Medications and Falls

This document contains all abstracts for publications relating to medications and falls from October 2019 through to December 2019. These abstracts have been sourced from SafetyLit.org and include only those relevant to falls prevention.

SafetyLit provides weekly abstracts of peer reviewed articles from researchers who work in the more than 30 distinct professional disciplines relevant to preventing and researching unintentional injuries, violence, and self-harm. Each week citations and summaries of about 400 articles and reports are included in a PDF document or through an RSS subscription.

Contents:

The effect of therapeutic exercises on balance, quality of life and pain in patients who were receiving neurotoxic chemotherapy

Bahar-Ozdemir Y, Akyuz G, Kalkandelen M, Yumuk F. Am. J. Phys. Med. Rehabil. 2019; ePub(ePub): ePub.

Affiliation

Marmara University Medical School, Department of Clinical Oncology, Istanbul, Turkey.

DOI

10.1097/PHM.0000000000000013

24 **PMID**

31592877

Abstract

OBJECTIVE: To evaluate the effect of lower extremity strengthening and balance exercises on balance, quality of life (QoL) and neuropathic pain (NP) of the cancer patients receiving neurotoxic chemotherapy (N-CTX).

DESIGN: Patients who were planning to receive N-CTX agents were included in the first group. They were trained before the N-CTX sessions with the 10-week home-based exercise program including lower extremity strengthening and balance exercises. The second group of patients who had received the 3 cycle of N-CTX had no exercise program. Both groups were evaluated after the 3 cycle. Neurocom Balance Master and Berg Balance Scale (BBS) were used to evaluate balance. The NP was questioned by PainDETECT questionnaire (PD-Q) and the QoL was assessed with EORTC QLQ-C30.

RESULTS: Sixty patients were admitted to this study. Twenty-four patients were in the exercise group (F=14, M=10) and 36 patients were in the control group (F=17, M=19). Socio-demographic and clinical data of both groups were similar. BBS ($p=0.005$), EORTC QLQ-C30 global QoL, physical function and emotional status were higher, symptom scores and PD-Q score were lower in the exercise group ($p<0.05$). Balance tests were different between the groups.

CONCLUSION: Strengthening and balance exercises have a valuable effect on balance, QoL and NP in patients receiving N-CTX.

Language: en

Serotonin receptor inhibitor is associated with falls independent of frailty in older adults

Lin SM, Borges MK, de Siqueira ASS, Biella MM, Jacob-Filho W, Cesari M, Voshaar RCO, Aprahamian I. Aging Ment. Health 2019; ePub(ePub): ePub.

Affiliation

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DOI

10.1080/13607863.2019.1675143

PMID

31603040

Abstract

Objectives: To evaluate whether fall risk in older adults is associated with the use of selective serotonin receptor inhibitor (SSRI) monotherapy among geriatric outpatients, and whether this association is moderated by the presence of depressive disorder and/or frailty. Methods: Prospective cohort study with a 12-month follow-up and including 811 community-dwelling adults aged 60 or older from a university-based Geriatric Outpatient Unit. Major depressive disorder (MDD) was diagnosed according to DSM-5 criteria; subsyndromal depression as not meeting MDD criteria, but a Geriatric Depression Scale 15-item score ≥ 6 points. Frailty was evaluated with the FRAIL questionnaire. The association between SSRI use, depression, or both as well as the association between SSRI use, frailty, or both with falls were estimated through a generalized estimating equation (GEE) adjusted for relevant confounders. Results: At baseline, 297 patients (36.6%) used a SSRI (82 without remitted depression) and 306 (37.7%) were classified as physically frail. Frailty was more prevalent among SSRI users (44.8% versus 33.7%, p =.004). After 12 months, 179 participants had at least one fall (22.1%). SSRI use, depression as well as frailty were all independently associated with falls during follow-up. Nonetheless, patients with concurrent of SSRI usage and non-remitted depression had no higher risk compared to either remitted SSRI users or depressed patients without SSRIs. In contrast, concurrence of SSRI use and frailty increases the risk of falling substantially above those by SSRI usage or frailty alone. Conclusion: SSRI usage was independently associated with falls. Especially in frail-depressed patients, treatment strategies for depression other than SSRIs should be considered.

Language: en

Keywords

Depression; antidepressants; falls; frailty; older adults

The Fall Risk with Alpha blockers Given InitiaL dose or Elderly status (FRAGILE) study

McDonnell CC, Rogers KC, Regen SM, Finks SW. Ann. Pharmacother. 2019; ePub(ePub): ePub.

Affiliation

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DOI

10.1177/1060028019880305

PMID

31578074

Abstract

Background: α-1 adrenergic antagonists are commonly prescribed, but there is question regarding their safety in patients at increased fall risk. Objective: The purpose of the FRAGILE study was to determine the risk for developing adverse drug events (ADEs) in veterans prescribed α-1 blockers. Methods: A single-center, retrospective, observational cohort analysis was conducted of veterans newly initiated on α-1 antagonists. Veterans were categorized into at-risk (patients who met at least 1 of 2 criteria: age 65 or older or high initial dose of α blockade) or control (veterans without either risk factor) groups. The primary outcome was the composite all-cause ADEs, including hospitalizations or emergency department (ED) visits. Secondary outcomes included number of fall-related ADEs and medication discontinuation rates with follow-up for 12 months. Results: A total of 300 veterans were evaluated. There was no significant difference in the composite outcome of all-cause ED visits between at-risk (n = 169) versus control (n = 131) groups (0.81 vs 1.17, P = 0.09) or all-cause hospitalizations (0.28 vs 0.39, P = 0.25). Seventy-three veterans in the at-risk group experienced an all-cause ADE versus 64 in the control group (P = 0.36). No significant differences in secondary outcomes were found. Fall-related side effects occurred in 8% of the total cohort. Conclusion and Relevance: Rates of all-cause or fall-related ADEs were not significantly different. An 8% discontinuation rate resulting from fall-related ADEs and high rates of coadministered medications that could increase fall risk. Pharmacists can play a key role in optimizing α-1 blocker administration.

Language: en

Keywords

elderly; fall; prazosin; syncope; α-blocker

The prevalence of Beers criteria medication use and associations with falls in geriatric patients at a Level 1 trauma center

Walker BS, Collier BR, Bower KL, Lollar DI, Faulks ER, Matos M, Nussbaum MS, Hamill ME. Am. Surg. 2019; 85(8): 877-882.

DOI

unavailable

PMID

31560307

Abstract

The Beers Criteria for Potentially Inappropriate Medication (PIM) use is a list of medications with multiple risks in older patients. Approximately 24 per cent use rate is reported in prior studies. Our objective was to determine the local PIM use and subsequent fall risk in geriatric trauma patients. We conducted a retrospective analysis of PIM use in all geriatric patients evaluated at our Level 1 trauma center between 2014 and 2017. Patients were identified from our trauma database. Pre-admission medication use was determined through medication reconciliation from our electronic medical record (EMR). Patients not undergoing medication reconciliation were excluded. After initial analysis, patients were stratified by age into three groups: 65 to 74, 75 to 84, and ≥85 years. Multivariate logistic regression analyses were used to calculate odds ratios of falls for specific PIMs. In all, 2181 patients met the inclusion criteria. Overall, 71.2 per cent of geriatric trauma patients were prescribed at least one PIM-73.1 per cent of falls compared with 68.6 per cent for other mechanisms. Specific PIM use varied by age group. PIMs associated with fall risk in all patients included antipsychotics, benzodiazepines, and diclofenac. For those aged 65 to 74 years, antihistamines, diclofenac, proton pump inhibitors, and promethazine were associated. In those aged 75 to 84 years, alprazolam, antipsychotics, benzodiazepines, cyclobenzaprine, diclofenac, and muscle relaxants were implicated. No significant associations were found for patients aged ≥85 years. PIM use at our trauma center seems to be rampant and well above the national average. Geriatric falls were associated with using ≥1 PIM and multiple specific PIMs implicated. We are designing a targeted educational program for local primary care physicians (PCPs) that will attempt to decrease geriatric PIM use.

Language: en

Evidence synthesis based on non-randomised studies-a critical review of studies leading to conclusions on fall risk properties of loop diuretics/beta-blockers

Wallerstedt SM, Hoffmann M. Eur. J. Clin. Pharmacol. 2019; ePub(ePub): ePub.

Affiliation

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DOI 10.1007/s00228-019-02754-6

PMID

31599346

Abstract

PURPOSE: To describe methodological and reporting issues in non-randomised comparative drug safety studies pooled in meta-analyses, with focus on confounding by indication.

METHODS: All studies included in statistically significant meta-analyses in a recent publication investigating fall risk properties of cardiovascular drugs were reviewed. Study characteristics were extracted and assessed.

RESULTS: Nine studies, including between 498 and 321,995 individuals, contributed data to the significant meta-analyses in which loop diuretics and beta-blockers were associated with falls, five published in 2015. Five individual studies reported a statistically significant association. In the five cohort studies, characteristics of exposed vs unexposed individuals were either not reported (n = 3) or differed substantially regarding morbidity (n = 2). Drug treatment was determined at baseline, and data on falls were collected for up to 2 years thereafter. Out of the four case-control studies, the cases and controls in only one study were matched for morbidity. Morbidity characteristics of fallers compared with non-fallers were either not reported (n = 2) or they differed (n = 1) or were reported according to the matched- for diseases (n = 1). Confounding by indication was explicitly discussed in two studies. None of the abstract conclusions considered causality issues or the possibility of confounding by indication.

CONCLUSIONS: Confounding by indication is a major issue in non-randomised comparative drug safety studies, a problem which may be concealed in meta-analyses. To enhance such research, compared groups need to be balanced regarding relevant factors including morbidities and characteristics adequately reported. Confounding by indication needs to be explicitly discussed and highlighted in the abstract conclusion.

Language: en

Keywords Cardiovascular drugs; Confounding by indication; Drug safety; Evidence-based medicine; Falls; Pharmacoepidemiology

Predictors of hip fracture despite treatment with bisphosphonates among frail older adults

Zullo AR, Sorial MN, Lee Y, Lary CW, Kiel DP, Berry SD. J. Am. Geriatr. Soc. 2019; ePub(ePub): ePub.

Affiliation

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 DOI 10.1111/jgs.16176 **PMID** 31580488

Abstract

OBJECTIVES: Bisphosphonates are effective at preventing hip fractures among older adults, yet many patients still fracture while on treatment and may benefit from additional preventive interventions. Little data are specifically available to target such efforts among bisphosphonate users. We aimed to identify predictors of hip fracture unique to frail older adults initiating pharmacologic treatment for osteoporosis.

DESIGN: Retrospective cohort using 2008-2013 linked national Minimum Data Set assessments, Medicare claims, and nursing home (NH) facility data. SETTING: NHs in the United States. PARTICIPANTS: Long-stay NH residents 65 years or older who initiated treatment with a bisphosphonate (N = 17 753). Estimates for bisphosphonate initiators were contrasted with those for calcitonin initiators (control group; N = 5348). MEASUREMENTS: Hospitalized hip fracture outcomes were measured using Part A claims. Hazard ratios (HRs) and 95% confidence intervals (CIs) were estimated for 36 a priori selected potential predictors.

RESULTS: The mean (SD) age of the study population was 84 (8) years, 85% were women, and 51% had moderate to severe cognitive impairment. Predictors associated with a higher risk of hip fracture despite bisphosphonate use included age 75 years or older to 85 years (vs ≥65 to <75 y; HR = 1.25; 95% CI = 1.02-1.55), female sex (HR = 1.33; 95% CI = 1.06-1.67), white race (vs black race (HR = 1.87; 95% CI = 1.36-2.58), and body mass index = 18.5-24.9 (vs ≥30; HR = 1.93; 95% CI = 1.53-2.42). Independent ability to transfer (vs total dependence; HR = 3.11; 95% CI = 1.83-5.30) and occasional urinary incontinence (vs frequent; HR = 1.45; 95% CI = 1.18-1.78) were also important predictors. Dementia, diabetes, psychoactive drug use, and other characteristics were not associated with post-prescribing hip fracture. Predictors did not differ between bisphosphonate and calcitonin users.

CONCLUSION: Predictors of hip fracture among frail older adults did not differ between those who were new users of bisphosphonates vs calcitonin. Given the absence of risk factors unique to bisphosphonate users, targeting of fracture prevention efforts should extend beyond pharmacologic therapy to include existing nonpharmacologic therapies, particularly fall prevention strategies.

Dehydroepiandrosterone sulfate and fall risk in older people: sex differences in the Pro.V.A. longitudinal study

Carrer P, Trevisan C, Franchin A, Volpe ED, Rancan A, Zanforlini BM, Maggi S, Noale M, Corti MC, Perissinotto E, Manzato E, Sergi G. Maturitas 2019; 128: 43-48.

Affiliation

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DOI

10.1016/j.maturitas.2019.07.003

PMID

31561822

Abstract

BACKGROUND: The effect of dehydroepiandrosterone sulfate (DHEA-S) on fall risk in older age is still unclear, as is the effect of sex on any relationship between the two. Our aim was to evaluate the association between DHEA-S and the risk of falls and risk of recurrent falls in community-dwelling older men and women.

METHODS: We included 1949 (781 M, 1168 F) older adults enrolled in the Progetto Veneto Anziani study. Baseline serum DHEA-S levels were analyzed by immunoassay. The number of falls reported in the year preceding the 4.4-year follow-up assessment was collected. The association between DHEA-S and falls was analyzed by multinomial logistic regression, adjusting for potential confounders and considering death as alternative outcome.

RESULTS: After the follow-up, 548 (36.8%) individuals reported at least one fall in the previous year, and 214 (14.4%) reported ≥2 falls (recurrent falls). Each 1-standard deviation (SD) increase in log-transformed DHEA-S level reduced the odds of experiencing at least one fall by 9% (95%CI:0.88-0.95), and the risk of recurrent falls by 16% (95%CI:0.79-0.89). The highest DHEA-S tertile was 27% (95%CI:0.65-0.83) less likely to experience recurrent falls than the lowest tertile. The analyses, stratified by sex, suggested a strong association between DHEA-S and the fall risk for women (OR = 0.91; 95%CI:0.87-0.95 for at least one fall; OR = 0.83, 95%CI:0.78-0.89 for recurrent falls per each 1-SD increase in log-transformed DHEA-S); non-significant results were observed among men.

CONCLUSIONS: Higher levels of DHEA-S are associated with a lower risk of falls and recurrent falls in older people, especially women.

Language: en

Keywords

Dehydroepianstosterone sulfate; Falls; Older age; Sex differences

GAPcare: the Geriatric Acute and Post-Acute Fall Prevention intervention in the emergency department: preliminary data

Goldberg EM, Marks SJ, Ilegbusi A, Resnik L, Strauss DH, Merchant RC. J. Am. Geriatr. Soc. 2019; ePub(ePub): ePub.

Department of Epidemiology, Brown University School of Public Health, Providence, Rhode Island.

DOI

10.1111/jgs.16210

PMID

31621901

Abstract

OBJECTIVES: We aimed to describe a new multidisciplinary team fall prevention intervention for older adults who seek care in the emergency department (ED) after having a fall, assess its feasibility and acceptability, and review lessons learned during its initiation.

DESIGN: Single-blind randomized controlled pilot study. SETTING: Two urban academic EDs PARTICIPANTS: Adults 65 years old or older (n = 110) who presented to the ED within 7 days of a fall. INTERVENTION: Participants were randomized to a usual care (UC) and an intervention (INT) arm. Participants in the INT arm received a brief medication therapy management session delivered by a pharmacist and a fall risk assessment and plan by a physical therapist (PT). INT participants received referrals to outpatient services (eg, home safety evaluation, outpatient PT). MEASUREMENTS: We used participant, caregiver, and clinician surveys, as well as electronic health record review, to assess the feasibility and acceptability of the intervention.

RESULTS: Of the 110 participants, the median participant age was 81 years old, 67% were female, 94% were white, and 16.3% had cognitive impairment. Of the 55 in the INT arm, all but one participant received the pharmacy consult (98.2%); the PT consult was delivered to 83.6%. Median consult time was 20 minutes for pharmacy and 20 minutes for PT. ED length of stay was not increased in the INT arm: UC 5.25 hours vs INT 5.0 hours (P < .94). After receiving the Geriatric Acute and Post-acute Fall Prevention Intervention (GAPcare), 100% of participants and 97.6% of clinicians recommended the pharmacy consult, and 95% of participants and 95.8% of clinicians recommended the PT consult.

CONCLUSION: These findings support the feasibility and acceptability of the GAPcare model in the ED. A future larger randomized controlled trial is planned to determine whether GAPcare can reduce recurrent falls and healthcare visits in older adults.

Language: en

Keywords emergency department; falls; injury prevention; pharmacist; physical therapy

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

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

Affiliation

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DOI

10.1177/2042098619868640

PMID

31632633

Abstract

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

Language: en

Keywords

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

High prevalence of fall-related medication use in older veterans at risk for falls

Elias AM, Ogunwale AN, Pepin MJ, Bailey JC, Adams AD, Colón-Emeric CS, Vognsen JD, Schmader KE, Pavon JM. J. Am. Geriatr. Soc. 2019; ePub(ePub): ePub.

Affiliation

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DOI

10.1111/jgs.16233

PMID

31657005

Abstract

Falls are a common and costly medication-related safety event in older adults.1 Suboptimal medication use is a major modifiable risk factor for falls,2 and polypharmacy is an independent risk factor for falls among older adults.3, 4 Therefore, deprescribing fall-related medications, defined as a systematic approach to discontinuing or reducing high-risk medications to avoid adverse health outcomes,5 is a critical step in fall prevention.

To inform the development of pragmatic deprescribing interventions for this high-risk population, the goal of this study is to determine the proportion of veterans, aged 65 years and older, at high risk of falls using the electronic health record (EHR) and to quantify the prevalence of high-risk medication use in this population ...

Language: en

Effects of benzodiazepines on orthostatic blood pressure in older people

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

Affiliation

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DOI 10.1016/j.ejim.2019.10.032 **PMID** 31706708

Abstract

BACKGROUND: Older people taking benzodiazepines (BDZs) have higher risk of falling, which is mainly attributed to cognitive and psychomotor effects. BDZs may also have hypotensive effects. We investigated the association between BDZs and orthostatic blood pressure behaviour in older people.

METHODS: We retrospectively analysed data from an outpatient clinic where people aged 60 or older underwent a geriatric assessment. Non-invasive beat-to-beat orthostatic systolic blood pressure (SBP) was assessed at regular time intervals before and after an active stand test. We compared clinical characteristics between BDZs users and non-users and also investigated if BDZs use was an independent predictor of baseline SBP. Factors associated with SBP change were investigated using a repeated measures general linear model.

RESULTS: Of 538 participants (67.7% female, mean age 72.7), 33 (6.1%) reported regular BDZs use. BDZ users had lower baseline SBP (149 versus 161 mmHg, $P < 0.05$). Multiple linear regression confirmed BDZs use as independent predictor of baseline SBP in N = =538. At 10 s post-stand, the SBP difference between BDZs use groups became maximum (21 mmHg); at this point, SBP still seemed to be decreasing in BDZ-users, whereas in controls it seemed to be recovering. After adjustment (age, sex, hypertension, frailty, comorbidity, antihypertensives), BDZs were associated with greater SBP reduction between baseline and 10 s post-stand ($P < 0.05$).

CONCLUSION: Older people taking BDZs may have a higher risk of orthostatic hypotension, perhaps due to an exaggerated immediate BP drop. This adds to other BDZ-related falls risks. BDZs should be avoided in older people at risk of falling.

Language: en

Keywords

Benzodiazepines; Blood pressure; Falls; Older people; Orthostatism

Potential drug interactions in drug therapy prescribed for older adults at hospital discharge: cross-sectional study

Dias BM, Santos FSD, Reis AMM. Sao Paulo Med. J. 2019; 137(4): 369-378.

Affiliation

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DOI 10.1590/1516-3180.2019.013405072019

PMID 31691770

Abstract

BACKGROUND: Older adults with a range of comorbidities are often prescribed multiple medications, which favors drug interactions.

OBJECTIVES: To establish the frequency of potential drug interactions in prescriptions at hospital discharge among older adults and to identify the associated factors. DESIGN AND SETTING: Cross-sectional study conducted in a public hospital.

METHODS: An initial face-to-face interview, data collection from the electronic medical records (covering sociodemographic, clinical, functional and drug therapy-related variables) and telephone follow-up after discharge were conducted to confirm the medication prescribed at discharge. Drug interactions were identified through the Micromedex DrugReax software, along with interactions that should be avoided among the elderly, as per the 2015 American Geriatric Society/Beers criteria. Multivariable logistic regression was performed.

RESULTS: Potential for drug interactions was identified in the discharge drug therapy of 67.8% of the 255 older adults evaluated (n = 172), and 54.5% (n = 145) of the drug interactions were major. Among the drug interactions that should be avoided among older adults, those that increase the risk of falls were the most frequent. The drug interactions thus identified were independently associated with polypharmacy (odds ratio, OR = 12.62; 95% confidence interval, CI 6.25-25.50; P = 0.00), diabetes mellitus (OR = 2.16; 95% CI 1.05-4.44; P = 0.04), hypothyroidism (OR = 7.29; 95% CI 2.03-26.10; P = 0.00), chronic kidney disease (OR = 3.41; 95% CI 1.09-10.64; P = 0.03) and hospitalization in geriatric units (OR = 0.45; 95% CI 0.22-0.89; P = 0.02).

CONCLUSION: The frequency of potential drug interactions in drug therapy prescribed at discharge for these older adults was high. Polypharmacy, diabetes mellitus, hypothyroidism and chronic kidney disease were positively associated with occurrences of drug interactions, while hospitalization in geriatric units showed an inverse association.

Language: en

Impact of vitamin D supplementation on falls and fractures - a critical appraisal of the quality of the evidence and an overview of the available guidelines

Chakhtoura M, Chamoun N, Rahme M, El-Hajj Fuleihan G. Bone 2019; ePub(ePub): ePub.

Calcium Metabolism and Osteoporosis Program, WHO Collaborating Center for Metabolic Bone Disorders, American University of Beirut Medical Center, P.O. Box: 113, 6044/C8, Beirut, Lebanon.

DOI 10.1016/j.bone.2019.115112 **PMID** 31676406

Abstract

INTRODUCTION: The beneficial effect of vitamin D supplementation on musculo-skeletal outcomes have been recently questioned and recommendations regarding supplementation vary widely. The aim of this paper is to systematically assess the quality of the evidence evaluating the effect of vitamin D supplementation on falls and fractures.

METHODS: We conducted a systematic search in Medline, PubMed, and Embase and selected systematic reviews (SRs) / meta-analyses (MAs) of randomized controlled trials (RCTs) on vitamin D supplementation and falls or fracture, published between 2012 - 2018. We identified 5 MAs of RCTs on falls, 4 on fractures and 4 on both outcomes. We applied the critical appraisal tool "A MeaSurement Tool to Assess systematic Reviews" - AMSTAR- to assess the quality of the identified MAs.

RESULTS: Vitamin D and calcium supplementation (CaD), compared to calcium only or placebo, may reduce the risk of falls, in institutionalized individuals and/or those from the community, but the data is inconsistent. The largest and most consistent evidence for a protective effect of CaD, compared to placebo or control, is in reducing the risk of hip fracture, by 16-33%, and any fracture, by 5-19%. This effect was demonstrated when combining trials in community-dwelling and institutionalized individuals, potentially driven by data from institutionalized individuals as shown in 3 SRs/MAs. Major limitations to the quality of the evidence include variability in the methodology of MAs, but more importantly, differences between trials in terms of subjects' characteristics, vitamin D regimens, outcome definition and ascertainment, risk of bias, trial duration and/or low power. The quality of the included MAs was moderate to critically low.

CONCLUSIONS: While the effect on falls is inconsistent, CaD reduces the risk of fracture (hip and any fracture), as shown in meta-analyses pooling data of studies combining institutionalized and community individuals. The evidence is however limited by major shortcomings and heterogeneity.

Language: en

Keywords

AMSTAR; falls; fractures; meta-analysis; vitamin D

Critical thinking about three meta-analyses: can vitamin D alone or with calcium prevent fractures?

Fan H, Xiao J. Curr. Med. Res. Opin. 2019; ePub(ePub): ePub.

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DOI

10.1080/03007995.2019.1687432

PMID

31670980

Abstract

Critical thinking is crucially important in both research and practice. This article demonstrates that a lack of critical thinking in two meta-analyses resulted in a conclusion that contradicts another meta-analysis and popular opinions.Kahwati et al. and Zhao et al. drew a conclusion that "Vitamin D supplementation alone or with calcium was not associated with reduced fracture incidence among community-dwelling adults without known vitamin D deficiency, osteoporosis, or prior fracture", which apparently contradicted that of Tang et al.Kahwati et al. and Zhao et al. meta-analyzed vitamin D and/or calcium supplementation, which can decrease fracture risk factors, in a population with no known disorders of bone metabolism or vitamin D deficiency. They concluded that supplementation did not reduce fracture incidence. It is important to note that osteoporosis, which supplementation can prevent, and fractures are two distinct concepts.Zhao et al. presented their conclusion without including the conditions under which their conclusion was true. Subsequently, their conclusion was misleadingly interpreted by the public media as "Vitamin D and Calcium Don't Prevent Bone Fractures" and "Vitamin D Does Not Prevent Falls, Calcium Does Not Prevent Fractures-A $2 Billion Waste of Money".If study conclusions do not specify the applicable conditions, guidelines on medications, including supplements, are clinically unacceptable. Researchers must critically think about every step of their studies, including the way their conclusions are presented.

Language: en

Keywords

calcium; critical thinking; fractures; osteoporosis prevention; vitamin D

Association of antidepressants with recurrent, injurious and unexplained falls is not explained by reduced gait speed

Donoghue OA, Briggs R, Moriarty F, Kenny RA. Am. J. Geriatr. Psychiatry 2019; ePub(ePub): ePub.

Affiliation

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DOI 10.1016/j.jagp.2019.10.004 **PMID** 31727515

Abstract

OBJECTIVE: To examine if antidepressants at baseline are associated with falls and syncope over 4 years follow-up and if any observed associations are explained by baseline gait speed.

DESIGN: Longitudinal study (three waves). SETTING: The Irish Longitudinal Study on Ageing (TILDA), a nationally representative cohort study. PARTICIPANTS: Two thousand ninety-three community-dwelling adults aged ≥60 years. MEASUREMENTS: Antidepressants (ATC code "N06A") were identified. Recurrent falls (≥2 falls), injurious falls (requiring medical attention), unexplained falls, and syncope were reported at either Wave 2 or 3. Usual gait speed was the mean of two walks on a 4.88 m GAITRite walkway. Poisson regression analysis was used to examine associations between baseline antidepressant use and future falls adjusting for sociodemographics, physical, cognitive and mental health, and finally, gait speed.

RESULTS: Compared to non-antidepressant users, those on antidepressants at baseline were more likely to report all types of falls (24.8-40.7% versus 9.8-18%) at follow-up. Antidepressants at baseline were independently associated with injurious falls (incidence risk ratio: 1.58, 95% confidence interval: 1.21, 2.06, z = 3.38, p = 0.001, df = 32) and unexplained falls (incidence risk ratio: 1.49, 95% confidence interval: 1.04, 2.15, z = 2.17, p = 0.030, df = 32) independent of all covariates including gait speed.

CONCLUSION: There was little evidence to support the hypothesis that gait would (partly) explain any observed associations between baseline use of antidepressants and future falls. The underlying mechanisms of the observed relationships may be related to depression, vascular pathology, or direct effects of antidepressants. Clinicians should identify the best treatment option for an individual based on existing risk factors for outcomes such as falls.

Language: en

Keywords

Medication; depression; fall; mobility

Root cause analysis of fall-related hospitalisations among residents of aged care services

Sluggett JK, Lalic S, Hosking SM, Ilomäki J, Shortt T, McLoughlin J, Yu S, Cooper T, Robson L, Van Dyk E, Visvanathan R, Bell JS. Aging Clin. Exp. Res. 2019; ePub(ePub): ePub.

Affiliation

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DOI 10.1007/s40520-019-01407-z **PMID** 31728845

Abstract

BACKGROUND: Fall-related hospitalisations from residential aged care services (RACS) are distressing for residents and costly to the healthcare system. Strategies to limit hospitalisations include preventing injurious falls and avoiding hospital transfers when falls occur. AIMS: To undertake a root cause analysis (RCA) of fall-related hospitalisations from RACS and identify opportunities for fall prevention and hospital avoidance.

METHODS: An aggregated RCA of 47 consecutive fall-related hospitalisations for 40 residents over a 12-month period at six South Australian RACS was undertaken. Comprehensive data were extracted from RACS records including nursing progress notes, medical records, medication charts, hospital summaries and incident reports by a nurse clinical auditor and clinical pharmacist. Root cause identification was performed by the research team. A multidisciplinary expert panel recommended strategies for falls prevention and hospital avoidance.

RESULTS: Overall, 55.3% of fall-related hospitalisations were among residents with a history of falls. Among all fall-related hospitalisations, at least one high falls risk medication was administered regularly prior to hospitalisation. Potential root causes of falling included medication initiations and dose changes. Root causes for hospital transfers included need for timely access to subsidised medical services or radiology. Strategies identified for avoiding hospitalisations included pharmacy-generated alerts when medications associated with an increased risk of falls are initiated or changed, multidisciplinary audit and feedback of falls risk medication use and access to subsidised mobile imaging services.

CONCLUSIONS: This aggregate RCA identified a range of strategies to address resident and system-level factors to minimise fall-related hospitalisations.

Language: en

Keywords

Falls; Hospitalisation; Long-term care; Nursing home; Residential aged care; Root cause analysis

Medications acting on the central nervous system and fall-related injuries in community dwelling older adults: a new user cohort study

Gray SL, Marcum ZA, Dublin S, Walker R, Golchin N, Rosenberg DE, Bowles EJ, Crane P, Larson EB. J. Gerontol. A Biol. Sci. Med. Sci. 2019; ePub(ePub): ePub.

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Abstract

BACKGROUND: It is well established that individual medications that affect the central nervous system (CNS) increase falls risk in older adults. However, less is known about risks associated with taking multiple CNS-active medications.

METHODS: Employing a new user design, we used data from the Adult Changes in Thought study, a prospective cohort of community-dwelling people aged 65 and older without dementia. We created a time-varying composite measure of CNS-active medication exposure from electronic pharmacy fill data and categorized into mutually exclusive categories: current (within prior 30 days), recent (31-90 days), past (91-365 days), or non-use (no exposure in prior year). We calculated standardized daily dose and identified new initiation. Cox proportional hazards models examined the associations between exposures and the outcome of fall-related injury identified from health plan electronic databases.

RESULTS: 2,595 people had 624 fall-related injuries over 15,531 person-years of follow-up. KEYWORDS (not in title): Relative to non-use, fall-related injury risk was significantly greater for current use of CNS-active medication (HR 1.95; 95% CI 1.57-2.42), but not for recent or past use. Among current users, increased risk was noted with all doses. Risk was increased for new initiation compared with no current use (HR 2.81; 95% CI 2.09-3.78). Post-hoc analyses revealed that risk was especially elevated with new initiation of opioids.

CONCLUSION: We found that current use, especially new initiation, of CNS-active medications was associated with fall-related injury in community-dwelling older adults. Increased risk was noted with all dose categories. Risk was particularly increased with new initiation of opioids.

Language: en

Keywords

drug related; epidemiology; falls

Insomnia, benzodiazepine use, and falls among residents in long-term care facilities

Jiang Y, Xia Q, Wang J, Zhou P, Jiang S, Diwan VK, Xu B. Int. J. Environ. Res. Public Health 2019; 16(23): e16234623.

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10.3390/ijerph16234623

PMID

31766368

Abstract

Background: Falls are leading cause of injury among older people, especially for those living in long-term care facilities (LTCFs). Very few studies have assessed the effect of sleep quality and hypnotics use on falls, especially in Chinese LTCFs. The study aimed to examine the association between sleep quality, hypnotics use, and falls in institutionalized older people. Methods: We recruited 605 residents from 25 LTCFs in central Shanghai and conducted a baseline survey for sleep quality and hypnotics use, as well as a one-year follow-up survey for falls and injurious falls. Logistic regression models were applied in univariate and multivariate analysis. Results: Among the 605 participants (70.41% women, mean age 84.33 ± 6.90 years), the one-year incidence of falls and injurious falls was 21.82% and 15.21%, respectively. Insomnia (19.83%) and hypnotics use (14.21%) were prevalent. After adjusting for potential confounders, we found that insomnia was significantly associated with an increased risk of falls (adjusted risk ratio (RR): 1.787, 95% CI, 1.106-2.877) and the use of benzodiazepines significantly increased the risk of injurious falls (RR: 3.128, 95% CI, 1.541-6.350). Conclusion: In elderly LTCF residents, both insomnia and benzodiazepine use are associated with an increased risk of falls and injuries. Adopting non-pharmacological approaches to improve sleep quality, taking safer hypnotics, or strengthening supervision on benzodiazepine users may be useful in fall prevention.

Language: en

Keywords

benzodiazepines; falls; insomnia; long-term care; sleep quality

Use of falls risk increasing drugs in residents at high and low falls risk in aged care services

Wang KN, Bell JS, Gilmartin-Thomas JFM, Tan ECK, Cooper T, Robson L, Ilomäki J. J. Appl. Gerontol. 2019; ePub(ePub): ePub.

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10.1177/0733464819888848

PMID

31771405

Abstract

Falls are associated with considerable morbidity and mortality in aged care services and falls risk increasing drugs (FRIDs) are often overlooked as a contributor to falls. This study aims to investigate the association between the risk of falling and use of FRIDs from aged care services. Inverse-probability-weighted multinomial logistic regression was used to estimate the association between falls risk and regular FRIDs in 383 residents from six Australian aged care services. Overall, residents at high and low falls risk had similar prevalence of FRIDs. Prevalence of antipsychotics and sedative-hypnotics was low. Residents at high falls risk had higher adjusted odds of using ≥2 psychotropic medications (odds ratio [OR] = 1.75, 95% confidence interval [CI] = 1.17-2.61) and ≥2 medications that cause/worsen orthostatic hypotension (OR = 3.59, 95% CI = 2.27-5.69). High prevalence of FRIDs was mainly attributable to medications for which residents had clinical indications. Clinicians appeared to have largely avoided FRIDs that explicit criteria deem potentially inappropriate for high falls risk.

Language: en

Keywords

falls; medication; nursing homes

To STOPP or to START? Potentially inappropriate prescribing in older patients with falls and syncope

de Ruiter SC, Biesheuvel SS, van Haelst IMM, van Marum RJ, Jansen RWMM. Maturitas 2020; 131: 65-71.

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DOI

10.1016/j.maturitas.2019.10.013

Abstract

OBJECTIVES: To investigate the prevalence of potentially inappropriate prescribing (PIP) according to the revised STOPP/START criteria in older patients with falls and syncope. STUDY DESIGN: We included consecutive patients with falls and syncope aged ≥65 years at the day clinic of the Northwest Clinics, the Netherlands, from 2011 to 2016. All medication use before and after the visit was retrospectively investigated using the revised STOPP/START criteria. MAIN OUTCOME MEASURES: The prevalence/occurrence of PIP before the visit, persistent PIP after the visit, and unaddressed persistent PIP not explained in the patient's chart.

RESULTS: PIP was present in 98 % of 374 patients (mean age 80 (SD ± 7) years; 69 % females). 1564 PIP occurrences were identified. 1015 occurrences persisted (in 91 % of patients). 690 occurrences (in 80 % of patients) were not explained in the patient's chart. The most frequent unaddressed persistent forms of PIP were prescriptions of vasodilator drugs for patients with orthostatic hypotension (16 %), and benzodiazepines for >4 weeks (10 %) or in fall patients (8 %), and omission of vitamin D (28 %), antihypertensive drugs (24 %), and antidepressants (17 %). 54 % of all medication changes were initiated for reasons beyond the scope of the STOPP/START criteria.

CONCLUSIONS: Almost every patient in our study population suffered from PIP. In 80 %, PIP continued after the clinical visit, without an explanation in the patient's chart. The most frequent PIP concerned medication that increased the risk of falls or syncope, specifically vasodilator drugs and benzodiazepines. Physicians should be aware of PIP in older patients with falls and syncope. Further studies should investigate whether a structured medication review may improve clinical outcomes.

Language: en

Keywords

Falls; Older patients; Potentially inappropriate prescribing; Syncope

Why do older adults taking antidepressants fall?

Iaboni A, Mulsant BH. Am. J. Geriatr. Psychiatry 2019; ePub(ePub): ePub.

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31786145

Abstract

[Abstract unavailable]

Language: en

Use of medications with anticholinergic properties and the long-term risk of hospitalization for falls and fractures in the EPIC-Norfolk Longitudinal Cohort Study

Tan MP, Tan GJ, Mat S, Luben RN, Wareham NJ, Khaw KT, Myint PK. Drugs Aging 2019; ePub(ePub): ePub.

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Abstract

The consumption of medications with anticholinergic activity has been suggested to result in the adverse effects of mental confusion, visual disturbance, and muscle weakness, which may lead to falls. Existing published evidence linking anticholinergic drugs with falls, however, remains weak. This study was conducted to evaluate the relationship between anticholinergic cognitive burden (ACB) and the long-term risk of hospitalization with falls and fractures in a large population study. The dataset comprised information from 25,639 men and women (aged 40-79 years) recruited from 1993 to 1997 from Norfolk, United Kingdom into the European Prospective Investigation into Cancer (EPIC)-Norfolk study. The time to first hospital admission with a fall with or without fracture was obtained from the National Health Service hospital information system. Cox-proportional hazards analyses were conducted to adjust for confounders and competing risks. The fall hospitalization rate was 5.8% over a median follow-up of ~ 19.4 years. The unadjusted incidence rate ratio for the use of any drugs with anticholinergic properties was 1.79 (95% CI 1.66-1.93). The hazard ratios (95% CI) for ACB scores of 1, 2-3, and ≥ 4 compared with ACB = 0 for fall hospitalization were 1.20 (1.09-1.33), 1.42 (1.25-1.60), and 1.39 (1.21-1.60) after adjustment for age, gender, medical conditions, physical activity, and blood pressure. Medications with anticholinergic activity are associated with an increased risk of subsequent hospitalization with a fall over a 19-year follow-up period. The biological mechanisms underlying the long-term risk of hospitalization with a fall or fracture following baseline ACB exposure remains unclear and requires further evaluation.

Language: en