updated several times, most recently in 2010.

**OBJECTIVES:** To determine if the provision of external hip protectors (sometimes referred to as hip pads or hip protector pads) reduces the risk of fracturing the hip in older people.

**SEARCH METHODS:** We searched the Cochrane Bone, Joint and Muscle Trauma Group Specialised Register (December 2012), the Cochrane Central Register of Controlled Trials (CENTRAL) (The Cochrane Library 2012, Issue 12), MEDLINE (1950 to week 3 November 2012), MEDLINE In-Process (18 December 2012), EMBASE (1988 to 2012 Week 50), CINAHL (1982 to December 2012), BioMed Central (January 2010), trial registers and reference lists of relevant articles.

**SELECTION CRITERIA:** All randomised or quasi-randomised controlled trials comparing an intervention group provided with hip protectors with a control group not provided with hip protectors.

**DATA COLLECTION AND ANALYSIS:** Two review authors independently assessed risk of bias and extracted data. We sought additional information from trialists. Data were pooled using fixed-effect or random-effects models as appropriate.

**MAIN RESULTS:** This review includes 19 studies, nine of which were cluster randomised. These included approximately 17,000 people (mean age range 78 to 86 years). Most studies were overall at low risk of bias for fracture outcomes. Trials tested hard or soft hip protectors enclosed in special underwear in 18 studies. Pooling of data from 14 studies (11,808 participants) conducted in nursing or residential care settings found moderate quality evidence for a small reduction in hip fracture risk (risk ratio (RR) 0.82, 95% confidence interval (CI) 0.67 to 1.00); the absolute effect is 11 fewer people (95% CI, from 20 fewer to 0) per 1000 having a hip fracture when provided with hip protectors. There is moderate quality evidence when pooling data from five trials in the community (5614 participants) that shows little or no effect in hip fracture risk (RR 1.15, 95% CI 0.84 to 1.58); the absolute effect is two more people (95% CI 2 fewer to 6 more) per 1000 people having a hip fracture when provided with hip protectors. There is probably little to no effect on falls (rate ratio 1.02, 95% CI 0.9 to 1.16) or fractures other than of the hip or pelvis (rate ratio 0.87, 95% CI 0.71 to 1.07). However, the risk ratio for pelvic fractures is RR 1.27 (95% CI 0.78 to 2.08); this is an absolute effect of one more person (95% CI 1 fewer to 5 more) per 1000 having a pelvic fracture when provided with hip protectors. The incidence of adverse events while wearing hip protectors, including skin irritation, ranged from 0% to 5%. Adherence, particularly in the long term, was poor.

**AUTHORS’ CONCLUSIONS:** Hip protectors probably reduce the risk of hip fractures if made available to older people in nursing care or residential care settings, without increasing the frequency of falls. However, hip protectors may slightly increase the small risk of pelvic fractures. Poor acceptance and adherence by older people offered hip protectors is a barrier to their use. Better understanding is needed of the personal and design factors that may influence acceptance and adherence.
Single and dual task tests of gait speed are equivalent in the prediction of falls in older people: a systematic review and meta-analysis

Menant JC, Schoene D, Lord SR.


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Abstract

Although simple assessments of gait speed have been shown to predict falls as well as hospitalisation, functional decline and mortality in older people, dual task gait speed paradigms have been increasingly evaluated with respect to fall prediction. Some studies have found that dual task walking paradigms can predict falls in older people. A systematic review and meta-analysis was conducted to determine whether dual task walking paradigms involving a secondary cognitive task have greater ability to predict falls than single walking tasks. The meta-analytic findings indicate single and dual task tests of gait speed are equivalent in the prediction of falls in older people and sub-group analyses revealed similar findings for studies that included only cognitively impaired participants, slow walkers or used secondary mental-tracking or verbal fluency tasks.

The Glenn A. Fry award lecture 2013: Blurred vision, spectacle correction, and falls in older adults

Elliott DB.


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Abstract

This article reviews the literature on how blurred vision contributes to falls, gait, and postural control and discusses how these are influenced by spectacle correction. Falls are common and represent a very serious health risk for older people. They are not random events as studies have shown that falls are linked to a range of intrinsic and extrinsic risk factors. Vision provides a significant input to postural control in addition to providing information about the size and position of hazards and obstacles in the travel pathway and allows us to safely negotiate steps and stairs. Many studies have shown that reduced vision is a significant risk factor for falls. However, randomized controlled trials of optometric interventions and cataract surgery have not shown the expected reduction in falls rate, which may be due to magnification changes (and thus vestibulo-ocular reflex gain) in those participants who have large changes in refractive correction. Epidemiological studies have also shown that progressive addition lens and bifocal wearers are twice as likely to fall as non-multifocal wearers, laboratory-based studies have shown safer adaptive gait with single-vision glasses than progressive addition lenses or bifocals, and a randomized controlled trial has shown that an additional pair of distance vision single-vision glasses for outdoor use can reduce falls rate. Clinical recommendations to help optometrists prevent their frail, older patients from falling are suggested.

Epidemiology

Changing patterns of injury associated with low-energy falls in the elderly: a 10-year analysis at an Australian major trauma centre

Lee H, Bein KJ, Ivers R, Dinh MM.


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(Copyright © 2014, Royal Australasian College of Surgeons, Publisher John Wiley and Sons)
Abstract

BACKGROUND: The rate of hospitalization in elderly patients because of falls is increasing. The objective of this study was to investigate long-term trends in injury profiles of low-energy falls and to identify injuries associated with need for in-patient rehabilitation.

METHODS: A single-centre retrospective study was performed at an inner city Major Trauma Centre in Sydney. Trauma registry data were obtained from patients who were 65 years of age or over with low-energy falls (trip and fall from height ≤1 m, including falls from standing) from the trauma registry between January 2000 and December 2011. Demographic data, time and date of presentation and injury characteristics were collected. Outcomes of interests were proportions of hip fractures, head injuries and discharge to in-patient rehabilitation facilities.

RESULTS: A total of 4964 cases were identified. There was a 6.5% per annum decrease in the proportion of elderly patients with low-energy falls who sustained hip fractures compared with a relative increase in severe head injuries, 5.7% per annum. Around 25% of patients were transferred to in-patient rehabilitation. Severe head injuries and lower-limb injuries were the two injuries most associated with transfer to in-patient rehabilitation.

CONCLUSION: In elderly patients with low-energy falls, a significant decrease in hip fractures was associated with a rise in severe head injuries over the past decade.

Fall-related risk factors and heel quantitative ultrasound in the assessment of hip fracture risk: a 10-year follow-up of a nationally representative adult population sample

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Abstract

Maximal walking speed and quantitative ultrasound index (QUI) were significant and independent predictors of hip fracture among subjects aged ≥55 years. A model including readily available variables along with simple fall-related factors may be clinically useful in the assessment of hip fracture risk even without a QUI measurement.

INTRODUCTION: This study assessed fall-related risk factors along with heel bone quantitative ultrasound (QUS) measurements for the prediction of hip fracture during a mean follow-up of 9.8 years in a nationally representative population sample.

METHODS: The study population consisted of 2,300 subjects (1,331 women and 969 men) aged 55 years or over, who had participated in a comprehensive health survey in 2000-2001. Information on the subjects’ health and fall-related risk factors was obtained with interviews, questionnaires and tests carried out by specially trained professionals. QUS measurements were made by means of the Hologic Sahara device. First emerging cases of hip fracture were identified from the National Hospital Discharge Register.

RESULTS: During the follow-up, 96 subjects sustained a hip fracture. Slow maximal walking speed, low quantitative ultrasound index (QUI), high age, tallness, short waist circumference, Parkinson’s disease and the number of central nervous system active medication were significant and independent predictors of hip fracture. The model including all of these risk factors explained 68 % of the variation in hip fracture risk. Excluding QUI from this model reduced the percentage to 66 %.

CONCLUSIONS: Maximal walking speed and QUI were significant and independent predictors of hip fracture. A model including readily available variables such as age, gender, height and waist circumference along with simple fall-related factors may be of clinical use in the assessment of hip fracture risk even without a QUS measurement.

Falls among older general practice patients: a 2-year nationwide surveillance study

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Abstract

BACKGROUND: Falling among older persons is a multifactorial health condition needing multifactorial care. Several targeted preventive interventions and their coordination are considered to be general practitioner (GP)-specific tasks.

OBJECTIVES: To estimate the incidence of falls among older non-institutionalized general practice patients in Belgium (2009-10) and to describe the main characteristics of falls, fallers and fall risks; factors associated with multiple fall risks and the co-occurrence of fall risks; patient status 3 months later and care delivery.

METHODS: A 2-year nationwide cross-sectional study based on data collected by the Belgian network of Sentinel General Practices on all non-institutionalized persons aged ≥65 years consulting their GP for new fall-related injuries.

RESULTS: Baseline data were collected on 1503 persons and valid follow-up data were available on 715 persons (79%). The yearly incidence of older persons with fall-related injuries was estimated at 2.5% of the older general practice population; 39% of patients had also received hospital care, physician-specialist or nursing home care. A multifactorial risk profile was observed in 59% and associated with increasing age, recurrent falling, falling at home and during lower level activity. The clustering of frailty-specific fall risks was higher than expected by chance. At follow-up, 46% of at-risk patients had received physical therapy, 47% were using assistive devices, and medication had been reviewed in 28% of patients taking psychopharmacy and 17% of patients with polypharmacy.

CONCLUSIONS: Our study shows a high burden of care for fall-related injuries in older general practice patients and provides baseline data for its future monitoring.

Determinants of falls in community-dwelling elderly: hierarchical analysis

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Affiliation: Núcleo de Estudos em Epidemiologia do Envelhecimento, Universidade Estadual do Sudoeste da Bahia (UESB), Bahia, Brazil.

Abstract

OBJECTIVE: To analyze the fall-related factors in community-dwelling elderly.

DESIGN AND SAMPLE: Epidemiologic cross-sectional population-based household study with hierarchical interrelationships among the potential risk factors. The sample was made up of noninstitutionalized individuals over age 60, who were resident of a city in Brazil’s Northeast Region. MEASURES: The dependent variable was fall occurrence in the last 12 months; independent variables were sociodemographic, behavioral, health, and functional status factors. Multivariate hierarchical Poisson regression analysis was used based on a proposed theoretic model.

RESULTS: Three hundred and sixteen (89.0%) elderly participated of the survey, average age 74.2 years; the majority was female, with limited literacy and had low-medium family income. The fall prevalence was of 25.8%; occurrence was related to depression symptoms (PR = 1.55) and balance limitation (PR = 1.56).

CONCLUSIONS: The high fall prevalence among elderly necessitates the identification of fall-related factors for action planning prevention programs with this group.

Fear of Falling

Disparity in the fear of falling between urban and rural residents in relation with socio-economic variables, health issues, and functional independency

Cho H, Seol SJ, Yoon do H, Kim MJ, Choi BY, Kim T.

Abstracts Continued
Recent abstracts from the research literature

Affiliation: Department of Rehabilitation Medicine, Hanyang University Medical Center, Hanyang University College of Medicine, Seoul, Korea.

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Abstract

OBJECTIVE: To investigate disparities in the fear of falling between urban and rural communities in relation to socio-demographics, health status, and functional level.

METHODS: A total of 974 subjects aged 40 years or older participated in this study (335 urban residents and 639 rural). They completed a questionnaire about socio-demographics, health-related variables, and experience with falls. We employed both direct questioning and the Korean version of Falls Efficacy Scale-International (KFES-I) to investigate fear of falling in terms of perceptive fear and higher level of concern over falling during daily activities. The Korean version of Instrumental Activities of Daily Living was used to assess functional independency.

RESULTS: Aging, female gender, fall history, and the presence of chronic medical problems were independently associated with higher prevalence for the fear of falling. Both perceptive fear of falling and a higher level of concern over falling were more prevalent in the rural senior population compared with those in the urban population when they had the following characteristics: lower income or educational background, physical laborer or unemployed, no chronic medical morbidity, or functional independency in daily activities.

CONCLUSION: The disparity in the fear of falling between the two areas is thought to be related to age structure, and it may also exist in healthy or functionally independent senior populations under the influence of socio-environmental factors. A senior population with lower socio-economic status residing in a rural area might be related with a greater vulnerability to the fear of falling. We should consider regional characteristics when we design fall-related studies or develop fall-prevention programs at the community level.

Factors associated with fear of falling in people with Parkinson’s disease
Lindholm B, Hagell P, Hansson O, Nilsson MH.


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Abstract

BACKGROUND: This study aimed to comprehensibly investigate potential contributing factors to fear of falling (FOF) among people with idiopathic Parkinson’s disease (PD).

METHODS: The study included 104 people with PD. Mean (SD) age and PD-duration were 68 (9.4) and 5 (4.2) years, respectively, and the participants’ PD-symptoms were relatively mild. FOF (the dependent variable) was investigated with the Swedish version of the Falls Efficacy Scale, i.e. FES(S). The first multiple linear regression model replicated a previous study and independent variables targeted: walking difficulties in daily life; freezing of gait; dyskinesia; fatigue; need of help in daily activities; age; PD-duration; history of falls / near falls and pain. Model II included also the following clinically assessed variables: motor symptoms, cognitive functions, gait speed, dual-task difficulties and functional balance performance as well as reactive postural responses.

RESULTS: Both regression models showed that the strongest contributing factor to FOF was walking difficulties, i.e. explaining 60% and 64% of the variance in FOF-scores, respectively. Other significant independent variables in both models were needing help from others in daily activities and fatigue. Functional balance was the only clinical variable contributing additional significant information to model I, increasing the explained variance from 66% to 73%.

CONCLUSIONS: The results imply that one should primarily target walking difficulties in daily life in order to reduce FOF in people mildly affected by PD. This finding applies even when considering a broad variety of aspects not previously considered in PD-studies targeting FOF. Functional balance performance, dependence in daily activities, and fatigue were also independently associated with FOF, but to a lesser extent. Longitudinal studies are warranted to gain an increased understanding of predictors of FOF in PD and who is at risk of developing a FOF.
Abstracts Continued
Recent abstracts from the research literature

Task-specific balance training improves self-assessed function in community-dwelling older adults with balance deficits and fear of falling: a randomized controlled trial
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Abstract

OBJECTIVE: To evaluate the effects of a 12-week balance training programme on self-assessed function and disability in healthy community-dwelling older adults with self-perceived balance deficits and fear of falling.

DESIGN: A prospective, randomized controlled trial.

SETTING: Stockholm County, Sweden.

PARTICIPANTS: A total of 59 community-dwelling older adults (42 women and 17 men) aged 67-93 were randomized to either an intervention group (n = 38) or to serve as controls (n = 21) after baseline testing.

INTERVENTION: The intervention was a 12-week, three times per week, progressive, specific and individually adjusted group balance-training programme.

MAIN MEASURES: Self-perceived function and disability measured with Late Life Function and Disability Instrument.

RESULTS: The intervention group reported improvement in overall function (p = 0.016), as well as in basic (p = 0.044) and advanced lower extremity function (p = 0.025) compared with the control group. The study showed no improvement in overall disability or upper extremity function.

CONCLUSION: This group balance training programme improves self-assessed function in community-dwelling older adults with balance deficits and fear of falling.

Does the falls efficacy scale international version measure fear of falling: a reassessment of internal validity using a factor analytic approach
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(Copyright © 2014, Oxford University Press)

Abstract

BACKGROUND: the Falls Efficacy Scale-International (FES-I) is a widely used measure of fear of falling that assesses concerns with respect to falls over a range of physical and social activities. In the original validation study, the methods used (self-selection by participants) were likely to over-represent those with a higher educational level and socio-economic grouping. In addition, the factor analysis method used was potentially less applicable to older individuals and may have been less likely to measure the construct of fear of falling.

OBJECTIVE: to validate the internal validity of the FES-I and assess its suitability as a measure of fear of falling.

DESIGN: cross-sectional survey.

SETTING: community sample.

METHODS: a random sample of 200 participants aged 60 years completed the FES-I by structured interview. We verify internal validity with a factor analytic approach not previously employed in this study design context, principal factor analysis on the matrix of polychoric correlations.

RESULTS: we find no redundancy in the questions on the FES-I. All are found to strongly represent concerns about falling during social and physical activities.
CONCLUSION: the FES-I is an appropriate tool to assess fear or concerns with respect to falls in the general elderly population, and more appropriately represents concern of falling than has previously been found. Future health services research with the FES-I should have its design informed by the results presented in this study, as the structure of the ‘concern with falling’ factor differs markedly from that found in previous validity testing.

**Pain interference is associated with psychological concerns related to falls in community-dwelling older adults: a multisite observational study**

Stubbs B, Eggermont LH, Patchay S, Schofield PA.


Affiliation: P.A. Schofield, PhD, Faculty of Education and Health, University of Greenwich.

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**Abstract**

**BACKGROUND:** Pain interference and psychological concerns related to falls (PCRF) are pervasive phenomena among community dwelling older adults, yet their association remains elusive.

**OBJECTIVE:** To establish if pain interference is associated with psychological concerns related to falls in community dwelling older adults.

**DESIGN:** Multisite cross sectional study.

**METHOD:** Two hundred and ninety five community dwelling older adults were recruited (77.5±8.1 years, 66.4% female). All participants completed the brief pain inventory (BPI) interference subscale and the short falls efficacy scale international (FES-I), activities balance confidence scale (ABC), the modified version of the survey of activities and fear of falling in elderly scale (mSAFFE) and consequences of falling scale (CoF). Hierarchical multiple regression analysis were conducted. In the first step socio-demographic and known risk factors for PCRF were inserted into the model, followed by the BPI interference subscale score in the second step.

**RESULTS:** One hundred and sixty nine (57.3%) participants reported some pain interference. The BPI interference subscale was highly correlated with all PCRF (r>0.5, p<0.0001). After the adjustment for established risk factors, the BPI interference subscale significantly increased the variance in the short FES-I scale (R(2) change=13.2%), the ABC (R(2) change=4.7%), mSAFFE (R(2) change =5.0%) and CoF (R(2) change =10.0%). Pain interference was a significant and independent predictor in the final model for the short FES-1 (=.455, p<0.001), ABC (=.265, p<0.001), mSAFFE (=.276, p<0.001) and CoF scale (=.390, p<0.001).

**LIMITATIONS:** This study was cross sectional.

**CONCLUSIONS:** Pain interference is an important contributing factor to each of the psychological concerns related to falls. Pain interference had the strongest impact on reducing falls efficacy and increasing older adults concerns about the consequences of falling.

**Risk Assessment**

**Improving falls risk screening and prevention using an e-learning approach**

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**Abstract**

**AIM:** This study investigated the impact of an e-learning education programme for nurses on falls risk screening, falls prevention and post-falls management.

**BACKGROUND:** Falls injury within older inpatients is a major patient safety concern.
METHOD: Using a pre-post design, observation of the patient and environment and patient health care record audits, were conducted following the introduction of a falls e-learning education programme.

RESULTS: Audits of patient health care records (using the Falls Chart Audit Tool), together with observation of practice for 119 (pre) and 99 (post) patients, were undertaken. Initial risk screening was conducted using the Modified Ontario Stratify Scale for most patients (95%). Interventions such as a falls risk flag in the records/on beds, supervision when the patient is mobilising or in the bathroom, area clear of hazards, use of chair/bed alarms, and referral to allied health staff were significantly improved.

CONCLUSIONS: Initial risk screening of patients and improvements in preventive interventions were demonstrated.

IMPLICATIONS FOR NURSING MANAGEMENT: This falls e-learning programme represents a cost-effective method of increasing falls mitigation strategies within large organisations. The Falls Chart Audit Tool provides a valuable monitoring tool for managers. Falls risk screening when the patient’s condition changes, requires vigilance by managers or reminders within clinical information systems.

Reactive stepping behaviour in response to forward loss of balance predicts future falls in community-dwelling older adults


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Abstract

BACKGROUND: a fall occurs when an individual experiences a loss of balance from which they are unable to recover. Assessment of balance recovery ability in older adults may therefore help to identify individuals at risk of falls. The purpose of this 12-month prospective study was to assess whether the ability to recover from a forward loss of balance with a single step across a range of lean magnitudes was predictive of falls.

METHODS: two hundred and one community-dwelling older adults, aged 65-90 years, underwent baseline testing of sensori-motor function and balance recovery ability followed by 12-month prospective falls evaluation. Balance recovery ability was defined by whether participants required either single or multiple steps to recover from forward loss of balance from three lean magnitudes, as well as the maximum lean magnitude participants could recover from with a single step.

RESULTS: forty-four (22%) participants experienced one or more falls during the follow-up period. Maximal recoverable lean magnitude and use of multiple steps to recover at the 15% body weight (BW) and 25%BW lean magnitudes significantly predicted a future fall (odds ratios 1.08-1.26). The Physiological Profile Assessment, an established tool that assesses variety of sensori-motor aspects of falls risk, was also predictive of falls (Odds ratios 1.22 and 1.27, respectively), whereas age, sex, postural sway and timed up and go were not predictive.

CONCLUSION: reactive stepping behaviour in response to forward loss of balance and physiological profile assessment are independent predictors of a future fall in community-dwelling older adults. Exercise interventions designed to improve reactive stepping behaviour may protect against future falls.

Validity and reliability of balance assessment software using the Nintendo Wii balance board: usability and validation

Park DS, Lee G.


(Copyright © 2014, BioMed Central)

Abstract

BACKGROUND: A balance test provides important information such as the standard to judge an individual’s functional recovery or make the prediction of falls. The development of a tool for a balance test that is inexpensive
and widely available is needed, especially in clinical settings. The Wii Balance Board (WBB) is designed to test balance, but there is little software used in balance tests, and there are few studies on reliability and validity. Thus, we developed a balance assessment software using the Nintendo Wii Balance Board, investigated its reliability and validity, and compared it with a laboratory-grade force platform.

METHODS: Twenty healthy adults participated in our study. The participants participated in the test for inter-rater reliability, intra-rater reliability, and concurrent validity. The tests were performed with balance assessment software using the Nintendo Wii balance board and a laboratory-grade force platform. Data such as Center of Pressure (COP) path length and COP velocity were acquired from the assessment systems. The inter-rater reliability, the intra-rater reliability, and concurrent validity were analyzed by an intraclass correlation coefficient (ICC) value and a standard error of measurement (SEM).

RESULTS: The inter-rater reliability (ICC: 0.89-0.79, SEM in path length: 7.14-1.90, SEM in velocity: 0.74-0.07), intra-rater reliability (ICC: 0.92-0.70, SEM in path length: 7.59-2.04, SEM in velocity: 0.80-0.07), and concurrent validity (ICC: 0.87-0.73, SEM in path length: 5.94-0.32, SEM in velocity: 0.62-0.08) were high in terms of COP path length and COP velocity.

CONCLUSION: The balance assessment software incorporating the Nintendo Wii balance board was used in our study and was found to be a reliable assessment device. In clinical settings, the device can be remarkably inexpensive, portable, and convenient for the balance assessment.

Functional assessment in older adults: should we use Timed Up and Go or Gait Speed Test?
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Abstract
In order to assess functional skills of older adults, both Timed Up and Go (TUG) test and Gait Speed (GS) test are well validated concerning their predictive capacities. However, the question remains unclear which one of these tests represents better the whole physical performance of older adults. The aim of this study is to determine the more representative test, between TUG and GS, of the whole motor control quality. To study links between locomotion capacities and arm function, we measured, in a population of frail aged patients, the locomotion tests and the mean arm maximal velocity developed during a speed-accuracy trade-off. This arm movement consisted in reaching the hand towards a target in a virtual game scene. We plotted the different couples of variables obtained on graphs, and calculate Pearson correlation coefficients between each couple. The Pearson correlation between GS and Hand maximal velocity was significant ($r=0.495$; $p=0.046$). Interestingly, we found a non significant Pearson correlation between Timed Up and Go score (TUG) and Hand maximal velocity ($r=-0.139$; $p=0.243$). Our results suggest that GS score is more representative of the whole motor ability of frail patients than the TUG. We propose that the relative complexity of the TUG motor sequence could be involved in this difference. For a few patients with motor automatisms deficiencies, this motor sequence complexity could leads to a dual task perturbation. In this way, we conclude that GS should be preferred over the TUG with older adults.

Identification of functional parameters for the classification of older female fallers and prediction of ‘first-time’ fallers
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Affiliation: Institute for Biomechanics, ETH, Zürich, Switzerland.

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Abstract
Falls remain a challenge for ageing societies. Strong evidence indicates that a previous fall is the strongest single screening indicator for a subsequent fall and the need for assessing fall risk without accounting for fall history is therefore imperative. Testing in three functional domains (using a total 92 measures) were completed in 84 older women (60-85 years of age), including muscular control, standing balance, and mean and variability of gait. Participants were retrospectively classified as fallers (n = 38) or non-fallers (n = 42) and additionally in a prospective manner to identify first-time fallers (FTFs) (n = 6) within a 12-month follow-up period. Principal component analysis revealed that seven components derived from the 92 functional measures are sufficient to depict the spectrum of functional performance. Inclusion of only three components, related to mean and temporal variability of walking, allowed classification of fallers and non-fallers with a sensitivity and specificity of 74% and 76%, respectively. Furthermore, the results indicate that FTFs show a tendency towards the performance of fallers, even before their first fall occurs. This study suggests that temporal variability and mean spatial parameters of gait are the only functional components among the 92 measures tested that differentiate fallers from non-fallers, and could therefore show efficacy in clinical screening programmes for assessing risk of first-time falling.

Hazel DD, Pravin A, Subin S, Mallikarjunaiah HS.

Abstract
BACKGROUND: Falls are a major problem in the elderly leading to increased morbidity and mortality in this population. Scores from objective clinical measures of balance have frequently been associated with falls in older adults. The Berg Balance Score (BBS) which is a frequently used scale to test balance impairments in the elderly, takes time to perform and has been found to have scoring inconsistencies. The purpose was to determine if individual items or a group of BBS items would have better accuracy than the total BBS in classifying community dwelling elderly individuals according to fall history.

METHOD: 60 community dwelling elderly individuals were chosen based on a history of falls in this cross sectional study. Each BBS item was dichotomized at three points along the scoring scale of 0 – 4: between scores of 1 and 2, 2 and 3, and 3 and 4. Sensitivity (Sn), specificity (Sp), and positive (+LR) and negative (-LR) likelihood ratios were calculated for all items for each scoring dichotomy based on their accuracy in classifying subjects with a history of multiple falls. These findings were compared with the total BBS score where the cut-off score was derived from receiver operating characteristic curve analysis.

RESULTS: On analysing a combination of BBS items, B9 and B11 were found to have the best sensitivity and specificity when considered together. However the area under the curve of these items was 0.799 which did not match that of the total score (AUC= 0.837). A, combination of 4 BBS items - B9 B11 B12 and B13 also had good Sn and Sp but the AUC was 0.815. The combination with the AUC closest to that of the total score was a combination items B11 and B13. (AUC= 0.824). hence these two items can be used as the best predictor of falls with a cut off of 6.5 The ROC curve of the Total Berg balance Scale scores revealed a cut off score of 48.5.

CONCLUSION: This study showed that combination of items B11 and B13 may be best predictors of falls in the elderly with a cut off of 6.5.

Risk Factors
Differential diagnosis between ‘unexplained’ fall and syncopal fall: a difficult or impossible task
Alboni P, Coppola P, Stucci N, Tsakiridu V.
Affiliation: Section of Cardiology bDivision of Medicine, Ospedale Privato Quisisana, Ferrara, Italy.

Abstracts Continued
Recent abstracts from the research literature

Risk Factors
Differential diagnosis between ‘unexplained’ fall and syncopal fall: a difficult or impossible task
Alboni P, Coppola P, Stucci N, Tsakiridu V.
Affiliation: Section of Cardiology bDivision of Medicine, Ospedale Privato Quisisana, Ferrara, Italy.

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Abstract

Falls may be accidental (because of slipping, tripping or environmental hazards) or ‘unexplained’, when there is no apparent cause. Syncope is a transient loss of consciousness (LOC) and, if it occurs when the person is in the upright position, may lead to a fall. The differential diagnosis between ‘unexplained’ fall and syncopal fall can be difficult, if not impossible, because many patients have retrograde amnesia after syncope, that is they do not remember their prodromal symptoms. Based on the results of many randomized studies, the international guidelines on falls suggest multifactorial assessment and multifactorial treatment. Unfortunately, however, the vast majority of studies have been carried out on a mixed population of patients who have suffered accidental and ‘unexplained’ falls. As ‘unexplained’ falls account for a minority of cases, we really do not know the efficacy of multifactorial treatment in patients with this type of fall. Very recent data seem to prove that many older patients with ‘unexplained’ falls are actually affected by reflex syncope with retrograde amnesia, as they experience LOC during tilt testing or carotid sinus massage. Although these data make an important contribution to our knowledge of the mechanism of ‘unexplained’ falls, the therapeutic problems remain largely unsolved.

Fall-related injuries in elderly cancer patients treated with neurotoxic chemotherapy: a retrospective cohort study

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Affiliation: UCLA Medical Center, Los Angeles, CA, USA.

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Abstract

BACKGROUND: Fall-related injuries are a well-described cause of morbidity and mortality in the community-dwelling elderly population, but have not been well described in patients with cancer. Cancer treatment with chemotherapy can result in many unwanted side effects, including peripheral neuropathy if the drugs are potentially neurotoxic. Peripheral neuropathy and other side effects of chemotherapy may lead to an increased risk of fall-related injuries.

METHODS: We conducted a retrospective cohort analysis using the records of 65,311 patients with breast, colon, lung, or prostate cancer treated with chemotherapy in the SEER-Medicare database from 1994 to 2007. The primary outcome was any fall-related injury defined as a traumatic fracture, dislocation, or head injury within 12 months of the first dose of chemotherapy. The sample population was divided into 3 cohorts based on whether they most frequently received a neurotoxic doublet, single agent, or a non-neurotoxic chemotherapy. Cox proportional-hazards analyses were adjusted for baseline characteristics to determine the risk of fall-related injuries among the 3 cohorts.

RESULTS: The rate of fall-related injuries for patients receiving a doublet of neurotoxic chemotherapy (9.15 per 1000 person-months) was significantly higher than for those receiving a single neurotoxic agent (7.76 per 1000 person-months) or a non-neurotoxic agent (5.19 per 1000 person-months). Based on the Cox proportional-hazards model risk of fall-related injuries was highest for the cohort receiving a neurotoxic doublet after the model was adjusted for baseline characteristics.

CONCLUSIONS: Among elderly patients with cancer, use of neurotoxic chemotherapy is associated with an increased risk of fall-related injuries.

Sarcopenia and falls in community-dwelling elderly subjects in Japan: Defining sarcopenia according to criteria of the European Working Group on Sarcopenia in Older People

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Abstract
This study assessed the association between sarcopenia (using the definition of the European Working Group on Sarcopenia in Older People) and fall in the past year among community-dwelling Japanese elderly. Subjects were 1110 community-dwelling Japanese aged 65 or older. We used bioelectrical impedance analysis (BIA) to measure muscle mass, grip strength to measure muscle strength, and usual walking speed to measure physical performance in a baseline study. "Sarcopenia" was characterized by low muscle mass and low muscle strength or low physical performance. "Presarcopenia" was characterized only by low muscle mass. Subjects who did not have any of these deficiencies were classified as "normal." We then administered a questionnaire assessing age, sex, household status, chronic illness, lifestyle-related habits, and fall. This study showed the prevalence of fall was 16.9% and 21.3% in men and women, respectively, while that of sarcopenia was 13.4% and 14.9% in men and women, respectively. In men and women, the prevalence of sarcopenia was higher among those who had fallen. A logistic regression analysis using age, body fat, current drinker status, and physical inactivity for men, and age, body fat, smoking, and diabetes for women as covariate variables revealed that sarcopenia was significantly associated with a history of fall. The odds ratio for fall in the sarcopenia group relative to the normal group was 4.42 (95%CI 2.08-9.39) in men and 2.34 (95%CI 1.39-3.94) in women. This study revealed sarcopenia to be associated with falling in elderly Japanese. Sarcopenia prevention interventions may help prevent falls among elderly individuals.

Characteristics of elderly fall patients with baseline mental status: high-risk features for intracranial injury
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Affiliation: St. Luke’s University Hospital and Health Network, Department of Emergency, Medicine, Bethlehem, PA.
(Copyright © 2014, Elsevier Publishing)

Abstract
BACKGROUND: Falls are a major cause of morbidity in the elderly.
OBJECTIVES: We describe the low-acuity elderly fall population and study which historical and clinical features predict traumatic intracranial injuries (ICIs).
METHODS: This is a prospective observational study of patients at least 65 years old presenting with fall to a tertiary care facility. Patients were eligible if they were at baseline mental status and were not triaged to the trauma bay. At presentation, a data form was completed by treating physicians regarding mechanism and position of fall, history of head strike, headache, loss of consciousness (LOC), and signs of head trauma. Radiographic imaging was obtained at the discretion of treating physicians. Medical records were subsequently reviewed to determine imaging results. All patients were called in follow-up at 30 days to determine outcome in those not imaged. The study was institutional review board approved.
RESULTS: A total of 799 patients were enrolled; 79.5% of patients underwent imaging. Twenty-seven had ICIs (3.4%). Fourteen had subdural hematoma, 7 had subarachnoid hemorrhage, 3 had cerebral contusion, and 3 had a combination of injuries. Logistic regression demonstrated 2 study variables that were associated with ICIs: LOC (odds ratio, 2.8; confidence interval, 1.2-6.3) and signs of head trauma (odds ratio, 13.2; confidence interval, 2.7-64.1). History of head strike, mechanism and position, headache, and anticoagulant and antiplatelet use were not associated with ICIs.
CONCLUSION: Elderly fall patients who are at their baseline mental status have a low incidence of ICIs. The best predictors of ICIs are physical findings of trauma to the head and history of LOC.

Antidepressants are independently associated with gait deficits in single and dual task conditions
Donoghue OA, O’Hare C, King-Kallimanis B, Kenny RA.
Affiliation: The Irish Longitudinal Study on Ageing (TILDA), Trinity College Dublin, Ireland.
(Copyright © 2014, American Association for Geriatric Psychiatry, Publisher Elsevier)
Abstract

OBJECTIVES: This study examined the relationships between late-onset depressive symptoms, antidepressants, and single and dual task gait in older adults.

DESIGN: Cross-sectional study.

SETTING: The Irish Longitudinal Study on Ageing (TILDA), a nationally representative cohort study. PARTICIPANTS: Community-dwelling adults aged 60 years and older, with Mini-Mental State Examination score ≥24, no history of Parkinson’s disease or early onset depression, and unaided completion of a gait assessment (N = 1,998). This study compared participants with and without potentially clinically relevant depressive symptoms (i.e., ≥16 on the Centre for Epidemiological Studies Depression scale) and participants who were and were not on antidepressant therapy.

MEASUREMENTS: Gait measures were obtained during single and dual task (reciting alternate letters of alphabet, A-C-E) walking using a 4.88 m GAITRite walkway. Regression analysis was used to examine the associations between each group and gait adjusting for sociodemographics and health.

RESULTS: In the unadjusted models, depressive symptoms and antidepressant use were associated with gait deficits. After adjusting for covariates, antidepressant use was associated with reduced gait speed and stride length in single and dual task walking; depressive symptoms were not associated with any deficits.

CONCLUSIONS: As gait impairments are associated with an increased risk of adverse outcomes including falls, clinicians should be aware of the impact of antidepressants on gait in older adults. Subsequent to this, interventions aimed at improving physical function, which is a known precursor to falls and functional disability, should be recommended.

Frequency and factors associated with falls in patients with advanced cancer presenting to an outpatient supportive care clinic

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Abstract

OBJECTIVE: The aim of this study was to determine the frequency and factors associated with fall episodes in advanced cancer patients.

METHOD: We analyzed data that included demographic characteristics, utilization of assistive devices, cancer diagnosis, metastatic site, performance status, medications including hypnotics and opioids, Edmonton Symptom Assessment Scale (ESAS) score, and Memorial Delirium Assessment Scale (MDAS) score in 384 consecutive patients who were newly referred to the Supportive Care Clinic at the MD Anderson Cancer Center from January 1 to December 31, 2009. All patients completed standardized forms to report falls within the last month. Multivariate backward regression analyses were employed to identify factors predictive of falls in advanced cancer.

RESULTS: The mean age of patients was 58 years, and 192 (50%) were male. Mean (SD)/median score for pain was 5 (2.8), 5; fatigue 5.6 (2.6), 6; sleep disturbance 5(2.7), 5; drowsiness 3.7(3), 3; and anorexia 5(3), 5. Some 31 patients (8%) reported fall episodes within the past month, 17 (55%) of whom reported the use of assistive devices. Using assist devices (OR = 5.5, 95% CI: 2.6-11.9, p < 0.0001) and taking zolpidem (OR = 3.39, 95% CI: 1.39-7.7, p = 0.008) were associated with an enhanced chance of falling. Higher MDAS score (4.00 vs. 1.42, p = 0.001) and MDAS positive screening for delirium (21 vs. 3.6%, p < 0.001) were also associated with falls. However, severity on the ESAS at the initial consult was not associated with falls.

Significance of RESULTS: We conclude that 31 of 384 patients (8%) with advanced cancer receiving outpatient supportive care reported falls in the previous month. Patients with assistive devices, taking zolpidem, and with a higher MDAS score, and a positive delirium screening reported more frequent falls. Further studies are warranted.
Interventions
Comparative impacts of Tai Chi, balance training and a specially-designed yoga program on balance in older fallers
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Abstract
OBJECTIVE: To compare the effect of a custom-designed yoga program with two other balance training programs.

DESIGN: Randomized controlled trial.

SETTING: University neuromuscular research laboratory, Miami, US.

PARTICIPANTS: A group of 39 older adults (74.15 ± 6.99 years) with a history of falling.

INTERVENTIONS: Three different exercise interventions, Tai Chi, standard balance training (SBEP) or yoga (BYOGA) were given for 12 weeks.

MAIN OUTCOME MEASURES: Balance performance was examined during pretest and post-test using field tests including the 8-Foot Up & Go, One-Leg Stance, Functional Reach, usual and maximal walking speed. The static and dynamic balance was also assessed by postural sway and dynamic posturography, respectively.

RESULTS: Training produced significant improvements in all field tests (p < .005), but no group difference or time x group interaction were detected. For postural sway, significant decreases in the area of center of pressure with eyes open (p = .001) and closed (p = .002) were detected after training. For eyes open, maximums medial-lateral velocity significantly decreased for the sample (p = .013). For eyes closed, medial-lateral displacement decreased for Tai Chi (p < .01). For dynamic posturography, significant improvements in overall score (p = .006) and two linear measures in lateral (p = .001) and anterior/posterior (p < .001) direction were seen for the sample.

CONCLUSIONS: BYOGA was as effective as Tai Chi and SBEP for improving postural stability and may offer an alternative to more traditional programs.

Gait training with real-time augmented toe-ground clearance information decreases tripping risk in older adults and a person with chronic stroke
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Abstract
Falls risk increases with ageing but is substantially higher in people with stroke. Tripping-related balance loss is the primary cause of falls, and Minimum Toe Clearance (MTC) during walking is closely linked to tripping risk. The aim of this study was to determine whether real-time augmented information of toe-ground clearance at MTC can increase toe clearance, and reduce tripping risk. Nine healthy older adults (76 ± 9 years) and one 71 year old female stroke patient participated. Vertical toe displacement was displayed in real-time such that participants could adjust their toe clearance during treadmill walking. Participants undertook a session of unconstrained walking (no-feedback baseline) and, in a subsequent Feedback condition, were asked to modify their swing phase trajectory to match a “target” increased MTC. Tripping probability (PT) pre- and post-training was calculated by modeling MTC distributions. Older adults showed significantly higher mean MTC for the post-training retention session (27.7 ± 3.79 mm) compared to the normal walking trial (14.1 ± 8.3 mm). The PT on a 1 cm obstacle for the older adults reduced from 1 in 578 strides to 1 in 105,988 strides. With gait training the stroke patient increased MTC and...
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Reduced variability (baseline 16 ± 12 mm, post-training 24 ± 8 mm) which reduced obstacle contact probability from 1 in 3 strides in baseline to 1 in 161 strides post-training. The findings confirm that concurrent visual feedback of a lower limb kinematic gait parameter is effective in changing foot trajectory control and reducing tripping probability in older adults. There is potential for further investigation of augmented feedback training across a range of gait-impaired populations, such as stroke.

Postural balance and falls in elderly nursing home residents enrolled in a ballroom dancing program

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Abstract

The aim of this study was to investigate the influence of a ballroom dancing program on the postural balance of institutionalized elderly residents. The sample consisted of 59 sedentary elderly residents of long-stay institutions who were randomly assigned to a ballroom dancing experimental group (EG, n=30) or a control group (CG, n=29). The ballroom dancing program consisted of three 50-min sessions each week on alternate days over a 12-week period. The dances included the foxtrot, waltz, rumba, swing, samba and bolero. The medical records of the subjects were reviewed to determine the number of falls they experienced in the three months prior to the intervention. Postural static balance was assessed using a Lizard (Med. EU., Italy, 2010) stabilometric and posturometric platform. Only patients in the EG lost a significant amount of weight (Δ=-2.85kg) when comparing the pre- and post-test postural balance assessments. The intergroup comparison revealed a reduced lower limb weight distribution difference in the EG post-test compared to the CG post-test (p=0.012). In the intragroup comparison, the EG patients experienced significantly fewer falls post-test relative to pre-test (p<0.0001). This improvement was not observed for patients in the CG. In the intergroup analysis, we observed fewer falls in the EG post-test compared to the CG post-test (p<0.0001). Therefore it was conclude that sedentary elderly people living in long-term institutions can improve their balance via a ballroom dancing program. This activity improved balance and reduced the number of falls in this elderly population.

An educational video to promote multi-factorial approaches for fall and injury prevention in long-term care facilities


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Abstract

BACKGROUND: Older adults living in long term care (LTC) settings are vulnerable to fall-related injuries. There is a need to develop and implement evidence-based approaches to address fall injury prevention in LTC. Knowledge translation (KT) interventions to support the uptake of evidence-based approaches to fall injury prevention in LTC need to be responsive to the learning needs of LTC staff and use mediums, such as videos, that are accessible and easy-to-use. This article describes the development of two unique educational videos to promote fall injury prevention in long-term care (LTC) settings. These videos are unique from other fall prevention videos in that they include video footage of real life falls captured in the LTC setting.

METHODS: Two educational videos were developed (2012-2013) to support the uptake of findings from a study exploring the causes of falls based on video footage captured in LTC facilities. The videos were developed by: (1) conducting learning needs assessment in LTC settings via six focus groups (2) liaising with LTC settings to identify
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learning priorities through unstructured conversations; and (3) aligning the content with principles of adult learning theory.

RESULTS: The videos included footage of falls, interviews with older adults and fall injury prevention experts. The videos present evidence-based fall injury prevention recommendations aligned to the needs of LTC staff and: (1) highlight recommendations deemed by LTC staff as most urgent (learner-centered learning); (2) highlight negative impacts of falls on older adults (encourage meaning-making); and, (3) prompt LTC staff to reflect on fall injury prevention practices (encourage critical reflection).

CONCLUSIONS: Educational videos are an important tool available to researchers seeking to translate evidence-based recommendations into LTC settings. Additional research is needed to determine their impact on practice.

Implementation of evidence-based falls prevention in clinical services for high-risk clients
Day L, Trotter MJ, Hill KD, Haines TP, Thompson C.


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Abstract
RATIONALE, AIMS AND OBJECTIVES: The extent to which best practice for falls prevention is being routinely delivered by health care providers for community-dwelling older adults is unclear. We investigated falls prevention practice among Hospital Admission Risk Programs (HARP) that provide and coordinate specialized health care for people at high risk of hospitalization.

METHOD: Cross-sectional survey of all HARP services in Victoria, excluding one paediatric programme (n = 34). The questionnaire focused upon medication review and exercise prescription, as these are the evidence-based falls interventions with a good fit with HARP services.

RESULTS: Completed questionnaires were received from 24 programmes (70.6%) that service 15 250 older clients (60+ years). All except one programme screened for medicine use; however, a lower proportion (65% of those that screen) target falls risk medications. Among the 17 programmes responding to the exercise prescription question, all routinely include strengthening exercises, and almost all (n = 15) include flexibility, endurance training and movement of the centre of gravity. A lesser proportion (71%) includes reducing the need for upper limb support. The majority of services (88%) undertake falls risk assessments, and all of these either make referral appointments for clients or refer to other services that make referral appointments for clients. Follow-up of appointments and the resulting recommendations was high.

CONCLUSION: Screening for falls risk medications could be improved and staff training in exercise prescription for balance challenge in this high-risk group may be needed. Although evidence-based falls prevention practice within Victorian HARP services appears strong, the effect on falls risk may not be as high as that achieved in randomized trials.

Investigation of older adults’ participation in exercises following completion of a state-wide survey targeting evidence-based falls prevention strategies
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Abstract
This paper examines whether involvement in an observational study may prompt participants to change their exercise behaviors. Data was collected from 394 older community dwellers in Victoria, Australia using a baseline survey, and 245 of these participated in a follow-up survey one year later. Survey domains were drawn from constructs of relevant health behavior models.
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RESULTS: The proportion of respondents who were currently participating in exercises to prevent falls at follow-up was 12% higher than at baseline (Wilcoxon p value<0.001). Twenty-nine percent reported they had changed their perceptions about falls and their risk of falls, with comments focused on threat appraisal. Forty-four percent reported having taken strategies to reduce their risk of falling, with comments based on implementation of different preventive strategies. Respondents who held favorable views towards exercises for the prevention of falls appear to change their behaviors that might address falls when participating in observational studies.

Adherence to and effectiveness of an individually tailored home-based exercise program for frail older adults, driven by mobility monitoring: design of a prospective cohort study

Geraedts HA, Zijlstra W, Zhang W, Bulstra S, Stevens M.


(Accessed June 19, 2013)

Abstract

BACKGROUND: With the number of older adults in society rising, frailty becomes an increasingly prevalent health condition. Regular physical activity can prevent functional decline and reduce frailty symptoms. In particular, home-based exercise programs can be beneficial in reducing frailty of older adults and fall risk, and in improving associated physiological parameters. However, adherence to home-based exercise programs is generally low among older adults. Current developments in technology can assist in enlarging adherence to home-based exercise programs. This paper presents the rationale and design of a study evaluating the adherence to and effectiveness of an individually tailored, home-based physical activity program for frail older adults driven by mobility monitoring through a necklace-worn physical activity sensor and remote feedback using a tablet PC.

METHODS/design: Fifty transitionally frail community-dwelling older adults will join a 6-month home-based physical activity program in which exercises are provided in the form of exercise videos on a tablet PC and daily activity is monitored by means of a necklace-worn motion sensor. Participants exercise 5 times a week. Exercises are built up in levels and are individually tailored in consultation with a coach through weekly telephone contact.

DISCUSSION: The physical activity program driven by mobility monitoring through a necklace-worn sensor and remote feedback using a tablet PC is an innovative method for physical activity stimulation in frail older adults. We hypothesize that, if participants are sufficiently adherent, the program will result in higher daily physical activity and higher strength and balance assessed by physical tests compared to baseline. If adherence to and effectiveness of the program is considered sufficient, the next step would be to evaluate the effectiveness with a randomised controlled trial. The knowledge gained in this study can be used to develop and fine-tune the application of innovative technology in home-based exercise programs.

Balance training in elderly women using public parks

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Doi: 10.1080/08952841.2014.888220 PMID 24919102

Abstract

This study evaluates the effects of a balance training program developed in public parks on functionality and general state of health in elderly women. It was a randomized controlled trial. Women older than 65 years (n = 28; 68.5 ± 2.9) participated in a balance training program that lasted 6 weeks, with sessions taking place twice a week (12 exercises/session, 50 min). Balance was analyzed by the Berg Balance Scale and Timed Up & Go Test. The generic health status was measured by the SF-12 Health Survey. These tests showed statistically significant differences in the experimental group (p <.05). Public parks are adequate installations for developing balance.
Joining the Network
To join the NSW Falls Prevention Network listserv, send an email to:

majordomo@lists.health.nsw.gov.au

In the body of the message type
subscribe nsw-falls-network
on the next line type end

Do not put anything in the subject line. You will receive an email to confirm you have been added to the listserv.

To unsubscribe send an e-mail to:
majordomo@lists.health.nsw.gov.au

and in the body of the message type
unsubscribe nsw-falls-network
on the next line type end

If you have any problems, contact Esther Vance at e.vance@neura.edu.au.

Share your news and information/ideas
Do you have any news on Falls Prevention you want to share with others on the network, or do you want to report on a project that is happening in your area.

Please email Esther with your information. We also welcome suggestions for articles and information you would like to see in this newsletter.

Send your information to:
e.vance@neura.edu.au

The Network Listserv
It is great to see the increased activity on the listserv and we want to continue to promote this. To send an item to the listserv where all members of the network can see it, send an email to:

nsw-falls-network@lists.health.nsw.gov.au

You need to be a subscriber to the listserv to send an email that will be distributed to all members of the listserv. Remember to put a short description in the subject line.

Recently some posts to the listserv have bounced due to email address changes, you need to re-subscribe with your new e-mail address and unsubscribe from your old address following the Join the Network instructions as shown on this page.

NSW Falls Prevention Network Background
The NSW Falls Prevention Network was established in 1993. The role of this network has grown since its inception and now includes:

- Meetings for discussion of falls related issues;
- Dissemination of research findings both local and international;
- Sharing resources developed and exploration of opportunities to combine resources in joint initiatives;
- Encouragement of collaborative projects and research;
- To act as a group to influence policy;
- To liaise with NSW Ministry of Health to provide information on current State/Commonwealth issues in relation to falls and
- Maintenance of resources pertinent to the field.

The main purpose of the network is to share knowledge, expertise and resources on falls prevention for older people.

The NSW Falls Prevention Network activities are part of the implementation of the NSW Falls Prevention Policy funded by the NSW Ministry of Health.

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