

SafetyLit December 17th 2017**A prediction model to identify hospitalised, older adults with reduced physical performance**

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BMC Geriatr. 2017; 17(1): e281.

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DOI 10.1186/s12877-017-0671-5 **PMID** 29216838

Abstract

BACKGROUND: Identifying older adults with reduced physical performance at the time of hospital admission can significantly affect patient management and trajectory. For example, such patients could receive targeted hospital interventions such as routine mobilisation. Furthermore, at the time of discharge, health systems could offer these patients additional therapy to maintain or improve health and prevent institutionalisation or readmission. The principle aim of this study was to identify predictors for persisting, reduced physical performance in older adults following acute hospitalisation.

METHODS: This was a prospective cohort study that enrolled 117 medical patients, ages 65 or older, who were admitted to a short-stay unit in a Danish emergency department. Patients were included in the study if at the time of admission they performed ≤ 8 repetitions in the 30-s Chair-Stand Test (30s-CST). The primary outcome measure was the number of 30s-CST repetitions (≤ 8 or >8) performed at the time of follow-up, 34 days after admission. Potential predictors within the first 48 h of admission included: age, gender, ability to climb stairs and walk 400 m, difficulties with activities of daily living before admission, falls, physical activity level, self-rated health, use of a walking aid before admission, number of prescribed medications, 30s-CST, and the De Morton Mobility Index.

RESULTS: A total of 78 (67%) patients improved in physical performance in the interval between admission and follow-up assessment, but 76 patients (65%) had persistent reduced physical performance when compared to their baseline (30s-CST ≤ 8). The number of potential predictors was reduced in order to create a simplified prediction model based on 4 variables, namely the use of a walking aid before hospitalisation (score = 1.5), a 30s-CST ≤ 5 (1.8), age > 85 (0.1), and female gender (0.6). A score > 1.8 identified 78% of the older adults who continued to have reduced physical performance following acute hospitalisation.

CONCLUSION: At the time of admission, the variables of age, gender, walking aid use, and a 30s-CST score ≤ 5 enabled clinicians to identify 78% of older adults who had persisting reduced physical performance following acute hospitalisation. **TRIAL REGISTRATION:** ClinicalTrials.gov Identifier: NCT02474277. (12.10.2014).

PDF Y Endnote Y**Assessment of osteoporosis in injured older women admitted to a Safety-Net Level One trauma center: a unique opportunity to fulfill an unmet need**

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Curr. Gerontol. Geriatr. Res. 2017; 2017: e4658050.

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Abstract

BACKGROUND: Older trauma patients often undergo computed tomography (CT) as part of the initial work-up. CT imaging can also be used opportunistically to measure bone density and assess osteoporosis.

METHODS: In this retrospective cohort study, osteoporosis was ascertained from admission CT scans in women aged ≥ 65 admitted to the ICU for traumatic injury during a 3-year period at a single, safety-net, level 1 trauma center. Osteoporosis was defined by established CT-based criteria of average L1 vertebral body Hounsfield units < 110 . Evidence of diagnosis and/or treatment of osteoporosis was the primary outcome.

RESULTS: The study cohort consisted of 215 women over a 3-year study period, of which 101 (47%) had evidence of osteoporosis by CT scan criteria. There were no differences in injury severity score, hospital length of stay, cost, or discharge disposition between groups with and without evidence of osteoporosis. Only 55 (59%) of the 94 patients with osteoporosis who survived to discharge had a documented osteoporosis diagnosis and/or corresponding evaluation/treatment plan.

CONCLUSION: Nearly half of older women admitted with traumatic injuries had underlying osteoporosis, but 41% had neither clinical recognition of this finding nor a treatment plan for osteoporosis. Admission for traumatic injury is an opportunity to assess osteoporosis, initiate appropriate intervention, and coordinate follow-up care. Trauma and acute care teams should consider assessment of osteoporosis in women who undergo CT imaging and provide a bridge to outpatient services.

PDF Y Endnote Y

Association between the use of benzodiazepines and opioids with the risk of falls and hip fractures in older adults

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Int. Psychogeriatr. 2017; ePub(ePub): ePub.

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Abstract

BACKGROUND: To determine the association between the use of opioids and benzodiazepines and the risk of falls with hip fracture in populations older than 65 years in Colombia.

METHODS: A case-control study with patients older than 65 years with diagnosis of hip fracture. Two controls were obtained per case. The drugs dispensed in the previous 30 days were identified. Sociodemographic, diagnostic, pharmacological (opioids and benzodiazepines), and polypharmacy variables were analyzed. A logistic regression model was used to analyze the risk of fall with hip fracture while using these drugs.

RESULTS: We included 287 patients with hip fractures and 574 controls. There was a female predominance (72.1%) and a mean age of 82.4 ± 8.0 years. Of the patients, 12.7% had been prescribed with opioids and 4.2% with benzodiazepines in the previous month. The adjusted multivariate analysis found that using opioids (OR:4.49; 95%CI:2.72-7.42) and benzodiazepines (OR:3.73; 95%CI:1.60-8.70) in the month prior to the event was significantly associated with a

greater probability of suffering a fall with hip fracture.

CONCLUSIONS: People who are taking opioids and benzodiazepines have increased risk for hip fracture in Colombia. Strategies to educate physicians regarding the pharmacology of older adults should be strengthened.

PDF Y Endnote Y

Bilateral early activity in the hip flexors associated with falls in stroke survivors: preliminary evidence from laboratory-induced falls

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Abstract

OBJECTIVE: Falls are the most common and expensive medical complication following stroke. Hypermetric reflexes have been suggested to impact post-stroke balance but no study has evaluated reflex amplitudes under real conditions of falls in this population. Our objective was to quantify the early reflexive responses during falls induced in the laboratory.

METHODS: Sixteen stroke survivors were exposed to posteriorly directed treadmill perturbations that required a forward step to maintain a balance. Perturbations differed in terms of treadmill translation displacement, velocity, and acceleration. EMG amplitudes were compared between Fall/Recovery trials, as well as Fallers/Non-Fallers at two different time windows: 50-75 and 75-100 ms.

RESULTS: Sixteen of 86 trials resulted in falls by nine subjects (Fallers). While no differences were found between 50 and 75 ms, EMG amplitude in the paretic rectus femoris muscle was larger between 75 and 100 ms during Fall trials. Further, a bilateral increase in RF activity was seen in Fallers but not Non-Fallers. Interestingly, the bilateral increase was related to perturbation intensity (larger EMG activity with larger perturbations) in Fallers, but again not in Non-Fallers.

CONCLUSIONS: Heightened early recovery hip flexor activity between 75 and 100 ms is associated with falls and Fallers post-stroke. **SIGNIFICANCE:** Though requiring replication and expanded subject pools, these preliminary results reflect a possible clinically meaningful relationship between heightened reflexive responses and fall risk. Future work should evaluate the underlying mechanisms driving these heightened reflexes (e.g. stretch, startle) such that future rehabilitation techniques can address this abnormal response.

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Does pride really come before a fall? Longitudinal analysis of older English adults

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Abstract

OBJECTIVE: To test whether high levels of reported pride are associated with subsequent falls.

DESIGN: Secondary analysis of the English Longitudinal Study of Ageing (ELSA) dataset.

SETTING: Multi-wave longitudinal sample of non-institutionalised older English adults.

PARTICIPANTS: ELSA cohort of 6415 participants at wave 5 (baseline, 2010/11), of whom 4964 were available for follow-up at wave 7 (follow-up, 2014/15).

MAIN OUTCOME MEASURES: Self reported pride at baseline (low/moderate/high) and whether the participant had reported having fallen during the two years before follow-up.

RESULTS: The findings did not support the contention that "pride comes before a fall." Unadjusted estimates indicate that the odds of reported falls were significantly lower for people with high pride levels compared with those who had low pride (odds ratio 0.69, 95% confidence interval 0.58 to 0.81, $P < 0.001$). This association remained after adjustment for age, sex, household wealth, and history of falls (odds ratio 0.81, 0.68 to 0.97, $P < 0.05$). It was partially attenuated after further adjustment for mobility problems, eyesight problems, the presence of a limiting long term illness, a diagnosis of arthritis or osteoporosis, medication use, cognitive function, and pain and depression (odds ratio 0.86, 0.72 to 1.03, $P < 0.1$). Because the confidence interval exceeded 1 in the final model, it remains possible that pride may not be an independent predictor of falls when known risk factors are considered. People with moderate pride did not have lower odds of having fallen than those with low pride in adjusted models. Participants lost to follow-up did not differ from those retained in terms of key variables, and weighting the analyses to account for selective attrition did not produce different results.

CONCLUSIONS: Contrary to the well known saying "pride comes before a fall," these findings suggest that pride may actually be a protective factor against falling in older adults. Future studies may seek to investigate the mechanisms underpinning this relation.

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Drug burden and its association with falls among older adults in New Zealand: a national population cross-sectional study

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Drugs Aging 2017; ePub(ePub): ePub.

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Abstract

BACKGROUND: Adverse outcomes associated with advanced diseases are often exacerbated by polypharmacy.

OBJECTIVES: The current study investigated an association between exposure to anticholinergic and sedative medicines and falls in community-dwelling older people, after controlling for potential confounders.

METHODS: We conducted a retrospective cross-sectional study of a continuously recruited national

cohort of community-dwelling New Zealanders aged 65 years and over. Participants had an International Resident Assessment Instrument-Home Care (interRAI-HC) assessment between 1 September 2012 and 31 January 2016. InterRAI-HC is a comprehensive, multi-domain, standardised assessment. This study captured 18 variables, including fall frequency, from the interRAI. These data were deterministically matched with the Drug Burden Index (DBI) for each participant, derived from an anonymised national dispensed pharmaceuticals database. DBI groupings were statistically ascertained, and ordinal regression models employed.

RESULTS: Overall, there were 71,856 participants, with a mean age of 82.7 years (range 65-106); 43,802 (61.0%) were female, and 63,578 (88.5%) were New Zealand European. In unadjusted and adjusted analyses, DBI groupings were related to falls ($p < 0.001$). A DBI score > 3 was associated with a 41% increase in falls compared with a DBI score of 0 ($p < 0.001$). There was a 'dose-response' relationship between DBI levels and falls risk.

CONCLUSIONS: DBI was found to be independently and positively associated with a greater risk of falls in this cohort after adjustment for 18 known confounders. We suggest that the DBI could be a valuable tool for clinicians to use alongside electronic prescribing to help reduce falls in older people.

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Fear of falling predicts incidence of functional disability two years later: a perspective from an international cohort study

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Abstract

OBJECTIVE: To study the extent to which fear of falling (FOF) is associated with the onset of functional disability over a 2-year period in older adults using self-reported and performance-based measures.

METHODS: In 2012, 1,601 participants (aged 65-74) were recruited from four sites: Kingston and Saint-Hyacinthe, Canada; Manizales, Colombia; and Natal, Brazil. They were re-assessed in 2014. We quantified FOF using the Fall Efficacy Scale-International (FES-I; range: 16-64). Functional disability measures were 1) self-reported incident mobility disability, defined as difficulty climbing a flight of stairs or walking 400 meters and 2) incident poor physical performance, defined as a score < 9 on the Short Physical Performance Battery. In the Poisson regression analysis, we included only those participants without functional disability at baseline to calculate incident risk ratios in 2014.

RESULTS: 1,355 participants completed the 2014 assessment, of which 917 and 1,078 had no mobility disability and poor physical performance at baseline, respectively. In 2014, 131 (14.3%), and 166 (15.4%) participants reported incident mobility disability and poor physical performance, respectively. After adjusting for age, sex, socioeconomic, and health covariates, a one-point increase in FES-I at baseline was associated with a 4% increase in the risk of reporting incident mobility disability (95% CI: 1.02-1.05) and a 3% increase in the risk of developing poor physical performance at follow up in the overall sample (95%CI: 1.01-1.05).

CONCLUSIONS: FOF is associated with a higher risk of incident mobility disability and poor physical

performance in a cohort of older adults. It is increasingly important to study FOF's effect on functional disability and to take necessary measures to prevent the transition to end-stage disability.

PDF Y Endnote Y

Fragility fractures & their impact on older people

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Best Pract. Res. Clin. Rheumatol. 2017; 31(2): 169-191.

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Abstract

Osteoporotic fractures, in particular hip and vertebral, are a major health burden worldwide. The majority of these fractures occur in the elderly population, resulting in one of the most important causes of mortality and disability in older ages. Their cost for societies is enormous and is forecast to steadily increase over the coming decades globally. Low bone mineral density (BMD) remains a key preventable risk factor for fractures. Screening and treatment of individuals with high risk of fracture is cost-effective. Predictive tools including clinical risk factors, minimisation of falls risk and public authorities' support to create Fracture Liaison Services are paramount strategies.

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Home camera-based fall detection system for the elderly

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Sensors (Basel) 2017; 17(12): s17122864.

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Abstract

Falls are the leading cause of injury and death in elderly individuals. Unfortunately, fall detectors are typically based on wearable devices, and the elderly often forget to wear them. In addition, fall detectors based on artificial vision are not yet available on the market. In this paper, we present a new low-cost fall detector for smart homes based on artificial vision algorithms. Our detector combines several algorithms (background subtraction, Kalman filtering and optical flow) as input to a machine learning algorithm with high detection accuracy. Tests conducted on over 50 different fall videos have shown a detection ratio of greater than 96%.

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Impact of fear of falling and fall history on disability incidence among older adults: prospective cohort study

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Int. J. Geriatr. Psychiatry 2017; ePub(ePub): ePub.

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Abstract

OBJECTIVE: Fear of falling (FOF) is a major health problem for older adults, present not just in fallers, but also nonfallers. This study examined the impact of FOF and fall history on disability incidence among community-dwelling older adults from a prospective cohort study.

METHODS: A total of 5104 older adults living in community settings participated in baseline assessment and were followed up for about 4 years (median 52 mo, range 49-55 mo). At baseline, participants were assessed the presence of FOF and their fall history, and divided into 4 groups: Fall (-) FOF (-), Fall (+) FOF (-), Fall (-) FOF (+), and Fall (+) FOF (+). Disability incidence was defined as national long-term care insurance certification for personal support or care.

RESULTS: During the follow-up period, 429 participants (9.9%) were newly certified as having a disability and needing personal support for long-term care insurance. Fall (-) FOF (+) group and Fall (+) FOF (+) group showed a significantly higher risk of disability incidence than Fall (-) FOF (-) group even after adjusting for covariates (Fall (-) FOF (+): hazard ratio 1.28, 95% confidence interval, 1.01-1.62, Fall (+) FOF (+): hazard ratio 1.44, 95% confidence interval, 1.05-1.98).

CONCLUSIONS: Fear of falling could be a simple and useful predictor of disability incidence in community-dwelling older adults. Identifying and decreasing fall risk factors may prevent fall-related injuries, but excessive FOF may be associated with increased risk of disability incidence.

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Improving care for ground-level falls in assisted living

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Abstract Editorial [Abstract unavailable]

PDF Y Endnote Y

Improving decisions about transport to the emergency department for assisted living residents who fall

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Ann. Intern Med. 2017; ePub(ePub): ePub.

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Abstract

BACKGROUND: Residents of assisted living facilities who fall may not be seriously ill or injured, but policies often require immediate transport to an emergency department regardless of the patient's condition.

OBJECTIVE: To determine whether unnecessary transport can be avoided.

DESIGN: Prospective cohort study.

SETTING: One large county with a single system of emergency medical services.

PARTICIPANTS: Convenience sample of residents in 22 assisted living facilities served by 1 group of primary care physicians.

INTERVENTION: Paramedics providing emergency medical services followed a protocol that included consulting with a physician by telephone.

MEASUREMENTS: The number of transports after a fall and the number of time-sensitive conditions in nontransported patients.

RESULTS: Of the 1473 eligible residents, 953 consented to participate in the study (mean age, 86 years; 76% female) and 359 had 840 falls in 43 months. The protocol recommended nontransport after 553 falls. Eleven of these patients had a time-sensitive condition. At least 7 of them received appropriate care: 4 requested and received transport despite the protocol recommendation, and 3 had minor injuries that were successfully managed on site. Three additional patients had fractures that were diagnosed by outpatient radiography. The final patient developed vomiting and diarrhea, started palliative care, and died 60 hours after the fall. At least 549 of the 553 patients (99.3% [95% CI, 98.2% to 99.8%]) with a protocol recommendation for nontransport received appropriate care.

LIMITATION: The resources required for this program will preclude use in some locations.

CONCLUSION: Shared decision making between paramedics and primary care physicians can prevent transport to the emergency department for many residents of assisted living facilities who fall. **PRIMARY FUNDING SOURCE:** None.

PDF Y Endnote Y

Measuring physical capacity and performance in older people

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Best Pract. Res. Clin. Rheumatol. 2017; 31(2): 243-254.

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Abstract

We highlight the important differences between the concepts of capacity and performance and highlight the development of measures and their application in common conditions encountered in health care practice with older people. A number of expert consensus projects have concluded that mobility, balance, muscle strength and dexterity are core domains for capacity measurement in older people. Instruments with evidence of adequate psychometric properties for the evaluation of capacity in response to intervention programmes include the Short Physical Performance Battery, hand grip strength, mini-BEST and 9-hole pegboard test. Measures that can track individual change and convey information that can be used to inform clinical decision-making, individual prognosis or

prediction of events require greater precision. However, few such measures are available. Performance measurement usually focuses on basic or instrumental (advanced) Activities of Daily Living performed by people in their usual environments. Finally, we discuss the limitations of physical performance and capacity measures and future developments that may enhance the use of these measures in health and clinical care.

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Neural correlates of motor-cognitive dual-tasking in young and old adults

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PLoS One 2017; 12(12): e0189025.

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Abstract

When two tasks are performed simultaneously, performance often declines in one or both tasks. These so-called dual-task costs are more pronounced in old than in young adults. One proposed neurological mechanism of the dual-task costs is that old compared with young adults tend to execute single-tasks with higher brain activation. In the brain regions that are needed for both tasks, the reduced residual capacity may interfere with performance of the dual-task. This competition for shared brain regions has been called structural interference. The purpose of the study was to determine whether structural interference indeed plays a role in the age-related decrease in dual-task performance. Functional magnetic resonance imaging (fMRI) was used to investigate 23 young adults (20-29 years) and 32 old adults (66-89 years) performing a calculation (serial subtraction by seven) and balance-simulation (plantar flexion force control) task separately or simultaneously. Behavioral performance decreased during the dual-task compared with the single-tasks in both age groups, with greater dual-task costs in old compared with young adults. Brain activation was significantly higher in old than young adults during all conditions. Region of interest analyses were performed on brain regions that were active in both tasks. Structural interference was apparent in the right insula, as quantified by an age-related reduction in upregulation of brain activity from single- to dual-task. However, the magnitude of upregulation did not correlate with dual-task costs. Therefore, we conclude that the greater dual-task costs in old adults were probably not due to increased structural interference.

PDF Y Endnote Y

The association between body adiposity measures, postural balance, fear of falling, and fall risk in older community-dwelling women

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J. Geriatr. Phys. Ther. 2017; ePub(ePub): ePub.

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Abstract

BACKGROUND AND PURPOSE: Recent investigations demonstrate an association between obesity and the propensity of older adults to fall. The aim of this study was to investigate the association between body adiposity measures, postural balance, fear of falling, and risk of falls in older women.

METHODS: One hundred forty-seven volunteers took part in this cross-sectional study. Participants underwent body composition assessment using dual-energy x-ray absorptiometry and had body mass index, waist circumference (WC), and body adiposity index measured. Postural balance was assessed using a force platform, while fear of falling and risk of falls were, respectively, evaluated by the Falls Efficacy Scale-International and the QuickScreen Clinical Falls Risk Assessment.

RESULTS AND DISCUSSION: All adiposity measures were correlated to at least 1 postural stability parameter and to fear of falling ($\rho = 0.163$, $P < .05$ to $r = 0.337$, $P < .001$); however, WC was the index most strongly correlated to risk of falls ($\rho = 0.325$; $P < .001$). When obesity was classified using WC, it was observed that compared with nonobese individuals ($n = 51$), obese individuals ($n = 96$) exhibited greater center of pressure displacement in the anteroposterior and mediolateral axes, especially during conditions with feet apart ($P < .05$). The obese group also exhibited an increased fear of falling (28.04 vs 24.59; $P = .002$) and had a higher proportion of individuals with increased fall risk (72% vs 35%; $P < .001$).

CONCLUSION: In summary, adiposity measures are associated with risk of falls in older women, which might be mediated by reduced postural balance and increased fear of falling. Among these indices, WC, an easy and low-cost assessment, demonstrated the strongest association with falls-related outcomes.

PDF N Endnote Y

The epidemiology of hip fractures across western Victoria, Australia

Holloway KL, Sajjad MA, Mohebbi M, Kotowicz MA, Livingston PM, Khasraw M, Hakkennes S, Dunning TL, Brumby S, Page RS, Pedler D, Sutherland A, Venkatesh S, Brennan-Olsen SL, Williams LJ, Pasco JA.

Bone 2017; ePub(ePub): ePub.

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Abstract

BACKGROUND: Hip fractures are associated with considerable morbidity and mortality. Hip fracture incidence varies across different levels of accessibility/remoteness and socioeconomic status (SES). As part of the Ageing, Chronic Disease and Injury Study, we aimed to map the pattern of hip fractures across the western region of the Australian state of Victoria, which contains a range of remoteness levels and SES.

METHODS: Data on hip fractures resulting in hospital admission were extracted from the Victorian Admitted Episodes Dataset (VAED) for men and women aged 40+ years during 2010-2013 inclusive. An age-adjusted incidence rate (per 10,000 population/year) was calculated for the entire region. Crude incidence rates and length of acute care hospital stay (excluding rehabilitation) were calculated for each Local Government Area (LGA). The impact of aggregated age, accessibility/remoteness index of Australia (ARIA) and SES on hip fracture rates aggregated across LGAs was determined using Poisson regression.

RESULTS: For men, the age-standardised rate of hospitalisations for hip fracture across the whole region was 19.2 per 10,000population/year (95%CI 18.0-20.4) and for women, 40.0 (95%CI 38.3-41.7). The highest incidence rates for both sexes occurred in the less accessible LGAs of Yarriambiack and Hindmarsh, as well as the LGA with the lowest SES, Central Goldfields. In both sexes, approximately two thirds of individuals were discharged from acute hospital care within 14days. Increasing age, higher remoteness and lower SES were all associated with higher hip fracture rates. **CONCLUSION:** Crude incidence rates varied by location. Given that a high proportion of patients had acute hospital care of ≤ 14 days, and accessibility and SES were associated with hip fracture rates, these results can inform policy and provide a model for other groups to conduct similar research in their local environment.

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Transport to the emergency department for assisted living residents who fall

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Abstract [Abstract unavailable]

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Traumatic brain injury profile of an elderly population in Puerto Rico

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DOI unavailable

PMID 29220069

Abstract

OBJECTIVE: Describe the types of traumatic brain injury secondary to falls sustained by the members of an elderly population who received services at the Puerto Rico Medical Center and the demographic profile of that population.

METHODS: A group of 332 adults (60 years and over) assessed for traumatic brain injury secondary to falls suffered in 2013 were included in the analysis. The cases were retrieved from the computerized database of the Neurosurgery Section. We analyzed information such as age, gender, type of traumatic brain injury, mechanism of injury, and the performance of surgery (if applicable). Descriptive analysis was performed to derive a general profile of elderly adults who presented with traumatic brain injury secondary to falls.

RESULTS: The sample consisted of 332 elderly adults: 73% were men and 27% were women. The mean age was 76.74 (SD=9.95) years: 75.67 (SD=9.78) for men and 79.13 (SD=10.02) for women. The most common traumatic brain injury was subdural hematoma (51%) and the mechanism of injury most prevalent was the groundlevel fall (83%). Other traumatic brain injuries included traumatic subarachnoid hemorrhages (14%), cerebral contusions (18%) and epidural hematomas (3%). Of all the cases, 52% had were managed surgically.

CONCLUSION: The elderly population is growing and the risk of falls increases with advancing age. Recurrent falls are an important cause of morbidity, and mortality rates oscillate from 6 to 18%.

Elderly patients have longer rehabilitation times, incur more expenses, and have greater levels of disability. This study provides a platform for future epidemiological studies to help develop strategies for the prevention of traumatic brain injury in older adults.

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Validity and responsiveness to change of the 30-second chair-stand test in older adults admitted to an emergency department

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Abstract

BACKGROUND AND PURPOSE: Few physical performance measurement tools are validated for acutely admitted older adults, and for this reason we aimed to examine the validity and responsiveness to change of the 30-second Chair-Stand Test (30s-CST) used to assess physical performance in older adults admitted to a short-stay unit in an emergency department.

METHODS: Construct validity of the 30s-CST, using 8 as a cutoff point for dependency in activities of daily living, was examined using 207 patients. Self-reported information on everyday activities was obtained by asking patients about need for help in bathing, dressing, cooking, cleaning, and shopping. Concurrent validity of the 30s-CST compared with the de Morton Mobility Index (DEMMI) on physical performance of acutely admitted older adults was examined with 156 patients. The analysis of concurrent validity included the entire DEMMI and 2 subsets of DEMMI: "DEMMI walking" and "DEMMI dynamic balance." The responsiveness to change in the 30s-CST compared with DEMMI was examined with 117 patients. All patients were classified as having either low physical performance (30s-CST \leq 8) or high physical performance (30s-CST $>$ 8); these groups were used in the analysis of validity and responsiveness to change.

RESULTS AND DISCUSSION: Regarding construct validity using 8 as a cutoff point, the study showed a significant difference between patients with low physical performance compared with patients with high physical performance. Moreover, a decrease in the 30s-CST was followed by an increase in the need for help with everyday activities. There was a significant association between the 30s-CST and DEMMI ($r = 0.72$); for every extra repetition in the 30s-CST, the DEMMI score increased by 4.9. There was a significant association between the 30s-CST and the 2 subsets "DEMMI walking" and "DEMMI dynamic balance"; yet, a pronounced floor effect was found in the subsets. The analysis demonstrated a very wide prediction interval, indicating that DEMMI has a better responsiveness to change than the 30s-CST, especially in older adults with low physical performance. However, the 30s-CST is easier and faster to use than DEMMI.

CONCLUSION: This study found a significant difference in the patients' need for help with everyday activities when comparing low and high physical performance groups. The concurrent validity of the 30s-CST was acceptable in assessing physical performance in older adults at the time of admission; the 30s-CST is thus a tool that is easy to use in older adults with acute disease. In contrast, based on very wide prediction intervals, DEMMI demonstrated better responsiveness to change than the 30s-CST, especially in older adults with low physical performance.

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A systematic review of the gait characteristics associated with cerebellar ataxia

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Gait Posture 2017; 60: 154-163.

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Abstract

BACKGROUND: Cerebellar Ataxias are a group of gait disorders resulting from dysfunction of the cerebellum, commonly characterised by slowly progressing incoordination that manifests as problems with balance and walking leading to considerable disability. There is increasing acceptance of gait analysis techniques to quantify subtle gait characteristics that are unmeasurable by current clinical methods This systematic review aims to identify the gait characteristics able to differentiate between Cerebellar Ataxia and healthy controls.

METHODS: Following systematic search and critical appraisal of the literature, gait data relating to preferred paced walking in Cerebellar Ataxia was extracted from 21 studies. A random-effect model meta-analysis was performed for 14 spatiotemporal parameters. Quality assessment was completed to detect risk of bias.

RESULTS: There is strong evidence that compared with healthy controls, Cerebellar Ataxia patients walk with a reduced walking speed and cadence, reduced step length, stride length, and swing phase, increased walking base width, stride time, step time, stance phase and double limb support phase with increased variability of step length, stride length, and stride time.

CONCLUSION: The consensus description provided here, clarifies the gait pattern associated with ataxic gait disturbance in a large cohort of participants. High quality research and reporting is needed to explore specific genetic diagnoses and identify biomarkers for disease progression in order to develop well-evidenced clinical guidelines and interventions for Cerebellar Ataxia.

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Personal emergency alarms: do health outcomes differ for purchasers and nonpurchasers?

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Abstract

The objective of this study was to assess whether purchasing a personal alarm service makes a difference in a range of health outcomes for community dwelling older adults. The prospective cohort study involved 295 individuals for whom data on emergencies experienced at home were collected over a period of 12 months. Purchasers of alarms, compared to nonpurchasers, benefitted in terms of feeling more safe and secure and being more active around their home. Outcomes experienced after an emergency were similar for both groups with no differences found in terms of time spent on floor, or hospitalizations.

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Visual impairment as an independent risk factor for falls in hospitalized patients

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Abstract

OBJECTIVE: To investigate the association between visual impairment and the risk of falls in hospitalized patients.

DESIGN: Individually matched case-control study.

METHODS: The medical records of patients who fell while hospitalized at Juntendo Tokyo Koto Geriatric Medical Center (JTKGMC) from January to December 2014 were reviewed retrospectively. Among them, 36 patients who were recorded as visiting the Ophthalmology Outpatient Clinic from 1 year before to 1 year after the fall were included as cases. As the control subjects, 36 individually matched patients were chosen who were hospitalized in the same beds in the same hospital wards. Visual impairment and blindness were defined according to U.S. criteria. Conditional logistic regression analysis was used for both univariate and multivariate analyses. Based on previous reports, multivariate analysis was performed with adjustment for age, sex, a history of falls, and use of walking aids. This study was approved by the institutional review board of JTKGMC and was performed according to the tenets of the Declaration of Helsinki.

RESULTS: The crude odds ratio (OR) for visual impairment was 6.0 (95% confidence interval [CI]: 0.72-49.83). For a history of falls and use of walking aids, the crude OR (95% CI) was 2.5 (0.97-6.44) and 2.8 (0.88-8.64), respectively. After adjustment for age, sex, a history of falls, and use of walking aids, the association between falls and visual impairment was significant (OR: 13.9; 95% CI: 1.0004-194.41).

CONCLUSION: These findings suggest that visual impairment could be an independent risk factor for falls among hospitalized patients.

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