Use of the Physical Performance Test to Assess Preclinical Disability in Subjects with Asymptomatic Carotid Artery Disease

Nancy C. Landgraff, Susan L. Whitney, Elaine N. Rubinstein, Howard Yonas


Introduction:
Health care professional who care for patients with reported asymptomatic carotid artery disease suspect that some patients may not be functioning as well as they report. Research has found that the use of performance-based measures can predict and identify slight functional declines. A performance-based measure such as the Physical Performance Test (PPT), which assesses various levels of physical function by mimicking ADLs, has been considered in helping to identify early physical decline in diseases that may present with preclinical disability. Preclinical disability is a decrease in activity level or an alteration to perform the task without the individual recognizing functional change, an affect that may be commonly associated with asymptomatic carotid artery disease.

Methods Continued:
N=39 subjects with asymptomatic carotid artery disease
•24 Males, 15 Females
•3 subgroups – unilateral or bilateral moderate stenosis, unilateral or bilateral severe stenosis, and unilateral or bilateral occlusion via Doppler study, CTA scan, or MRI
•Asymptomatic status - patient report history and examination.
•Subjects were excluded from the study if they had a history of a stroke, dementia, unable to speak English, non-weight bearing status due to orthopedic condition, or severe cardiopulmonary compromise

Measure – Physical Performance Test
•9-item and 7-item
•Global measure of physical performance of basic and complex ADLs
•Individual tasks were timed as well

Results:
•Significant difference was found between groups on the 9-item and 7-item PPT
•Demonstrated less than optimal on the PPT
•Simulated eating was the only significant difference findings in regards to level of carotid artery stenosis
•Moderate stenosis had recorded significantly slower times than subjects with severe and occlusion

Discussion and Conclusion:
•Based on PPT scores, subjects with asymptomatic carotid artery disease appear to have changes in function.
•Indicative of preclinical disability
•All asymptomatic carotid artery disease subjects with stenosis and occlusion scored at least 25% below optimal function
•Instead, these subjects are symptomatic
•Also, increased risk for stroke

Limitations:
•Small sample size
•Unequal groups
•Single rater aware of diagnostic status
•Possible co-morbidities altering result

Clinical Relevance:
•Physical therapist need to consider that asymptomatic carotid artery disease patients may by symptomatic
•Investigate patient’s functional limitations – small or large – through clinical observation and outcome measures
•Increase ability to identify stroke risk to educate patients

Article #1:
•Study used the Continuous-Scale Physical Function
•Results show that using an objective measurement tool more reliable than self-reported data

Article #2:
•Study found that PPT helpful in identifying function and physical limitations, prior to self-reported disability.
•Found PPT to be sensitive to identify preclinical disability.

Summary:
The PPT can be used as a valuable tool to identify preclinical disability in patients with cardiovascular diseases such as CAD and CHD. Self-reported outcomes can fall short of actual physical limitations. Therefore, it is important to include functional objective outcomes for cardiac patients, to accurately assess patients’ ability to perform ADLs.