Do Achievement of HOOS/KOOS Significant Clinical Benefit as proposed by CMS correlate with Patient Satisfaction and Willingness to Repeat Surgery?

Zhaorui Wang, Eric Guo, Carol A Janney, Christopher N Carender, Brian Richard Hallstrom, Michael Maher Kheir

INTRODUCTION:

Centers for Medicare and Medicaid services (CMS) has recently implemented HOOS and KOOS collection requirement for reimbursement, and plan to publish risk -standarized improvement rates (RSIR) using substantial clinical benefit (SCB) thresholds of 22 points for HOOS and 20 points for KOOS. However, there is paucity of data supporting these thresholds when analyzed using other clinically relevant anchors such as patient satisfaction. Our goal is to study compare the SCB thresholds with different anchors including patient satisfaction, patient improvement, and patient's willingness to repeat surgery. Additionally, we aim to validate the SCB threshold using the MARCQI data set.

METHODS:

We reviewed 5975 cases (2668 TKAs and 3307 THAs) from a single institution between 2015-2023 from the Michigan Arthroplasty Registry Collaborative Quality Initiative (MARCQI). HOOS JR and KOOS JR scores were obtained at preoperative, 6-week and 1-year postoperative timepoints. Demographic variables, comorbidities, and surgery-related variables were retrospectively collected. Logistic regression analyses and anchor-based ROC curves were generated to determine threshold values and efficacy of using pre-operative and post-operative change in HOOS/KOOS JR scores as predictors of patient satisfaction, improvement, and willingness to repeat surgery.

RESULTS:

Pre-op HOOS/KOOS JR scores were poor classifiers (AUC <0.6 for all models tested) of patient satisfaction, improvement, and repeat surgery for both 6 weeks and 1 year post-surgery . However, the net change in HOOS/KOOS JR scores, particularly at 1 year post surgery, were highly predictive of satisfaction, improvement, and willingness to repeat surgery for TKAs (AUC = 0.77, 0.79 and 0.71 respectively) and THAs (AUC = 0.82, 0.85, and 0.77 respectively). Youden's index analysis indicates a delta threshold for prediction of patient satisfaction/improvement/ willingness to repeat surgery to be 24/24/ 26 points for THA respectively and 22 /21/24 points for TKA, respectively.

DISCUSSION AND CONCLUSION:

Although pre-operative KOOS/HOOS and comorbidities scores were poor predictors of post-operative patient-reported satisfaction and improvement, the degree of score improvement postoperatively were highly predictively of patient improvement, satisfaction, and willingness to repeat surgery. SCB thresholds as suggested by CMS appear to be validated in our population and compares favorably to thresholds produced in this study. However prudence should be taken if reimbursement is tied to this metric given that approximately 30% of the population did not achieve SCB at 1 year.