SESSION 2360 (POSTER)

DISABILITY, FALLS, AND MOBILITY

PROXIMAL DETERMINANTS OF FALLS IN OLDER ADULTS: THE MOBILIZE BOSTON STUDY

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Objectives: To study risk factors for falling, we examined risk factors for falls among older people according to the proximal determinants present at the time of the fall. Methods: Data came from MOBILIZE Boston, a prospective cohort study of 765 community-dwelling women and men, mainly aged 70 years or older. Over 4.3 years, 1737 falls were recorded, along with narrative reports describing proximal determinants at the time of the fall. Proximal determinants were identified from narrative reports and falls were classified into categories. Categorization was verified using three raters. Results: 14 categories of proximal determinants were identified. Of these, environmental determinants were the largest contributor to falls (74%). Participants with poor mobility and executive function were more likely to fall while performing activities of daily living, specifically while trying to stand and bending over. However, participants with poor mobility also had lower likelihood of falling to environmental hazards and dual-tasking cognition. In contrast, high-functioning older adults with naturally fast movement speed tend to fall to environmental factors while engaging in complex motor activities. Conclusions: Our results suggest there may be two populations of fallers, the healthy and the disabled, each with their own set of distinct risk factors and triggers. Cognitively functional older adults who choose to engage in vigorous activities in hazardous environments may increase their chances of falling to dual-task cognition. Community fall prevention efforts may benefit from examining the needs of specific subpopulations.

RACIAL DISPARITIES IN HIP FRACTURE CARE

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Hip fractures are associated with significant morbidity and mortality. Delaying surgery for more than 24 hours after presentation results in more complications, higher 30-day mortality rate, and longer stays in the hospital. As such, high-quality care should be provided consistently to an increasingly diverse patient population. We determined if race characteristics influence the quality of care provided to patients with hip fractures. We conducted a retrospective analysis on patients at our institution between January 2015 and December 2017. Patients were categorized as white, Black, Asian, and other. The primary outcome variable was the time between presentation to surgery. Other outcomes included length of hospital stay and narcotic pain medication consumption in the first 24 hours postoperatively. Adjusted analysis was performed, controlling for sex, age, body mass index (BMI), American Society of Anesthesiologists' (ASA) classification of health, and Charlson Comorbidity Index (CCI). There were 1544 hip fracture patients included in the study. The majority of patients were white (84.1%) followed by Black (7.6%), Asian (4.5%), and other (3.7%). Most patients were female (69.6%). After adjusting for patient characteristics, Black patients experienced a significantly greater delay to surgery after presentation than white patients (42.1 vs. 34.9 hours). In addition, Black patients experienced significantly longer length of hospital stays compared to their white counterparts (6.9 vs. 5.8 days). Racial disparities in the quality of care provided to hip fracture patients persist even after adjusting for patient characteristics. Addressing these disparities can possibly enhance outcomes for minority patients.

LINKING VISUAL-SOMATOSENSORY INTEGRATION TO COGNITIVE AND MOTOR OUTCOMES IN AGING

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Ability to successfully integrate simultaneous information relayed across multiple sensory systems is an integral aspect of daily functioning. Unisensory impairments have been individually linked to slower gait, functional decline, and increased risks for falls in aging. Yet, research investigating age-related changes in multisensory integration (MSI) processes still remains relatively scarce. To date, there has been converging evidence for larger behavioral multisensory effects in older compared to younger adults; however, the question of whether larger effects are actually beneficial remains largely unanswered. Findings from our studies provide support for differential multisensory processing in aging, where decreased magnitude of visual-somatosensory integration was associated with worse balance, increased falls, and slower gait. Furthermore, we established a link between visual-somatosensory integration and cognition in aging. That is, magnitude of visual-somatosensory integration was largest in older adults with normal cognitive functioning, and presence of MCI/dementia significantly decreased magnitude of visual-somatosensory integration which in turn adversely impacted balance and gait performance. While the effect of MSI has been attributed to basic degenerative changes in neuronal architecture during the aging process, this speculative interpretation has yet to be formally tested. Future studies are clearly needed to establish the structural and functional correlates of MSI in aging, specifically visual-somatosensory integration, in order to further establish the link between differential multisensory effects with other important age-related clinical outcomes. Nevertheless, these studies stress the importance of successful MSI in aging, and highlight the need for multisensory based interventions that could potentially ameliorate disability.

RISK FACTORS FOR FALLS IN OLDER ADULTS WITH TYPE 2 DIABETES

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The objective of this study was to evaluate the probability of the risk of falls in the older adults with type 2 diabetes.

One-hundred and eleven older adults (age: 69±7 years) with type 2 diabetes participated in this cross-sectional observational study. The participants sociodemographics, physical function, cognitive status (Mini Mental State Exam – MEEM and Geriatric Depression Scale – GDS), balance (Mini BEST test), functional performance (WHODAS 2.0) and falls risk (Quick Screen Clinical Falls Risk Assessment – QuickScreen) were evaluated. The data was analyzed using the Kruskall-Wallis, Chi-square, and Fisher's exact tests ($p<0.05$). Thirty percent of the participants had fallen during the previous 12 months, and 80% of the participants reported fear of falling. The average number of falls risks was 3.5±2. Increased number of falls risks were associated with lower educational level ($p=0.005$), poorer general health ($p=0.001$), vision impairment ($p=0.017$), higher number of diseases ($p<0.0001$), higher number of medications ($p<0.0001$), longer diabetes duration ($p<0.0001$), lower limb pain ($p<0.0001$), depression ($p<0.001$), worse functional performance ($p<0.0001$), and worse balance ($p<0.0001$). Older adults with type 2 diabetes with lower education, worse health and vision, greater number of diseases and medications, longer diagnosis of diabetes, lower limb pain, depressive symptoms, worse functional performance and balance presented more risks for falls.

SERUM 25-HYDROXYVITAMIN D LEVELS IMPACT RISK OF EXTENSIVE ASSISTANCE NEEDED BY OLDER ADULTS TO WALK

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Study objective is to determine the association between deficient 25-hydroxyvitamin D [25(OH)D] serum levels and the amount of assistance needed to walk in a room by older adults living in long-term care (LTC) communities. Participants (age ≥ 65) from five LTC communities in Central Texas were recruited for a multi-site, cross-sectional study (n=169). Double-blinded data abstraction protocols were used to collect a one-year medical history. Laboratory blood draws measured serum 25(OH)D levels. Level of assistance was measured by the activities of daily living score for walking in room from section G of the Minimum Data Set (MDS). To determine the association between deficient 25(OH)D serum levels (≤20 ng/ml) and assistance with walking, adjusted logistic regression was used. Total vitamin D per day (supplementation and meals), therapy and/or restorative programs, body mass index, race, gender, age, and years living in the community were used as confounders. Of the 169 participants (mean age=83) 27.17% had deficient serum 25(OH)D and 9.25% required extensive assistance to walk in a room. The mean serum level and supplementation rate of participants was 32.61 ng/ml and 1,160.64 IU per/d, respectively. Participants with deficient 25(OH) D serum levels had significantly elevated odds (OR=8.73; CL: 1.28, 8.54; $p=0.027$) of requiring extensive assistance to walk in a room compared to those with adequate serum levels (>20 ng/ml). Deficient 25(OH)D serum levels are associated with increased assistance to walk in a room indicating that adequate serum levels in LTC residents could potentially decrease burden on staff.

ONE-LEGGED STANCE BALANCE OF OLDER ADULTS WITH AND WITHOUT FALLS

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Balance impairment is a common problem among older adults. Poor balance in older adults is often associated with mobility impairments, activity limitations and fear of falling in older adults. Thus, balance assessment is useful for early detection of postural control deficits to prevent mobility impairments and falls in older adults. The aim of this study was to assess if balance measures based in center of pressure (COP) parameters during one-legged stance could differentiate between older adults with and without falls in the past 12 months. One-hundred and seventy older adults (50 fallers and 120 non-fallers, age range: 63-72 years) performed three 30s one-legged stance trials with eyes open on a force platform with 30s of rest between each trial. The following variables were evaluated: COP 95% elliptical area, COP velocity in the anterior-posterior and medio-lateral directions, and test duration (how long the participant was able to stay in one-legged stance, up to 30s). Fallers had poorer balance than non-fallers ($P \leq 0.004$). The COP parameters presented an area under the curve between 0.65-0.72, with sensitivity varying from 66 to 78% and specificity from 54 to 68%. There were no significant differences between fallers and non-fallers on test duration (17 vs. 18s, respectively). The findings showed that the fallers had similar duration time, but poorer balance than the non-fallers during one-legged stance. The COP parameters were able to differentiate the balance between fallers and non-fallers with acceptable area under curve, sensitivity and specificity.

CHARACTERISTICS OF MALADAPTIVE FALL RISK APPRAISAL AMONG OLDER ADULTS AGES 60 YEARS AND OLDER

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Even though one-third of older adults have maladaptive fall risk appraisal (FRA), no studies has examined this discrepancy between perceived fall risk and physical fall risk among older adults in Thailand. We examined the characteristics of fall risk appraisal (FRA). 433 community-dwelling older adults were randomly selected from two provinces in