PROMIS Is More Sensitive In Detecting MCID When Compared to NDI After Surgical Treatment for Cervical Spine Pathology

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INTRODUCTION:

Many clinical trials involving cervical spine pathology currently use NDI as the primary outcome measure, however due to its well-established floor effects, patients with NDI scores <40 are typically excluded. PROMIS scores, which have negligible floor effects, are highly validated and a promising alternative to NDI, especially for use during a clinical trial. Therefore, this study sought to compare the sensitivities of Patient-Reported Outcomes Measurement Information System (PROMIS) scores to Neck Disability Index (NDI) scores for the detection of Minimal Clinically Important Differences (MCID) in surgical patients with low to moderate symptom level cervical spine pathology.

METHODS:

70 patients surgically treated for cervical spine pathology at a tertiary academic medical center between 2013 and 2017 with pre-operative NDI scores less than 40 had NDI, PROMIS Pain Behavior (PB), Pain Interference (PI), and Physical Function (PF) scores collected pre-operatively and post-operatively at 6-week, 3-month, 12-month, and 24-month time points. Post-operative changes in NDI and PROMIS scores were compared to assess sensitivity for detecting MCID.

RESULTS:

Chi-squared statistical analysis revealed differences in the detection of MCID between NDI and PROMIS PI at 6-weeks ($p = .006$), 3-months ($p = .015$), and 12-months ($p = .026$), and PROMIS PB at 24-months ($p = .038$) with PROMIS PI and PB detecting a statistically significant higher percentage of patients meeting MCID.

DISCUSSION AND CONCLUSION:

PROMIS PI and PB appear more sensitive than NDI for the detection of MCID in patients with low to moderate symptom level cervical spine pathology requiring surgery. The use of PROMIS PI and PB scores may allow more patients with lower levels of disease severity to be included in important clinical trials for cervical spine pathology.

Chi Square P Values For Significant Differences Between NDI and PROMIS Domains for the Detection of MCID

	6 Week	3 Month	12 Month	24 Month
NDI v. PROMIS PB	0.124	0.081	0.609	0.038
NDI v. PROMIS PI	0.006	0.015	0.026	0.121
NDI v. PROMIS PF	0.438	0.203	0.447	0.121