Defining the Minimum Clinically Important Difference for Grade I Degenerative Lumbar Spondylolisthesis: Insights from the Quality Outcomes Database

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Introduction

The concept of minimum clinically important difference (MCID) is considered the new standard for determining the effectiveness of a given treatment and describing patient satisfaction in response to that treatment. Herein, we sought to determine the MCID associated with surgical treatment for degenerative lumbar spondylolisthesis.

Methods

We queried the Quality Outcomes Database registry from July 2014 through December 2015 for patients undergoing posterior lumbar surgery for grade I degenerative spondylolisthesis. Recorded patient reported outcomes included Oswestry Disability Index (ODI), EQ-5D, numeric rating scale (NRS)-leg pain and -back pain. Anchor-based (using the NASS satisfaction scale) and distribution-based (half a standard deviation, small Cohen's effect size, standard error of measurement and minimum detectable change (MDC)) methods were used to calculate the MCID for each PRO.

Results

A total of 441 patients (80 laminectomies alone, 361 fusions) from 11 participating sites were included in the analysis. Change in functional outcomes scores between baseline and 1-year were 23.5 ± 17.4 points for ODI, 0.24 ± 0.23 for EQ-5D, 4.2 ± 3.5 for NRS-LP, and 3.7 ± 3.2 for NRS-BP. The different calculation methods generated a range of MCID values for each PRO: 3.3 to 26.5 points for ODI, 0.04 to 0.3 points for EQ-5D, 0.6 to 45.5 points for NRS-leg pain and 0.5 to 4.12 points for NRS-back pain. The MDC approach appeared to be the most appropriate for calculating MCID because it provided a threshold greater than the measurement error and was closest to the average change difference between the satisfied and not satisfied patients. On subgroup analysis, the MCID thresholds for laminectomy alone patients were comparable to those undergoing arthrodesis as well as the entire cohort.

Conclusions

The MCID for PROs was highly variable depending on calculation technique. The MDC seems to be a statistically and clinically sound method for defining the appropriate MCID value for patients with grade I degenerative lumbar

Learning Objectives

By the conclusion of this session, participants should be able to: 1) Describe the importance of PROs in evaluating treatment success 2) Discuss, in small groups, the different MCID calculation methods 3) Discuss the specific MCID thresholds for grade I degenerative spondylolisthesis.

References