Defining MCID in patients following meniscectomy and the role of pre-operative PROMIS scores in predicting clinical improvement

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Objectives: The Patient-Reported Outcomes Measurement Information System (PROMIS) is emerging as a valid and efficient means of collecting patient outcomes in patients with meniscal tears. Our purpose was to examine the role of pre-operative PROMIS computer adaptive test (CAT) scores in predicting post-operative PROMIS CAT scores, as well as the minimal clinically important difference (MCID) following meniscectomy. We hypothesize that pre-operative PROMIS CAT scores will directly impact both post-operative PROMIS CAT scores and likelihood of achieving MCID.
Methods: Patients undergoing arthroscopic meniscectomy that completed PROMIS CAT forms for physical function (PROMIS-PF), pain interference (PROMIS-PI), and depression (PROMIS-D) were utilized. MCID was calculated according to the distribution methodology, and receiver operating characteristics (ROC) were utilized to determine if pre-operative scores were predictive of post-operative outcomes. Preoperative cutoffs were used to predict which patients would likely meet MCID, using 90% specificity.
Results: A total of 135 patients met our inclusion criteria. PROMIS-PF, PROMIS-PI, and PROMIS-D improved 3 months after surgery ($p<0.01$). 62% of the entire cohort met MCID for PROMIS-PF, while 68% met MCID for PROMIS-PI, and 41% met MCID for PROMIS-D. Individuals with PROMIS-PF scores below 34.9 yielded an 82% probability of achieving MCID, while PROMIS-PI scores above 67.5 yielded an 86% probability of achieving MCID and a cutoff of 58.9 for PROMIS-D yielded a 60% probability of achieving MCID, with 90% specificity.
Conclusions: Significant portions of patients undergoing meniscectomy achieve MCID in PROMIS-PF, PROMIS-PI, and PROMIS-D, at the 3-month time point. In particular, patients with PROMIS-PF scores of <34.9 are far more likely to achieve MCID for physical function.

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