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FEAR OF FALLING, PHYSICAL FUNCTION AND QUALITY OF LIFE IN PATIENTS ON HEMODIALYSIS

Luciana Angélica da Silva de Jesus[1], Cristino Carneiro Oliveira[2], Bruno Lionardo de Paula[1], Ana Clara Cattete Bainha[1], Leda Marília Fonseca Lucinda[1], Maycon Moura Reboredo[1]
[1] Federal University of Juiz de Fora (UFJF), Juiz de Fora, Minas Gerais, Brazil
[2] Federal University of Juiz de Fora (UFJF), Governador Valadares, Minas Gerais, Brazil

Background: Patients with chronic kidney disease on hemodialysis have physical function impairment, which, added to the effects of the dialysis process, contributes to an increase in the risk of falls in these patients. The history of falls is associated with fear of falling in hemodialysis patients, but its relationship with physical function and quality of life requires investigation.

Objectives: To compare physical function and quality of hemodialysis patients with normal and high fear of falling

Methods: A cross-sectional study was carried out with patients aged 18 years or older, with chronic kidney disease and on HD for at least three months. Patients unable to perform the assessments, who had psychiatric impairments and severe and/or unstable comorbidity were excluded. Fear of falling was assessed using the Falls Efficacy Scale-International, whose score was used to classify patients into normal (<25) and higher (≥25) fear of falling groups. Physical function was assessed by muscle strength of upper limb (hand grip - HG) and lower limbs (5 repetitions sit and stand test - STS5), walking speed (4.6 meters), functional mobility (Timed up and Go - TUG) and dynamic postural balance (Mini Balance Evaluation Systems Test - Mini-BESTest). In addition to the physical activity level questionnaires (Human Activity Profile - HAP) and quality of life (36-Item Short Form Health Survey-SF-36, by physical and mental summary components). Data normality was verified using the Shapiro-Wilk test. Comparisons between groups were performed using the Student's t-test or Mann-Whitney test. The significance level was $p<0.05$.

Results: A total of 112 patients (58.7±12.9 years; 56.3% male) were evaluated, of which 55.4% were classified as normal and 44.6% a higher fear of falling. The higher fear of falling group performed worse on the HG[24.0(12.0) vs. 30.0(18.0) kilograms strength; $p<0.001$)], STS5 [14.6(5.3) vs. 11.5(5.5) seconds; p=0.002] tests, gait speed (1.2±0.2 vs. 1.4±0.3 meters/second; p=0.004), TUG [8.8 (2.4) vs. 7.8(2.8) seconds; p=0.009], and Mini-BESTest [21.0(3.0) vs. 23.0(5.0); p=0.026] compared to the normal fear of falling group. Furthermore, the same group showed worse scores on the HAP (52.0±14.7 vs. 60.7±12.6; p=0.001) and physical (39.3±8.5 vs. 45.9 ±8.9; $p<0.001$) and mental [28.5(23.7) vs. 41.9(29.4); p=0.004] summary components of the SF-36.

Conclusion: Patients with higher fear of falling had worse performance in physical function, lower level of physical activity and greater impairment of quality of life compared to those with normal fear of falling.

Implications: Interventions that reduce the fear of falling can contribute to improving physical function, increasing the level of physical activity, and reducing the impairment of the quality of life of patients on hemodialysis.

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MUSCLE STRENGTH ASSESSMENT TOOLS FOR HOSPITALIZED OLDER ADULTS

Jeremias Bruno Silva de Oliveira[1], Luciana de Lima Sousa[1], Tayla Gomes de Moura[1], Nathália Moura Gonçalves[1], Patrícia Azevedo Garcia[1]
[1] University of Brasilia (UnB), Brasília, Distrito Federal, Brazil

Background: Muscle weakness associated with hospitalization is known to be a significant predictor of functional decline in older adults hospitalized for acute conditions. Previous studies have shown that physical and functional decline associated with hospitalization in older adults considerably lengthened hospital stays and increased post-discharge caregiver burden, risk of disability and death and medical expenses. The most widely used muscle strength assessments in hospital settings are handgrip dynamometry and the Medical Research Council (MRC) scale. However, the MRC score is time-consuming to obtain in hospitalized patients and requires adequate training. As such, in hospital settings handgrip dynamometry is noteworthy for its consistent measurements, short application time, simplicity and objectivity in application and scoring and ability to identify overall muscle strength.

Objective: Investigate the association and agreement between handgrip dynamometry measures and the MRC test at admission in hospitalized older adults.

Methods: A methodological (cross-sectional) study with 148 older adults hospitalized in a public hospital in the Federal District, Brazil. Data on age, sex, body mass index (BMI) and engagement in regular physical exercise were collected for sample characterization. The main variable was muscle strength, measured by handgrip dynamometry and the Medical Research Council (MRC) scale. The data were analyzed using descriptive statistics, Spearman's correlation and the Kappa statistic ($\alpha=5\%$).

Results: of the older adults included in the study, 41.9% were women, 79.7% were sedentary, aged 60 to 101 years (median = 70 years), taking 5.14 continuous use drugs, with an average BMI of 26.22 Kg/m^2. The average handgrip strength was 23.83 Kgf (SD=8.45) and the MRC score was 54.94 points (SD=5.709). Muscle weakness was identified in 60.8% of participants via handgrip dynamometry and in 10.8% via the MRC. There was a moderate correlation (r=0.646; $p<0.001$) between handgrip strength and MRC score and weak agreement (K=0.122; p=0.004) between the muscle weakness diagnoses of the two instruments.

Conclusion: Unlike the muscle weakness diagnoses obtained by handgrip strength assessment, a minority of participants exhibited muscle weakness when evaluated by the MRC scale, displaying weak agreement between the measures investigated despite the moderate correlation.

Implications: These results suggesting that handgrip strength and MRC be used in sequence, with dynamometry as a rapid initial

screening tool that, when abnormal, should be followed by the MRC to specifically identify the typical distribution of muscle weakness. Information on muscle strength from hospital admission to discharge can provide specific starting points for personalized interventions to combat sarcopenia and prevent functional decline in the hospital setting and after acute hospitalization.
Keywords: Aged, Hospitalization, Muscle Strength

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RISK OF SARCOPENIA AND ASSOCIATED FACTORS IN HOSPITALIZED OLDER ADULTS WITH CARDIOVASCULAR DISEASE

Luciana de Lima Sousa[1], Jeremias Bruno Silva de Oliveira[1], Paloma Boni de Lima[1], Mariana de Grande dos Santos[2], Osmair Gomes de Oliveira[1], Patrícia Azevedo Garcia[1]
[1] University of Brasilia (UnB), Brasília, Distrito Federal, Brazil
[2] Base Hospital. Institute of Strategic Management of the Federal District, Brasilia, Distrito Federal, Brazil

Background: Low muscle strength and mass with possible impaired physical performance characterizes the muscle disease known as sarcopenia. When not diagnosed or treated, the risk of falls, fractures, hospitalization, hospital costs, longer hospital stays, and negative outcomes increases. In the presence of comorbidities, such as cardiovascular diseases, sarcopenia can be significant and serious. In these patients, muscle weakness has attracted considerable attention in recent years since it is deemed an independent risk factor for disability and a strong predictor of premature death. The SARC-F (simple questionnaire to rapidly diagnose sarcopenia), a valid and consistent instrument to detect people at risk of adverse outcomes associated with sarcopenia, including functional decline, can be used as a screening tool. It consists of 5 items self-reported by patients based on their perceptions regarding strength limitations, the ability to walk, rise from a chair, climb stairs and a number of falls.
Objectives: Analyze the risk of sarcopenia and identify associated factors in hospitalized older adults with cardiovascular disease.
Methods: This is a cross-sectional study conducted with 23 hospitalized older adults with cardiovascular disease in a tertiary hospital of the Federal District, Brazil, classified into two groups: with or without risk of sarcopenia according to the SARC-F. Demographic (age and sex), clinical (number of medications and body mass index —BMI) and physical data (muscle strength and mass) were collected. Muscle strength was assessed using handgrip dynamometry and the Medical Research Council (MRC) scale, and mass by means of electrical bioimpedance. These data were compared between the groups using the student's t and Mann-Whitney U tests.
Results: There was a risk of sarcopenia in 39.1% (n=9) of the sample. In comparison analyses, the group of older adults at risk of sarcopenia were older (mean difference: 14.39 years [95%CI 8.23 — 20.55]; p=0.001), exhibited lower handgrip strength (mean difference: 9.36 KgF [95%CI 0.874 — 17.854]; p=0.032), more frequent muscle weakness on the MRC scale ($X^2(1)=5.367$, p=0.047) and lower appendicular muscle mass (mean difference: 0.763 [95%CI 0.113 —

1.414]; p=0.024). The groups showed no differences for sex, BMI and number of continuous use drugs (p>0.05).
Conclusion: This study found that older adults at risk of sarcopenia are older and obtain worse physical results when compared to their risk-free counterparts. The SARC-F was able to identify hospitalized patients with lower strength and muscle mass.
Implications: The findings show the need to identify hospitalized older adults at risk of sarcopenia using a simple, fast, low-cost, non-invasive assessment, which may contribute to the establishment of early identification strategies in a hospital setting, aimed at developing more assertive measures.
Keywords: Aged, Sarcopenia, Risk Factors

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RELATIONSHIP BETWEEN CARDIORESPIRATORY FITNESS AND INHIBITORY CONTROL IN CHILDREN AFTER AN ACUTE HIIT SESSION: A CROSS-RANDOMIZED TRIAL

Lucila Silva da Silva[1], João Bento Torres Neto[1], Luiz Paulo Freitas Dias Junior[1], Luan Bezerra Moraes[1], Anderson Levy Mardock Corrêa Júnior[1]
[1] Universidade Federal do Pará, Belém, Pará, Brasil

Background: Studies suggest that acute exercise may be beneficial for executive control (Hillman et al, 2003). This result appears especially in the incongruent condition of the flanker test, where inhibitory control is more necessary. In addition, evidence suggests that complementary cardiorespiratory activity is positively related to executive functions in childhood.
Objectives: To analyze the relationship between cardiorespiratory fitness and inhibitory control and compare the acute effects of two HITT protocols on the inhibitory control of schoolchildren
Methods: This trial included 21 children in the 4th year of a municipal school in the city of Belém. Cardiorespiratory fitness was assessed using the 20-meter shuttle test. The volunteers ran at a pace set by a cell phone application that emitted beeps at specific intervals for each stage. The duration of the test depends on each person's cardiorespiratory fitness. Then, based on the level of cardiorespiratory fitness, the participants were divided into two groups (Good, n=10; Regular, n=11) The method used was the randomized crossover clinical trial, in which all participants performed two separate visits each other for a period of 72 hours. In each visit, the subjects were submitted to a different HIIT protocol: The Tabata protocol lasted 4 minutes with 8 series of 20 seconds of maximum effort and 10 seconds of rest. The Progressive protocol lasted 5 minutes, with 5 series of 20 seconds of maximum effort followed by 30,40,50,60 and 20 seconds of passive rest respectively, the exercises used body weight and consisted of squats, jumps and races. And to evaluate the inhibitory control, the computerized Flanker test was used. The test was applied at rest, before HIIT, and repeated 11 minutes after performing the exercises. Results were analyzed by estimation statistics and results expressed as significance (p), confidence interval (95%) and effect size (g). Congruent and incongruent response time (RT) were analyzed.