

Patient Characteristics That Increase Likelihood of Achieving ODI MCID Up to Two-Years After Spine Surgery: Analysis of the Michigan Spine Surgery Improvement Collaborative

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Introduction

With the increasing frequency of spine surgery, 1-6 there is an important need to demonstrate the effectiveness of these procedures to provide clinical benefit.^{7, 8} Patient reported outcomes (PROs) have become the standard measurement of recording outcomes, with achieving a minimally clinically important difference (MCID) of the PRO being considered a successful surgery. We sought to identify which patient characteristics increase the likelihood of achieving Oswestry Disability Index (ODI) MCID after lumbar spine surgery.

Methods

The Michigan Spine Surgery Improvement Collaborative (MSSIC) is a statewide multicenter quality improvement collaborative.⁹ Using MSSIC, we identified 4293 at 90d, 2408 patients at 1yr, and 826 patients at 2yr with complete ODI data. Multivariate logistic regression models were constructed to identify risk factors for achieving MCID. MCID was defined as a change of ODI of 13.5 points or more.

Results

At 90d follow-up, 61.31% achieved ODI MCID. At 1yr follow-up, 64.91% achieved MCID. At 2yr follow-up, 64.53% achieved MCID. Factors that decreased likelihood of achieving ODI MCID at 90d, 1yr, and 2yrs include lower baseline ODI ($p < 0.001$), higher baseline back pain score ($p < 0.004$), liability ($p < 0.05$), previous spine fusion ($p < 0.001$), tobacco usage ($p < 0.033$), opioid usage = 6mo ($p < 0.002$), and depression ($p = 0.002$). Factors that decreased likelihood of achieving OD MCID at 90d and 1yr include unemployment ($p = 0.009$), decreasing education ($p < 0.05$), previous spine surgery ($p < 0.003$), anxiety ($p < 0.04$), ASA > 2 ($p = 0.006$), and symptoms = 3mo ($p < 0.001$). Factors that decreased likelihood of achieving ODI MCID at 90d only include younger age ($p = 0.002$), workman's comp ($p = 0.009$), African American race ($p < 0.001$), and osteoporosis ($p < 0.001$). A BMI = 30 decreased the likelihood of achieving MCID at 2yrs only.

Conclusions

We identified patient characteristics that influence the likelihood of achieving MCID. Knowledge of these characteristics is important to get a better understanding of which patients are more likely to have better outcome after surgery.

Learning Objectives

By the conclusion of this session, participants should be able to:

- 1) Describe the importance of minimally clinically important difference (MCID)
- 2) Describe which patient demographic factors increase or decrease likelihood of achieving ODI MCID

References

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