A clinical scale for measuring the neurological status of patients with degenerative cervical spine diseases has been proposed and discussed in the Japanese Society of Spinal Surgery. As a result, the following Neurosurgical Cervical Spine Scale (NCSS) has been defined.

The scale consists of two parts, A: neurological status evaluation using scoring systems, and B: performance status evaluation. In A, motor function of both upper and lower extremities, sensory function and pain, radicular or non-radicular, are independently measured.

**A: Neurological status**

1) Lower extremity motor function

- **Total disability (Score 1):** Chair bound or bedridden.
- **Severe disability (Score 2):** Needs support in walking on flat, and unable to ascend or descend stairways.
- **Moderate disability (Score 3):** Difficulty in walking on flat, and needs support in ascending or descending stairways.
- **Mild disability (Score 4):** No difficulty in walking on flat, but mild difficulty in ascending or descending stairways.
- **Normal (Score 5):** Normal walking, with or without abnormal reflexes.

2) Upper extremity motor function

- **Total disability (Score 1):** Totally unable to perform daily activities.
- **Severe disability (Score 2):** Severe difficulty in daily activities with motor weakness.
- **Moderate disability (Score 3):** Moderate difficulty in daily activities with hand and/or finger clumsiness.
- **Mild disability (Score 4):** No difficulty in daily activities, but mild hand and/or finger clumsiness.
- **Normal (Score 5):** Normal daily activities, with or without abnormal reflexes.

3) Sensory function and/or pain

- **Severe disturbance (Score 1):** Severe difficulty in daily activities with incapacitating sensory disturbance and/or pain.
- **Moderate disturbance (Score 2):** Moderate difficulty in daily activities with sensory disturbance and/or pain.
- **Mild disturbance (Score 3):** Normal daily activities, but mild sensory disturbance and/or pain.
- **Normal (Score 4):** Neither sensory disturbance nor pain.

**B: Performance status**

- **Grade A:** Total disability.
- **Grade B:** Unable to work and limited daily activities.
- **Grade C:** Able to work partially, but otherwise normal daily activities.
- **Grade D:** Able to work, but unable to engage in previous work.
- **Grade E:** Able to engage in previous work.

Before application of this scale, the following should be considered.

1. This grading and scoring are applicable only to degenerative diseases of the cervical spine.
2. Where different neurological statuses are demonstrated in the right and left extremities, the worst status should be recorded.
3. The neurological function of a patient can thus be easily expressed as NCSS 1:1:1:A for the most severely disabled, or NCSS 5:5:4:E for normal subjects.
4. Comparison of the neurological status at the initial and follow-up examinations can be expressed by the following formula.

\[ A(\%) = \left( \frac{T_F - T_i}{14} \right) \times 100 \]

A is percent improvement, \( T_i \) is the total of scores in the initial examination, and \( T_F \) is the total of scores in the
follow-up examination.

5. Differentiation of grades D and E of the performance status may not be possible for a housewife or someone without work other than usual daily activities. In such a case the performance status may be expressed as grade D/E.

This scale will we hope facilitate better communication when discussing various therapeutic maneuvers for degenerative cervical spine diseases.

Appendix

This grading and scoring system was designed by the scale committee of the Japanese Society of Spinal Surgery and approved at the organizing committee of this society.

Members of the Scale Committee (in alphabetical order):

Satoru Kadoya (chairperson, Kanazawa Medical University), Tomokazu Goya (Miyazaki Medical College), Akira Hakuba (Osaka City University), Junya Hanakita (Shizuoka General Hospital), Masatsune Ishikawa (Kyoto University), Yoshinobu Iwasaki (Hokkaido University), Tadashi Kojima (Mie University), Tsunemaro Koyama (Ohtsu Municipal Hospital), Satoru Kubota (Saitama Medical School), Kazuhiko Kyoshima (Shinshu University), Hiroshi Nakagawa (Aichi Medical University), Tsutomu Nakamura (Kanazawa Medical University), Shigekuni Tachibana (Kitasato University), Norihiko Tamaki (Kobe University), Hiroshi Takahashi (Tokyo Metropolitan Neurological Hospital), Tateo Takahashi (Nagoya National Hospital), Masamichi Tomonaga (Fukuoka University), Hiroshi Yamada (Aichi Medical University), Isao Yamamoto (Tokai University).

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