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ASSESSMENT OF THE MINIMUM CLINICALLY IMPORTANT DIFFERENCE IN NEUROLOGICAL FUNCTION AND QUALITY OF LIFE AFTER SURGERY IN CERVICAL SPONDYLOTIC MYELOPATHY PATIENTS: A PROSPECTIVE COHORT STUDY

Introduction/Aim

The aim of this study was to evaluate the application of the minimum clinically important difference (MCID) concept to post-operative clinical results by using a prospective cohort study in Chinese patients with cervical spondylotic myelopathy (CSM).

Materials and Methods

The sample consisted of 113 patients who underwent surgical treatment for CSM in our hospital between February 2008 and November 2012. The preoperative and 1-year postoperative modified Japanese Orthopaedic Association (mJOA) scores, mJOA score recovery rate, physical component summary (PCS) and mental component summary (MCS) of the Short Form 36(SF-36) were collected. MCID of each outcome measurement was calculated by four approaches including average change, minimum detectable change, change difference and receiver operating characteristic (ROC) curve. The responsiveness of each measurement was then analyzed by the area under the curve (AUC) of ROC and correlations between responses to the anchor.

Results

The patients presented a statistically significant improvement ($p < 0.01$) postoperatively in mJOA, PCS, and MCS. The MCID calculated by four approaches varied from 4.09 to 9.62 for the PCS, 3.11 to 7.41 for the MCS, 1.25 to 3.07 for mJOA score, and 31.37% to 44.02% for mJOA recovery rate. In addition, the improvement of the mJOA score owned the highest responsiveness of the four outcome measurements.

Discussion

There has been a gradual shift in the medical scientific community from the use of traditional clinical-based outcome measures to quality of life measures. A MCID value in a given study that exceeds a threshold value indicates that a clinically significant change was achieved, which may validate a “decision to treat”. To the best of our knowledge, there are no previous studies that determined the MCID, neurological function, and patients’ subjective evaluations with a relatively long follow-up period.

Conclusion

The threshold value of the MCID was determined by the choice of the assessment approach. In addition, the recovery rate of the mJOA score appeared to be the most valid and responsive measure of effectiveness of surgery in CSM patients.