Medications and Falls

This document contains all abstracts for publications relating to medications and falls for 2020. 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:

Association of benzodiazepines, opioids and tricyclic antidepressants use and falls in trauma patients: conditional effect of age

Cordovilla-Guardia S, Molina TB, Franco-Antonio C, Santano-Mogena E, Vilar-López R.
PLoS One 2020; 15(1): e0227696.

Abstract

INTRODUCTION: The relationship between benzodiazepines, opioids and tricyclic antidepressants and trauma is of great importance because of increased consumption and the growing evidence of a positive association among older adults. The objective of this study was to determine the effect size of the association between the consumption of psychotropic medications /opioids and falls in patients who have suffered trauma by studying the role of other variables in this relationship.

METHOD: From 2011 to 2016, the presence of benzodiazepines, opioids and tricyclic antidepressants and other drugs in 1060 patients admitted for trauma at a level I trauma hospital was analysed. Multivariate models were used to measure the adjusted effect size of the association between consumption of benzodiazepines, opioids and tricyclic antidepressants and falls, and the effect of age on this association was studied.

RESULTS: A total of 192 patients tested positive for benzodiazepines, opioids and tricyclic antidepressants, with same-level falls being the most frequent mechanism of injury in this group (40.1%), with an odds ratio of 1.96 (1.40-2.75), $p < 0.001$. Once other covariates were introduced, this association was not observed, leaving only age, gender (woman) and, to a lesser extent, sensory conditions as variables associated with falls. Age acted as an effect modifier between benzodiazepines, opioids and tricyclic antidepressants and falls, with significant effect sizes starting at 51.9 years of age.

CONCLUSIONS: The association between the consumption of benzodiazepines, opioids and tricyclic antidepressants and falls in patients admitted for trauma is conditioned by other confounding variables, with age being the most influential confounding variable.

Language: en

The risk of head injuries associated with antipsychotic use among persons with Alzheimer's disease

Tapiainen V, Lavikainen P, Koponen M, Taipale H, Tanskanen A, Tiihonen J, Hartikainen S, Tolppanen AM. J. Am. Geriatr. Soc. 2020; ePub(ePub): ePub.

Affiliation

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Abstract

BACKGROUND/OBJECTIVES: Antipsychotic use is associated with risk of falls among older persons, but we are not aware of previous studies investigating risk of head injuries. We studied the association of antipsychotic use and risk of head injuries among community dwellers with Alzheimer's disease (AD).

DESIGN: Nationwide register-based cohort study. SETTING: Medication Use and Alzheimer's Disease (MEDALZ) cohort, Finland. PARTICIPANTS: The MEDALZ cohort includes Finnish community dwellers who received clinically verified AD diagnosis in 2005 to 2011. Incident antipsychotic users were identified from the Prescription Register and matched with nonusers by age, sex, and time since AD diagnosis (21 795 matched pairs). Persons with prior head injury or history of schizophrenia were excluded. MEASUREMENTS: Outcomes were incident head injuries (International Classification of Diseases, Tenth Revision [ICD-10] codes S00-S09) and traumatic brain injuries (TBIs; ICD-10 codes S06.0-S06.9) resulting in a hospital admission (Hospital Discharge Register) or death (Causes of Death Register). Inverse probability of treatment (IPT) weighted Cox proportional hazard models were used to assess relative risks.

RESULTS: Antipsychotic use was associated with an increased risk of head injuries (event rate per 100 person-years = 1.65 [95% confidence interval {CI} = 1.50-1.81] for users and 1.26 [95% CI = 1.16-1.37] for nonusers; IPT-weighted hazard ratio [HR] = 1.29 [95% CI = 1.14-1.47]) and TBIs (event rate per 100 person-years = 0.90 [95% CI = 0.79-1.02] for users and 0.72 [95% CI = 0.65-0.81] for nonusers; IPT-weighted HR = 1.22 [95% CI = 1.03-1.45]). Quetiapine users had higher risk of TBIs (IPT-weighted HR = 1.60 [95% CI = 1.15-2.22]) in comparison to risperidone users.

CONCLUSIONS: These findings imply that in addition to previously reported adverse events and effects, antipsychotic use may increase the risk of head injuries and TBIs in persons with AD. Therefore, their use should be restricted to most severe neuropsychiatric symptoms, as recommended by the AGS Beers Criteria®. Additionally, higher relative risk of TBIs in quetiapine users compared to risperidone users should be confirmed in further studies.

Language: en

Keywords Alzheimer's disease; antipsychotics; dementia; risk factors; traumatic brain injury

Pharmacy students' ability to identify fall risk-increasing drugs using an innovative assessment tool

Wahler RG, Piccione C, Maerten-Rivera J. Am. J. Pharm. Educ. 2019; 83(10): e7461.

Affiliation

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Abstract

Objective. To evaluate change in the ability of third-year pharmacy students to identify drugs that increase fall risk after training in and experience using the Medication Falls Risk Assessment Tool (MFRAT). Methods. An assessment was administered to students prior to MFRAT use and after MFRAT use. The assessment consisted of 10 medication regimens for various chronic conditions (50 distinct drug choices with 30 correct answers and 20 distractors), and students were to identify fall risk increasing drugs (FRIDs). Using a flipped-classroom approach, students viewed an online presentation on FRIDs and then participated in instructor guided, in-class application of the MFRAT using student-collected data from an actual patient case. Students completed medication therapy management (MTM) documentation. The assessment data for students who had previously used the MFRAT (experienced) were analyzed separately from first time users (inexperienced). Results. Three assessment scores were evaluated: number correct (maximum 30; higher score is better), number of distractors (maximum 20; lower score better), and a combined total score (maximum 50; higher score better). In inexperienced users (n=104), pre- and post-assessment means improved significantly for correct score (24.9 vs 29.5) and total score (39.4 vs 44.3). Among experienced users (n=10), pre- and post-assessment means improved significantly for correct responses (27.3 vs 29.7), distractors (7.0 vs 3.5), and total score (40.3 vs 46.2). Conclusion. The ability of both pharmacy students who had used the MFRAT previously and those who had not to correctly identify FRIDs increased on the post-assessment.

Language: en

Opioid use and the risk of falls, fall injuries and fractures among older adults: a systematic review and meta-analysis

Yoshikawa A, Ramirez G, Smith ML, Foster M, Nabil AK, Jani SN, Ory MG. J. Gerontol. A Biol. Sci. Med. Sci. 2020; ePub(ePub): ePub.

Affiliation

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Abstract

BACKGROUND: There is increasing concern about opioid use as a pain treatment option among older adults. Existing literature implies an association between opioid use and fracture, increasing the risk of death and disabilities; yet, this relationship with other fall-related outcomes has not been fully explored. We performed a meta-analysis to evaluate the associations between opioid use and adverse health outcomes of falls, fall injuries, and fractures among older adults.

METHODS: A systematic literature search was conducted using nine databases (Medline, Embase, CINAHL, PsycInfo, Global Health, Northern Light Sciences Conference Abstracts, Cochrane CENTRAL, WHO International Clinical Trials Registry Platform, and ClinicalTrials.gov. We log-transformed effect sizes (RR, OR, and HR) to compute pooled risk estimates comparable across the studies. The random-effects model was applied to calculate the pooled risk estimates due to heterogeneity. Meta-regressions explored differences in risk estimates by analysis method, study design, setting, and study quality.

RESULTS: Thirty studies, providing 34 relevant effect sizes, met the inclusion criteria for this meta-analysis. Overall, opioid use was significantly associated with falls, fall injuries, and fractures, with effect sizes ranging from 0.15 to 0.71. In meta-regressions, no selected factors explained heterogeneity.

CONCLUSION: While heterogeneity is present, results suggest an increased risk of falls, fall injuries, and fractures among older adults who used opioids.

FINDINGS highlight the need for opioid education and non-opioid related pain management interventions among older adults to decrease fall-related risk.

Language: en

Keywords

Hip Fracture; Medication; Pain

Use of fall risk-increasing drugs around a fall-related injury in older adults: a systematic review

Hart LA, Phelan EA, Yi JY, Marcum ZA, Gray SL. J. Am. Geriatr. Soc. 2020; ePub(ePub): ePub.

Affiliation

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Abstract

OBJECTIVES: To examine: (1) prevalence of fall risk-increasing drug (FRID) use among older adults with a fall-related injury, (2) which FRIDs were most frequently prescribed, (3) whether FRID use was reduced following the fall-related healthcare episode, and (4) which interventions have reduced falls or FRID use in older adults with a history of falls.

DESIGN: Systematic review. PARTICIPANTS: Observational and intervention studies that assessed (or intervened on) FRID use in participants aged 60 years or older who had experienced a fall. MEASUREMENTS: PubMed and EMBASE were searched through June 30, 2019. Two reviewers independently extracted data and evaluated studies for bias. Discrepancies were resolved by consensus.

RESULTS: Fourteen of 638 articles met selection criteria: 10 observational studies and 4 intervention studies. FRID use prevalence at time of fall-related injury ranged from 65% to 93%. Antidepressants and sedatives-hypnotics were the most commonly prescribed FRIDs. Of the 10 observational studies, only 2 used a design adequate to capture changes in FRID use after a fall-related injury, neither finding a reduction in FRID use. Three randomized controlled studies conducted in various settings (hospital, emergency department, and community pharmacy) with 12-month follow-up did not find a reduction in falls with interventions to reduce FRID use, although the study conducted in the community pharmacy setting was effective in reducing FRID use. In a nonrandomized (pre-post) intervention study conducted in an outpatient geriatrics clinic, falls were reduced in the intervention group.

CONCLUSIONS: Limited evidence indicates high prevalence of FRID use among older adults who have experienced a fall-related injury and no reduction in overall FRID use following the fall-related healthcare encounter. There is a need for well-designed interventions to reduce FRID use and falls in older adults with a history of falls. Reducing FRID use as a stand-alone intervention may not be effective in reducing recurrent falls. Language: en

The impact of pharmacy-directed medication management for patients experiencing falls in a veterans affairs community living center

Abstract

OBJECTIVE: To analyze medication interventions prior to and following implementation of the Pharmacy Medication Related Falls Risk Assessment consult service in an older adult population. DESIGN: Retrospective chart review. SETTING: This study involved patients admitted to the Cincinnati Veterans Affairs Medical Center's (VAMC) Community Living Center (CLC), an institutional practice setting. PATIENTS, PARTICIPANTS: Any patient who experienced a fall while admitted to the CLC during fiscal years 2013 or 2018 was considered for inclusion. Patients were excluded if falls were not evaluated by a provider, the patient expired within 10 days after falling, or falls in fiscal year 2018 that did not have a pharmacy consult placed. Fifty falls from each fiscal year were selected. MAIN OUTCOME MEASURES: The primary endpoint encompassed the number of pharmacy medication interventions made within 10 days postfall, with a secondary endpoint evaluating subsequent falls within 30 days of initial event. RESULTS: Following consult implementation, a larger number of pharmacist recommendations (40 vs. 123) and subsequent interventions (accepted recommendations) within ten days postfall (12 vs. 49) were completed. There were 14 subsequent falls within 30 days of the initial event for both fiscal years. A larger percentage of falls and patients experiencing falls from each fiscal year did not receive previous medication interventions. CONCLUSION: Consult implementation increased the number of pharmacist recommendations and subsequent interventions for patients within ten days postfall, reducing the risk of adverse effects, drug-drug interactions, subsequent falls, and polypharmacy.

Language: en

Clinical osteoarthritis of the hip and knee and fall risk: the role of low physical functioning and pain medication

van Schoor NM, Dennison E, Castell MV, Cooper C, Edwards MH, Maggi S, Pedersen NL, van der Pas S, Rijnhart JJM, Lips P, Deeg DJH. Semin Arthritis Rheum 2020; ePub(ePub): ePub.

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Abstract

OBJECTIVE: Several studies have found an increased fall risk in persons with osteoarthritis (OA). However, most prospective studies did not use a clinical definition of OA. In addition, it is not clear which factors explain this risk. Our objectives were: (1) to confirm the prospective association between clinical OA of the hip and knee and falls; (2) to examine the modifying effect of sex; and (3) to examine whether low physical performance, low physical activity and use of pain medication are mediating these relationships.

METHODS: Baseline and 1-year follow-up data from the European Project on OSteoArthritis (EPOSA) were used involving pre-harmonized data from five European population-based cohort studies (ages 65-85, n = 2535). Clinical OA was defined according to American College of Rheumatology (ACR) criteria. Falls were assessed using self-report.

RESULTS: Over the follow-up period, 27.7% of the participants fell once or more (defined as faller), and 9.8% fell twice or more (recurrent faller). After adjustment for confounding, clinical knee OA was associated with the risk of becoming a recurrent faller (relative risk=1.55; 95% confidence interval: 1.10-2.18), but not with the risk of becoming a faller. No associations between clinical hip OA and (recurrent) falls were observed after adjustment for confounding. Use of opioids and analgesics mediated the associations between clinical OA and (recurrent) falls, while physical performance and physical activity did not.

CONCLUSION: Individuals with clinical knee OA were at increased risk for recurrent falls. This relationship was mediated by pain medication, particularly opioids. The fall risk needs to be considered when discussing the risk benefit ratio of prescribing these medications.

Language: en

Keywords

Long-term effects of vitamin D deficiency on gait and balance in the older adults

Sahin Alak ZY, Ates Bulut E, Dokuzlar O, Yavuz I, Soysal P, Isik AT. Clin. Nutr. 2020; ePub(ePub): ePub.

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Abstract

BACKGROUND & AIMS: Vitamin D deficiency is a public health problem. The resulting data showed that vitamin D is associated not only with calcium homeostasis, skeletal muscle health, but also with some chronic diseases. The aim of the study was to investigate long-term effects of vitamin D deficiency on gait-balance parameters in older adults.

METHODS: 370 patients who applied to the geriatric outpatient clinic three times at six-months intervals and underwent comprehensive geriatric assessment (CGA), were retrospectively screened. Patients, whose sociodemographic characteristics, systemic diseases and laboratory findings were reviewed, were divided into 3 groups according to basal serum 25-hydroxy D vitamin [25(OH)D] level: Group 1 (<10 ng/mL), Group 2 (10-20 ng/mL), Group 3 (≥20 ng/mL). The balance-gait performance of patients, the 25(OH)D level of whom reached to the sufficient level at the end of 12th month, was compared to other patients by the Performance Oriented Mobility Assessment (POMA) scale.

RESULTS: Demographic characteristics and systemic diseases were similar in the groups except for education ($p > 0.05$). At baseline, Group 1 had lower Basic and Instrumental Activities of Daily Living (ADL), POMA balance and total score ($p < 0.05$). At the end of 12th month, POMA balance and total scores improved in the Group 1 patients who reached a sufficient 25(OH)D level, however these scores failed to catch Group 3 ($p < 0.05$). The basal, 6th and 12th month evaluations of three groups showed that mean POMA balance, gait and total scores were better in patients whose 25(OH)D level was ≥20 ng/mL.

CONCLUSIONS: Vitamin D replacement, especially to severe deficient patients, may improve balance and gait functions in older adults. Therefore, vitamin D deficiency should be screened routinely and treated effectively.

Language: en

Keywords

Association of hypnotic drug use with fall incidents in hospitalized elderly patients: a case-crossover study

Torii H, Ando M, Tomita H, Kobaru T, Tanaka M, Fujimoto K, Shimizu R, Ikesue H, Okusada S, Hashida T, Kume N. Biol. Pharm. Bull. 2020; 43(6): 925-931.

Abstract

We investigated whether use of hypnotic drugs, including benzodiazepine receptor agonists, as well as ramelteon and suvorexant are associated with fall incidents in elderly inpatients aged no less than 75 years, who were hospitalized at an acute care general hospital in Japan, between November 1st, 2016 and October 31st, 2017. Multivariate analysis results were reported as odds ratio (OR) with 95% confidence interval (CI). Following to a case-crossover study protocol, the time windows of the case and the control days were assigned to the day or the days, which are one day or 2-8 d before the fall incidents, respectively. In the enrolled 111 patients, the accumulated total available numbers of the cases and the control days were 111 and 554 patient days, respectively. Hypnotic drug use was significantly associated with fall incidents (OR: 2.85, 95% CI: 1.03-7.90, $p = 0.04$). Especially benzodiazepine receptor agonists (OR: 5.79, 95% CI: 1.52-22.1, $p = 0.01$) showed statistically significant association with fall incidents. In contrast, neither ramelteon (OR: 7.95, 95% CI: 0.72-87.9, $p = 0.09$) nor suvorexant (OR: 0.25, 95% CI: 0.06-1.06, $p = 0.06$) were significantly associated with fall incidents. Thus, benzodiazepine receptor agonists, but not ramelteon or suvorexant, showed significant association with fall incidents. Therefore, special care should be taken especially when benzodiazepine receptor agonists are administrated to elderly subjects. In contrast, fall risk may be much less in patients treated with ramelteon or suvorexant. These results could help us to conduct safer drug treatment for insomnia patients aged no less than 75 years.

Language: en

Keywords

Psychoactive drug use and falls among community-dwelling Turkish older people

Naharci MI, Oguz EO, Celebi F, Oguz SO, Yilmaz O, Tasci I. North. Clin. Istanb. 2020; 7(3): 260-266.

Abstract

OBJECTIVE: Data on the relationship between fall and psychoactive drug use among Turkish older people are limited. This study aims to investigate the prevalence of falls and the associations between psychoactive drug use and falls in community-dwelling Turkish older people.

METHODS: This single center study was performed using the medical records of subjects aged over 65 years admitted to the geriatric care unit. Demographic and lifestyle factors, clinical characteristics, medications, and data on mood, cognitive status, and functional performance were obtained from the comprehensive geriatric assessment records. Based on a fall history in the last 12 months, subjects were grouped as fallers and non-fallers. Subjects treated with a psychoactive drug were identified.

RESULTS: Among the total of 429 subjects, there were 184 (42.9%) fallers and 245 (57.1%) non-fallers. Of those, 33.3% were on psychoactive drug treatment. The proportion of psychoactive drug users was higher in the fallers group compared to non-fallers (45.1% vs. 24.5%, p<0.001). Multivariable logistic regression analysis showed age ≥75 years (OR=1.83;CI: 1.09-3.09; p=0.023), female gender (OR=2.70;CI: 1.6-4.50; p<0.001), and psychoactive drug use (OR=2.14;CI 1.32-3.48; p=0.002) as independent predictors of falls.

CONCLUSION: We found that about one-third of geriatric outpatients were on psychoactive drug treatment in Turkey that was independently associated with the risk of falls.

Language: en

Keywords

Aged; falls; psychoactive drugs

Fall prevention and anti-osteoporosis in osteopenia patients of 80 years of age and older: a randomized controlled study

Abstract

To evaluate the effects of two fall-prevention and anti-osteoporotic protocols in elderly patients with osteopenia (OPA).

METHODS: The present randomized controlled study included patients with OPA (n =123). The age of these patients was ≥80 years old, with the mean age of 83.54 ± 2.99 years, and the male-to-female ratio was 2.97:1.00. Fall-prevention guidance was given to all patients. Patients in the experiment group (n = 62) orally received 600 mg/d of calcium carbonate, 0.5 μg/d of alfacalcidol, and 70 mg/week of alendronate, while patients in the control group (n = 61) orally received 600 mg/d of calcium carbonate and 0.5 μg/d of alfacalcidol for 18 months. The grip strength, gait speed, bone turnover markers, serum calcium, serum phosphorus, parathyroid hormone (PTH), and bone mineral density were measured, and the Timed Up and Go (TUG) test and the chair rising test (CRT) were performed. Falls, fragility fractures, medication compliance, and side effects of the drugs were recorded.

RESULTS: The serum levels of bone turnover markers (type I procollagen amino-terminal peptide [P1NP], type I collagen carboxyl terminal peptide [β-CTx], and osteocalcin [OC]) decreased, while the bone mineral density of the lumbar spine and bilateral femoral neck increased after treatment in the experiment group (P < 0.05, P < 0.01). The rate of change in bone mineral density of the bilateral femoral neck was higher in the experiment group than the control group (3.43% vs 0.03%, P < 0.05; 2.86% vs -0.02%, P < 0.01). After treatment, the proportion of patients with increased hip T scores in the experiment group (66.1%, 41/62) was significantly higher than the proportion (35.0%, 21/60) in the control group (P = 0.001). The incidence of fall decreased in both groups after treatment compared to that before treatment (54.8% vs 33.9% and 54.1% vs 36.7%, respectively; P < 0.05). The incidence of fragility fractures was lower in the experiment group than the control group (8.1% vs 20.0%, P = 0.057). During the intervention period, the incidence of fragility fractures in patients who did not fall (3.8%, 3/79) was significantly lower than that in patients who fell (32.6%, 14/43) (P = 0.000). The risk of fragility fractures was significantly lower in patients who did not fall compared to patients who fell (relative risk: 0.117, 95% confidence interval: 0.035-0.384).

CONCLUSION: The combination of alendronate sodium with alfacalcidol and calcium can significantly improve the bone mineral density of the lumbar spine and femoral neck. For older patients with OPA, subjectively paying attention to avoiding falls can significantly reduce the risk of fragility fractures.

Language: en

VITamin D and OmegA-3 TriaL (VITAL): effects of vitamin D supplements on risk of falls in the US population

LeBoff MS, Murata EM, Cook NR, Cawthon P, Chou SH, Kotler G, Bubes V, Buring JE, Manson JAE. J. Clin. Endocrinol. Metab. 2020; ePub(ePub): ePub.

Abstract

CONTEXT: It is unclear whether vitamin D supplementation reduces risk of falls, and results from randomized controlled trials (RCTs) are conflicting.

OBJECTIVE: To determine whether 2000 IU/day of supplemental vitamin D3 decreases fall risk.

DESIGN: VITamin D and OmegA-3 TriaL (VITAL) is a double-blind, placebo-controlled RCT including 25,871 adults, randomized November 2011-March 2014 and treated for 5.3 years (median).

SETTING: Nationwide study.

PARTICIPANTS: Men ≥50 and women ≥55 years (mean age 67.1 years) without cancer or cardiovascular disease at baseline.

INTERVENTIONS: Vitamin D3 (cholecalciferol; 2,000 IU/day) and/or omega-3 fatty acids (1 g/day) or respective placebos in a 2X2 factorial design.

MAIN OUTCOME MEASURES: Two or more falls, falls resulting in a doctor or hospital visit.

RESULTS: Baseline serum total 25-hydroxyvitamin D [25(OH)D] level was 77 nmol/L; characteristics were well-balanced between groups. Numbers of participants with ≥2 falls were similar between active and placebo groups (9.8% vs. 9.4%). Over 5 years, there were no differences in the proportion having ≥2 falls (OR=0.97; 95% CI, 0.90-1.05, p=0.50), falls resulting in a doctor visit (OR=1.03; 95% CI, 0.94-1.13, p=0.46) or resulting in a hospital visit (OR=1.04; 95% CI, 0.90-1.19, p=0.61) between groups.

RESULTS did not differ between those with baseline 25(OH)D <50 vs. >50 nmol/L or other cutpoints.

CONCLUSION: Daily supplemental vitamin D3 vs. placebo did not decrease fall risk in generally healthy adults not selected for vitamin D insufficiency. This large RCT does not indicate that supplemental vitamin D should be used for primary prevention of falls in the U.S. population.

Language: en

Keywords

primary prevention; falls; Vitamin D

Using the Drug Burden Index to identify older adults at highest risk for medication-related falls

Blalock SJ, Renfro CP, Robinson JM, Farley JF, Busby-Whitehead J, Ferreri SP. BMC Geriatr. 2020; 20(1): e208.

Abstract

BACKGROUND: The Drug Burden Index (DBI) was developed to assess patient exposure to medications associated with an increased risk of falling. The objective of this study was to examine the association between the DBI and medication-related fall risk.

METHODS: The study used a retrospective cohort design, with a 1-year observation period. Participants (n = 1562) were identified from 31 community pharmacies. We examined the association between DBI scores and four outcomes. Our primary outcome, which was limited to participants who received a medication review, indexed whether the review resulted in at least one medication-related recommendation (e.g., discontinue medication) being communicated to the participant's health care provider. Secondary outcomes indexed whether participants in the full sample: (1) screened positive for fall risk, (2) reported 1+ falls in the past year, and (3) reported 1+ injurious falls in the past year. All outcome variables were dichotomous (yes/no).

RESULTS: Among those who received a medication review (n = 387), the percentage of patients receiving at least one medication-related recommendation ranged from 10.2% among those with DBI scores of 0 compared to 60.2% among those with DBI scores ≥1.0 (Chi-square (4)=42.4, p < 0.0001). Among those screened for fall risk (n = 1058), DBI scores were higher among those who screened positive compared to those who did not (Means = 0.98 (SD = 1.00) versus 0.59 (SD = 0.74), respectively, p < 0.0001).

CONCLUSION: Our findings suggest that the DBI is a useful tool that could be used to improve future research and practice by focusing limited resources on those individuals at greatest risk of medication-related falls.

Language: en

Keywords

Accidental falls; Aging; Medication; Health services; Medication therapy management

Statin use and fall-related hospitalizations among residents of long-term care facilities: a case-control study

Wang KN, Bell JS, Tan EC, Gilmartin-Thomas JF, Dooley MJ, Ilomäki J. J. Clin. Lipidol. 2020; ePub(ePub): ePub.

Abstract

BACKGROUND: Statins are associated with muscle-related adverse events, but few studies have investigated the association with fall-related hospitalizations among residents of long-term care facilities (LTCFs).

OBJECTIVE: The objective of the study is to investigate whether statin use is associated with fall-related hospitalizations from LTCFs.

METHODS: A case-control study was conducted among residents aged ≥65 years admitted to hospital from 2013 to 2015. Cases (n = 332) were residents admitted for falls and fall-related injuries. Controls (n = 332) were selected from patients admitted for reasons other than cardiovascular and diabetes. Cases and controls were matched 1:1 by age (±2 years), index date of admission (±6 months), and sex. Adjusted odds ratios (aORs) and 95% confidence intervals (CIs) were estimated using conditional logistic regression, after considering for history of falls, hypertension, dementia, functional comorbidity index, polypharmacy (≥9 regular preadmission medications), and fall-risk medications. Subanalyses were performed for individual statins, dementia, and statin intensity.

RESULTS: Overall, 43.1% of cases and 27.1% of controls used statins. Statins were associated with fall-related hospitalizations (aOR = 2.24, 95% CI 1.56-3.23), in particular simvastatin (aOR = 2.26, 95% CI 1.22-4.20) and atorvastatin (aOR = 2.08, 95% CI 1.33-3.24). Statins were associated with fall-related hospitalizations in residents with (aOR = 2.34, 95% CI 1.33-4.11) and without dementia (aOR = 2.30, 95% CI 1.46-3.63). There was no association between statin intensity and fall-related hospitalizations (aOR = 0.78, 95% CI 0.43-1.40).

CONCLUSION: This study suggests a possible association between statin use and fall-related hospitalizations among residents living in LTCFs. However, there was minimal evidence for a relationship between statin intensity and fall-related hospitalizations. Further research is required to substantiate these hypothesis-generating findings.

Language: en

Keywords

Vitamin D megadose: definition, efficacy in bone metabolism, risk of falls and fractures

Narvaez J, Maldonado G, Guerrero R, Messina OD, Rios C. Open Access Rheumatol 2020; 12: 105-115.

Abstract

INTRODUCTION: Currently, approximately more than one billion people around the world are considered to have deficient levels of vitamin D. International consensus recommends vitamin D supplementation to high-risk patients (advanced age, osteoporosis, liver failure, malabsorption syndromes, etc.) and those with levels below 30 ng/mL. There are several vitamin D formulations and dosages available, including megadoses. At the moment, there is no consensus on the definition of megadoses.

The purpose of this review is to define what is a megadose and analyze its effectiveness in bone metabolism, risk of fractures and falls.

Conclusion: The administration of doses higher than 100,000 IU of vitamin D is considered a megadose. It is evident that the use of megadoses increases serum concentrations of vitamin D; however, there has been no evidence of a decrease in the risk of falls, vertebral fractures or changes in bone mineral density.

Language: en

Keywords

falls; vitamin D; supplementation; bone mineral density

Incorporating pharmacist interns into a study of fall-risks

Abstract

INTRODUCTION: Inpatient falls continue to have detrimental effects on patient care and recovery. Because controllable and uncontrollable factors impact fall rates, predicting which patients are at the greatest risk can be challenging. One method includes the incorporation of student learners to help identify which patients are at the greatest risk for falls.

OBJECTIVE: To generate a scoring metric and investigate its reliability for appropriately identifying geriatric and medical psychiatric patients at risk for falling while hospitalized.

METHODS: In this single-center, quasi-experimental study, pharmacist-interns led a fall-prevention initiative at a community hospital within two behavioral health units.

RESULTS: A total of 96 patients were analyzed over the study period, revealing no notable trends for either geriatric or medical psychiatric patients. There was no significant change in the odds of falling for each fall score point increase for either the geriatric-psychiatric unit (odds ratio [OR] = 0.95; 95% confidence interval [CI] 0.83-1.08) or the medical-psychiatric unit (OR = 1.11; 95% CI 0.91-1.36).

CONCLUSION: This pharmacist-intern-led falls-prevention initiative did not provide a statistically significant reduction in falls. While the scoring metric was helpful in reviewing charts to make recommendations for interventions, the assigned score did not correlate as expected to incidents of falls.

Language: en

Keywords

Higher amounts of opioids filled after surgery increase risk of serious falls and fall-related injuries among older adults

Santosa KB, Lai YL, Brummett CM, Oliver JD, Hu HM, Englesbe MJ, Blair EM, Waljee JF.
J. Gen. Intern Med. 2020; ePub(ePub): ePub.

Abstract

BACKGROUND: Despite increasing numbers of older adults undergoing surgery and the known risks of opioids, little is known about the potential association between opioid prescribing and serious falls and fall-related injuries after surgery.

OBJECTIVE: To determine the incidence and risk factors of serious falls and fall-related injuries after elective, outpatient surgery.

DESIGN: Retrospective cohort study of 20% national sample of Medicare claims among beneficiaries ≥ 65 years of age with Medicare Part D claims and who underwent elective outpatient surgery from January 1, 2009, through December 31, 2014.

PARTICIPANTS: Opioid-naïve patients ≥ 65 years undergoing elective, minor, outpatient surgical procedures. The exposure was opioid prescription fills in the perioperative period (i.e., 30 days before up until 3 days after surgery) converted to total oral morphine equivalents (OME) over a period 30 days prior to and 30 days after surgery.

MAIN MEASURES: Serious falls and fall-related injuries within 30 days after surgery, examined through Poisson regression analysis with reported fall and fall-related injury rates adjusted for potential confounders.

KEY RESULTS: Among 44,247 opioid-naïve surgical patients, 76.3% filled an opioid prescription in the perioperative period. Overall, 0.62% of patients suffered a serious fall or fall-related injury within 30 days after surgery. Risk factors for serious falls or fall-related injuries after surgery included older age (80-84 years: RR 1.64, 95% CI 1.12-2.40; 85 years and older: RR 1.81, 95% CI 1.25-2.86), female sex (RR 3.04, 95% CI 2.29-4.05), Medicaid eligibility (RR 1.63, 95% CI 1.17-2.26), and higher amounts of opioids filled following surgery (≥ 225 OME: RR 2.29, 95% CI 1.72-3.07).

CONCLUSIONS: Serious falls after elective, outpatient surgery are uncommon, but correlated with age, sex, Medicaid eligibility, and the amount of opioids filled in the perioperative period. Judicious prescribing of opioids after surgery is paramount and is an opportunity to improve the safety of surgical care among older individuals.

Language: en

Keywords

opioid; falls; older adults; surgery

Using pharmacy dispensing data to predict falls in older persons

Abstract

AIM: Associations between individual medication use and falling in older persons are well-documented. However, a comprehensive risk score that takes into account persons' overall medication use and that can be used in daily pharmacy practice is lacking. We, therefore, aimed to determine whether pharmacy dispensing records can be used to predict falls.

METHODS: A retrospective cohort study was conducted using pharmacy dispensing data and self-reported falls among 3454 Dutch persons aged $\geq$ 65 years. Two different methods were used to classify medication exposure for each person: the Drug Burden Index (DBI) for cumulative anticholinergic and sedative medication exposure as well as exposure to fall risk-increasing drugs (FRIDs). Multinomial regression analyses, adjusted for age and gender, were conducted to investigate the association between medication exposure and falling classified as non-falling, single falling and recurrent falling. The predictive performances of the DBI and FRIDs exposure were estimated by the polytomous discrimination index (PDI).

RESULTS: There were 521 single fallers (15%) and 485 recurrent fallers (14%). We found significant associations between a DBI $\geq$ 1 and single falling (adjusted odds ratio (aOR): 1.30 [95%-confidence interval (CI): 1.02-1.66]) and recurrent falling (aOR: 1.60 [95%-CI: 1.25-2.04]). The PDI of the DBI model was 0.41 (95%-CI: 0.39-0.42) and the PDI of the FRIDs model was 0.45 (95%-CI: 0.43-0.47), indicating poor discrimination between fallers and non-fallers.

CONCLUSION: The study shows significant associations between medication use and falling. However, the medication-based models were insufficient and other factors should be included to develop a risk score for pharmacy practice.

Language: en

Keywords

Association suvorexant and ramelteon use with the risk of falling: a retrospective case-control study

Ishigo T, Takada R, Kondo F, Ibe Y, Nakano K, Tateishi R, Fujii S, Katano S, Kitagawa M, Kimyo T, Nakata H, Hashimoto A, Miyamoto A. Yakugaku Zasshi 2020; 140(8): 1041-1049.

Abstract

Sedative hypnotics are among the classes of drugs reported to influence falls. However, the effects of the sedative hypnotic drugs, suvorexant and ramelteon, on falls are not well known. Therefore, we conducted this retrospective case-control study to examine the association of the use of these two sedative hypnotics with the risk of falls. Conducted at the Sapporo Medical University Hospital in Japan, our study included 360 patients with fall incidents and 819 randomly selected control patients. Patients in the fall group were significantly older with a lower body mass index, and had a history of falls, disabilities in activities of daily living, cognitive impairment, and delirium. Monovariate analysis revealed that patients in the fall group frequently used ramelteon [odds ratio (OR) 2.38, 95% confidence interval (CI): 1.49-3.81, p<0.001], but rarely used suvorexant (OR 0.66, 95% CI: 0.29-1.39, p=0.317), compared with control patients. Furthermore, multivariate analysis revealed that ramelteon use did not increase the risk of falls (adjusted OR 1.43, 95% CI: 0.82-2.48, p=0.207), whereas suvorexant use significantly decreased the risk of falls (adjusted OR 0.32, 95% CI: 0.13-0.76, p=0.009). Although ramelteon tends to be used in patients at a high risk of falls, it may not increase the risk of falls. In contrast, the use of suvorexant may reduce the risk of falls.

Language: ja

Keywords

fall; ramelteon; sedative hypnotics; suvorexant

Influence of hospital encounters for falls on potentially inappropriate medication use among older patients

Abstract

[Abstract unavailable]

Language: en

Polypharmacy, benzodiazepines, and antidepressants, but not antipsychotics, are associated with increased falls risk in UK care home residents: a prospective multi-centre study

Izza MAD, Lunt E, Gordon AL, Gladman JRF, Armstrong S, Logan P. Eur. Geriatr. Med. 2020; ePub(ePub): ePub.

Abstract

PURPOSE: Falls and polypharmacy are both common in care home residents. Deprescribing of medications in residents with increased falls risk is encouraged. Psychotropic medications are known to increase falls risk in older adults. These drugs are often used in care home residents for depression, anxiety, and behavioural and psychological symptoms of dementia. However, a few studies have explored the link between polypharmacy, psychotropic medications, and falls risk in care home residents.

METHODS: This was a prospective cohort study of residents from 84 UK care homes. Data were collected from residents' care records and medication administration records. Age, diagnoses, gender, number of medications, and number of psychotropic medications were collected at baseline and residents were monitored over three months for occurrence of falls. Logistic regression models were used to assess the effect of multiple medications and psychotropic medication on falls whilst adjusting for confounders.

RESULTS: Of the 1655 participants, mean age 85 (SD 8.9) years, 67.9% female, 519 (31%) fell in 3 months. Both the total number of regular drugs prescribed and taking ≥ 1 regular psychotropic medication were independent risk factors for falling (adjusted odds ratio (OR) 1.06 (95% CI 1.03-1.09, $p < 0.01$) and 1.39 (95% CI 1.10-1.76, $p < 0.01$), respectively). The risk of falls was higher in those taking antidepressants ($p < 0.01$) and benzodiazepines ($p < 0.01$) but not antipsychotics ($p > 0.05$).

CONCLUSION: In UK care homes, number of medications and psychotropic medications (particularly antidepressants and benzodiazepines) predicted falls. This information can be used to inform prescribing and deprescribing decisions.

Language: en

Keywords

Accidental falls; Polypharmacy; Psychotropic medications; Residential facilities

Polypharmacy, declined walking speed, bent back, and disability associated with a history of falls in Japanese patients with rheumatoid arthritis: results from the IORRA cohort study

Oh K, Furuya T, Ikari K, Inoue E, Tanaka E, Yamanaka H, Okazaki K, Harigai M. Mod. Rheumatol. 2020; ePub(ePub): ePub.

Abstract

[Abstract unavailable]

Language: en

Keywords

Falls; Walking speed; Polypharmacy; Back bent; Japanese; Rheumatoid arthritis

Non-GABA sleep medications, suvorexant as risk factors for falls: case-control and case-crossover study

Ishibashi Y, Nishitani R, Shimura A, Takeuchi A, Touko M, Kato T, Chiba S, Ashidate K, Ishiwata N, Ichijo T, Sasabe M. PLoS One 2020; 15(9): e0238723.

Abstract

The aim of this study was to examine the risk of falls associated with the use of non-gamma amino butyric acid (GABA) sleep medications, suvorexant and ramelteon. This case-control and case-crossover study was performed at the Kudanzaka Hospital, Chiyoda Ward, Tokyo. A total of 325 patients who had falls and 1295 controls matched by sex and age were included. The inclusion criteria for the case group were hospitalized patients who had their first fall and that for the control were patients who were hospitalized and did not have a fall, between January 2016 and November 2018. The internal sleep medications administered were classified as suvorexant, ramelteon, non-benzodiazepines, benzodiazepines, or kampo. In the case-control study, age, sex, clinical department, the fall down risk score, and hospitalized duration were adjusted in the logistic regression model. In the case-control study, multivariable logistic regression showed that the use of suvorexant (odds ratio [OR]: 2.61, 95% confidence interval [CI]: 1.29-5.28), nonbenzodiazepines (OR: 2.49, 95% CI: 1.73-3.59), and benzodiazepines (OR: 1.65, 95% CI: 1.16-2.34) was significantly associated with an increased OR of falls. However, the use of ramelteon (OR: 1.40, 95% CI: 0.60-3.16) and kampo (OR: 1.55, 95% CI: 0.75-3.19) was not significantly associated with an increased OR of falls. In the case-crossover study, the use of suvorexant (OR: 1.78, 95% CI: 1.05-3.00) and nonbenzodiazepines (OR: 1.63, 95% CI: 1.17-2.27) was significantly associated with an increased OR of falls. Similar patterns were observed in several sensitivity analyses. It was suggested that suvorexant increases the OR of falls. This result is robust in various analyses. This study showed that the risk of falls also exists for non-GABA sleep medication, suvorexant, and thus it is necessary to carefully prescribe hypnotic drugs under appropriate assessment.

Language: en