



Letter to the Editor concerning “Myelopathy disability index: establishing criteria for mild, moderate and severe impairment in patients with degenerative cervical myelopathy” by Pons Carreto A et al. (Eur Spine J; 2023: 10.1007/s00586-022-07506-2)

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Dear Editor,

We would like to thank Pons Carreto et al. for their efforts in their study on establishing criteria for mild, moderate and severe impairment in patients with degenerative cervical myelopathy (DCM) using the myelopathy disability index (MDI) scale [1]. The authors have identified the need for an objective and reproducible clinical grading system to assess the severity of DCM, as current methods such as the modified Japanese Orthopaedic Association (mJOA) score are subjective and physician-oriented. However, we have several critiques and concerns regarding the methodology and conclusions of the study.

Firstly, the sample size of 64 patients is relatively small for a study of this nature and may not be representative of the wider DCM population. It would have been beneficial to have a larger sample size in order to increase the power of the study and reduce the potential for bias. Additionally, the study is a cross-sectional design with only three time points of data collection, which limits the ability to draw conclusions about the longitudinal changes in severity of DCM and the effectiveness of treatment. A larger, prospective study with multiple time points of data collection would provide more robust evidence for the proposed MDI cut-off values.

The use of the mJOA score as the anchor for the receiver operating characteristic curve (ROC) analysis to determine cut-off values for mild, moderate and severe DCM raises concerns. The authors correctly identified limitations with the mJOA score, including subjectivity and low sensitivity

to change. However, using the mJOA as the anchor for the ROC analysis means that the results of the study are still ultimately influenced by the subjectivity and limitations of the mJOA score. It may have been more appropriate to use a different, more objective measure as the anchor, such as objective functional tests.

Furthermore, the cut-off values for the mJOA score used in this study to classify the severity of DCM (mild: 15–17, moderate: 12–14, severe: ≤ 11) are different from the ones previously established by Tetrault et al. (mild: 16–18, moderate: 13–15, severe: ≤ 12) [2]. This inconsistency in the definitions of the severity categories may have led to confusion and reduced the validity of the study's conclusions.

The internal validation of the cut-off values using functional tests and Nurick score also raises concerns. The authors used a one-way ANOVA to compare functional test scores between severity groups, but seemingly did not adjust for multiple comparisons, which increases the risk of false positives. Additionally, the use of the Nurick score as a validation tool is questionable as it is a categorical scale with low sensitivity for assessing the full range of DCM, particularly mild presentations [3].

Moreover, the study's internal validation of the MDI cut-off values using the 30-m walking test and nine-hole peg test as functional measures is insufficient. These tests do not adequately capture the full range of functional impairment in DCM. The use of a more comprehensive functional assessment tool like the Spinal Cord Independence Measure (SCIM) would provide more robust evidence for the proposed MDI cut-off values [4].

In conclusion, while we appreciate the attempt to establish objective cut-off values for the severity of DCM using the MDI score, we have concerns regarding the methodology and conclusions of the study. A larger sample size and the

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use of more objective anchors and validation tools would strengthen the validity of the results.

Sincerely,

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Declarations

Conflicts of interest The authors of this paper have no relevant conflicts of interest or competing interests to disclose.

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