HIGH INTENSITY WALKING REDUCES FRAILTY AND IMPROVES PHYSICAL FUNCTION AMONG OLDER ADULTS LIVING WITH HIV

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Walking is a preferred mode of exercise for older adults, yet limited evidence exists on the optimal intensity to promote health gains, particularly among those with the frailty syndrome. Older adults aging with HIV have physical function impairments and higher prevalence of frailty, yet there is a paucity of evidence on therapeutic options to help these individuals maintain or improve their physical functioning. The purpose of this study was to investigate the feasibility and efficacy of a high intensity walking training (HIWT) intervention for pre-frail and frail older adults living with HIV. We enrolled n=11 older adults (>50 years of age and pre-frail or frail on the SHARE-FI). Participants underwent 16 walking sessions 2x/week consisting of 5 minute intervals of stair climbing, fast walking, weighted walking, balance tasks, and steps ups for a total of 30 minutes of high intensity (>70% of HRmax or >15 Rating of Perceived Exertion) activity. All participants were able to achieve the targeted high intensity levels throughout the sessions. We used a t-test to compare pre-post test means on a variety of physical performance measures. We found statistically significant improvements in the frailty score on the SHARE-FI, PROMIS fatigue, self-selected gait speed, Short Physical Performance Battery (SPPB), and Six Minute Walk Test. Importantly, all improvements were far above minimally clinically important differences suggesting this novel exercise approach may contribute to substantial improvements in physical function to reduce frailty in this population of older adults. Participants had no adverse events and were highly satisfied with training.

IMPACT OF FRAILTY ON MEDICAL AND LONG-TERM CARE EXPENDITURES FOR THE ELDERLY AGE 75 OR OVER IN JAPAN

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This study examined the impact of frailty on medical and long-term care expenditures in an older Japanese population. The subjects were those aged 75 years and over who responded to the survey (March 2018) in Bibai, Hokkaido, Japan (n=1,203) and have never received certification of long-term care insurance at the survey. We followed up 867 individuals (72.1%) until the end of December 2018 (10 month-period). We defined frailty as a state in performing 4 items and over of 15 items which were composed of un-intentional weight loss, history of falls, etc. Among 867 subjects, 233 subjects (26.9%) were judged to be frailty group, and 634 subjects (73.1%) non-frailty group. We compared period to the new certification of long-term care insurance (LTCI), accumulated medical and long-term care expenditures adjusted for age and gender between the two groups during the follow-up period. Cox proportional hazard models were used to examine the association between baseline frailty and the new certification of LTCI. The relative hazard ratio (HR) was higher in frailty group than non-frailty group (HR=3.51, 95% CI : 1.30-9.45, P=.013). The adjusted mean accumulated medical and long-term care expenditures per capita during the follow-up were significantly (P=.002) larger for those in the frailty group (629,699 yen), while those in the non-frailty group were 450,995 yen. We confirmed strong economic impact of frailty in the elderly aged 75 or over in Japan.

INFLUENCE OF FRAILTY ON DISCHARGE SETTING FOR OLDER ADULTS WITH HIP FRACTURE AT INPATIENT REHABILITATION FACILITIES

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Inpatient rehabilitation Facilities (IRFs) provide intensive rehabilitation therapy to patients to reduce functional impairment, enhance independence and return patients back to the community. Determination of eligibility for IRF is currently based on a preadmission screening. Frailty, a pervasive characteristic in older adults with hip fractures has not been examined as a clinical factor influencing function and discharge destination IRF outcomes. This study purpose was to determine the prevalence of frailty among older adult IRF patients with hip fractures and determine the association between frailty and function and discharge destination among IRF hip fracture patients. A retrospective cohort study design using CMS 2014 Inpatient Rehabilitation Facility-Patient Assessment Instrument file. Frailty was measured using a Frailty Index of 30 items. The final sample included 26,134 patients. Frailty, pre-frailty, and nonfrailty were present in 0.92% (n=24043), 3.3% (n=862), and .076% (n=199) of hip fracture patients, respectively. The majority (65%) of the patients were discharged home. There were significantly greater proportion of females than males discharged home and those of white race, 65 to 74 years of age, and those with higher functional status. Regression analysis showed significantly lower functional status at discharge (p < .0001) for males and those of non-white race, older age and frail. Study implications include the use of frailty status to identify hip fracture patients at high risk for adverse outcomes and need for future studies to explore the potential of frailty to provide value-added utility to IRF clinical settings and identify ongoing opportunities to guide person-centered care.

MICROSTRUCTURAL NEUROIMAGING OF FRAILTY IN COGNITIVELY NORMAL OLDER ADULTS

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Physical frailty is an age-related clinical syndrome that is related to adverse health outcomes, including cognitive impairment and dementia. Recent studies have shown structural neuroimaging correlates with frailty. However, most existing evidence relies on brain volumetric measures. Whether brain microstructure is associated with frailty and its spatial distribution have not been explored. In the Baltimore Longitudinal Study of Aging, we identified 776 cognitively normal participants aged 50 and older who had concurrent data on frailty and brain microstructure by diffusion tensor imaging (DTI),

including mean diffusivity (MD) of gray matter and fractional anisotropy (FA) of white matter. We first identified neuroimaging markers that were associated with frailty score (0-5) and further examined their relationships with frailty status (0: non-frail, 1-2: pre-frail, 3+: frail) using multivariate linear regression. Models were adjusted for age, sex, race, years of education, and Apolipoprotein E e4 carrier status. DTI-based neuroimaging markers that were associated with frailty status were localized in the supplementary motor area of the frontal lobe, several subcortical regions (putamen, caudate), and body and splenium of corpus callosum. This study demonstrates for the first time that microstructure of both gray and white matter differs by frailty levels in cognitively normal older adults. Brain areas were not widespread, but mostly localized in gray matter subcortical motor areas and white matter corpus callosum. Whether changes in brain microstructure precede future frailty development warrants further investigation.

PERCEPTIONS AND UNDERSTANDINGS OF FRAILTY LANGUAGE: A SCOPING REVIEW

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Diagnosing and responding to frailty in older adult populations is of growing interest for health care professionals, researchers and policymakers. Preventing frailty has the potential to improve health outcomes for older adults, which in turn has significant implications for health care systems. However, little is known about how older people understand and perceive the term "frailty", and what it means for them to be designated as frail. To address this concern, a scoping review was undertaken to map the breadth of primary research studies that focus on community-dwelling older adults' perceptions and understanding of frailty language, as well as explore the potential implications of being classified as frail. Searches were conducted in MEDLINE, Ageline, PsychInfo, CINAHL and EMBASE databases for articles published between January 1994 and February 2019. 4639 articles were screened and ten articles met the inclusion criteria, detailing eight primary research studies. Using content analysis, three core themes were identified across the included studies. These themes included: 1) understanding frailty as a multi-dimensional concept and inevitable consequence of aging, 2) perceiving frailty as a generalizing and harmful label; and 3) resisting and responding to frailty. Recommendations stemming from this review include the need for health care professionals to use person-centered language with older adults, discuss the term frailty with caution, and be aware of the potential consequences of labeling a person as frail. Importantly, this review demonstrates that for frailty interventions to be successful and meaningful for older adults, ongoing and critical examination of frailty language is necessary.

PHASE ANGLE AS A BIOELECTRICAL MARKER TO IDENTIFY SARCOPENIA

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Background: Phase angle (PhA) has been suggested as an indicator of cellular death and nutritional status. We aimed to evaluate the performance of phase angle as a sarcopenia marker among 50 years older and determine the optimal cut-off values. Materials and Methods: A cross section of 4500 with ≥50 years were assessed in terms of sarcopenia with bioelectrical indices. Phase angle can be determined through bioelectrical impedance analysis (In Body 770). Muscle strength and physical function were measured using hand grip and 4 m walking speed. Significant determinants of sarcopenia were further analyzed with multivariate logistic regression analysis. Results: 869 patients (19.31%) were diagnosed with sarcopenia. The average PhA was 5.03 ± 0.64° (Male: 5.31 ± 0.66°; Female: 4.87 ± 0.57°). After adjusting age, gender, race, occupation, BMI, marital status, smoking, drinking, exercise, chronic disease and ADL, phase angle was still independent associated factors with sarcopenia: phase angle (OR=0.25, 95% CI: 0.203-0.308, P < 0.001). Receiver operating characteristic analysis revealed that the optimal phase angle cutoff value to detect sarcopenia was ≤4.9° (AUC=0.768). Conclusions: Bioelectrical phase angle can be an useful bioelectrical marker to identify sarcopenia.

PREVALENCE AND ASSOCIATED RISK FACTORS OF SARCOPENIA AMONG ELDERLY WITH DIABETES IN JAPAN AND TAIWAN

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The aim of this study was to investigate the prevalence of sarcopenia and its associated risk factors among elderly with diabetes in Japan and Taiwan. A cross-sectional study was conducted through convenience sampling. This study was approved by the institutional review boards of Kobe University Graduate School of Health Sciences (No. 543) and Taipei Medical University (No. N201905065). Of the 114 Japanese participants (24.9% females) and 226 Taiwanese participants (75.1% females), the mean age were 73.7±6.9 years and 74.2±6.6 years, respectively. Sarcopenia was found in 10.6% in Japan and 11.1% in Taiwan with no significant difference between both countries. Older age, poor relationships with neighbors, and poor consciousness for health management were significantly associated with sarcopenia in both countries. Additionally, Japanese participants with sarcopenia had significantly longer duration of diabetes, higher level of emotional distress assessed by the Problem Areas In Diabetes (PAID) scale, and lower level of total protein, but no significant differences were shown in Taiwanese participants. Binomial logistic regression analyses were performed to detect risk factors related to sarcopenia. After adjusting for age, sarcopenia was found to be significantly associated with poor consciousness for health management in Japanese participants (OR:0.12 P=0.02) and significantly associated with