APPLICATION OF THE CONTINUOUS SCALE PHYSICAL FUNCTION (CS-PFP10) IN CLINICAL POPULATIONS

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Some commonly used clinical outcome measures for assessment of physical function in knee osteoarthritis (OA) and in total knee arthroplasty (TKA) patients include the Western Ontario and MacMaster University Index (WOMAC), Knee Society Clinical Rating System (KSS), and the Short Form 36 (SF-36). While the WOMAC, KSS, and SF-36 are primarily subjective measures of function, a relatively new test called the Continuous Scale Physical Functional Performance 10 (CS-PFP10) requires the participant to perform a variety of activities of daily living in a standardized fashion measuring physical function objectively. CS-PFP10 test has shown to be valid, reliable, and sensitive test of physical function in older adults (Cress, et al. 1996, 2005).

PURPOSE: The purpose of this investigation was to examine the application of the CS-PFP10 in OA and TKA patients. It was hypothesized that the CS-PFP10 scores would be associated with the other validated subjective measures of physical function and that the CS-PFP10 would be sensitive to change in physical function over time.

METHODS: The functional performance of 37 (n=37) knee OA patients was studied and 26 of those patients (n= 26) were followed at 6 weeks and 12 weeks after TKA using WOMAC, KSS, and SF-36, and the objective physical functional test CS-PFP10. Pearson correlation was utilized to determine the degree of associations between the outcomes tools and repeated measures analysis of variance was performed to examine change in the variables over time.

RESULTS: At baseline, the mean values for the CS-PFP10 total score, WOMAC Total Score, function score of the KSS, and SF-36 Physical Composite scores were 35.54±19.21, 55.48±14.06, 37.47±14.45, and 37.01±7.59, respectively. The CS-PFP10 total scores and correlated with the WOMAC Total Score (r=-.451; p=.005), KSS Knee Function Score (r=.605, p=.000), and SF-36 Physical Function scores (r=.354, p=.040). The WOMAC Physical Function Sub-score associated with the total CS-PFP10 score with an r-value of -.551 (p=.000). At 6 weeks post-operative (post-op) assessments of the TKA patients, all measures revealed functional improvement with mean values of 42.71±15.63 for CS-PFP10, 21.00±8.35 for WOMAC Physical Function, 54.97±14.52 for KSCRS Function Score, and 36.74±6.75 for SF-36 Physical Composite Score. The CS-PFP10 total score and the KSCRS Function and Knee scores improved further from 6 weeks to 12 weeks post-op (p<0.05). Also, CS-PFP10 domain scores of lower body strength, endurance, and balance and coordination further improved from 6 weeks to 12 weeks(p<0.05). The mean scores for total CS-PFP10 and KSCRS function were 50.42±13.46 and 67.08±11.96, respectively. WOMAC and SF-36 scores did not improve from 6 weeks to 3 months post-op. These data suggest that the CS-PFP10 is capturing the information obtained from the traditional subjective outcome measures applied in TKA, but moreover, the CS-PFP10 appears to be detecting changes in function that occur between 6 weeks and 12 weeks post-op.

CONCLUSION: CS-PFP10 is associated with WOMAC Physical Function, WOMAC Total, KSS Knee Score, KSS Knee Function Score, and SF-36 Mental composite and SF-36 Physical function scores. This supports the CS-PFP10 as a useful tool in measuring ADL-based physical function in OA and TKA patients objectively. Continued examination of the CS-PFP10 and other outcomes measurement tools will provide insight into choice of functional assessment instruments when working with OA patients.

Keywords: Osteoarthritis, Physical Disability, Knee

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