Single Leg Squat Test

Kalsi-Ryan et al., recommend that the modified Japanese Orthopaedic Association Scale, Nurick scale, Myelopathy Disability Index, Neck Disability Index, and 30-Meter Walk Test are most appropriate for the assessment of CSM. However, 6 additional outcome measures (QuickDASH, Berg Balance Scale, Graded Redefined Assessment of Strength Sensibility and Prehension, Grip Dynamometer, and GAITRite Analysis) were identified, which provide complementary assessments for CSM. SUMMARY STATEMENTS: There does not exist a single or composite of outcome instruments that measures myelopathy impairment, function/disability, and participation that have also demonstrated reliability, validity, and responsiveness in a CSM population. More work in the development and psychometric evaluation of new or existing measures is necessary to identify the ideal composite of measures to be used in the clinical and research settings. The mJOA, Nurick grade, NDI, MDI, and 30MWT should be adopted in any clinical practice that treats CSM both for screening and clinical follow-up. We propose that clinicians and researchers consider using the ancillary measures identified, such as the QuickDASH, Berg Balance Scale, GRASSP version 1.0, Grip Strength, and GAITRite Analysis. It is highly recommended that baseline and follow-up measurements should be performed in patients with CSM [1].

<html><iframe width="560" height="315" src="https://www.youtube.com/embed/-DOoB9RqykE" frameborder="0" allowfullscreen></iframe></html>

Fifteen patients with cervical spondylotic myelopathy (CSM) were enrolled in this prospective study. Clinical data and scores from standard outcomes questionnaires were obtained before and after surgery. Patients also participated in experimental test protocols consisting of standard kinematic gait testing, the Purdue pegboard test, and the novel single leg squat test (SLS).

The SLS test protocol was well tolerated by CSM patients and generated objective performance data over short test periods. In patients who participated in postoperative testing, the group measures of mean SLS errors decreased following surgery. Gait velocity measures followed a similar pattern of group improvement postoperatively. Practical barriers to implementing this extensive battery of tests resulted in subject attrition over time. Compared with kinematic gait testing, the SLS protocol required less space and could be effectively implemented more efficiently.

The SLS test provides a practical means of obtaining objective measures of leg motor sensory functions in patients with CSM. Additional testing with a larger cohort of patients is required to use SLS data to rigorously examine group treatment effects [2].

1)
Kalsi-Ryan S, Singh A, Massicotte EM, Arnold PM, Brodke DS, Norvell DC, Hermsmeyer JT, Fehlings MG. Ancillary outcome measures for assessment of individuals with cervical spondylotic myelopathy. Spine (Phila Pa 1976). 2013 Oct 15;38(22 Suppl 1):S111-22. doi: 10.1097/BRS.0b013e3182a7f499. Review. PubMed PMID: 23963009.

2)
Abode-Iyamah KO, Viljoen SV, McHenry CL, Petrie MA, Stoner KE, Dahdaleh NS, Grosland NM, Howard MA, Shields RK. Effect of Surgery on Gait and Sensory Motor Performance in Patients With Cervical Spondylotic Myelopathy. Neurosurgery. 2016 Nov;79(5):701-707. PubMed PMID: 27759677.