

Clinically Relevant Threshold Achievement Evolves Over Time Following Primary Total Hip Arthroplasty

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INTRODUCTION:

Patient reported outcome thresholds provide insight into patient satisfaction and add clinical relevance to functional outcome scores. The purpose of this study is to define the patient acceptable symptom state (PASS) and minimum clinically important difference (MCID) for modified Harris Hip Score (mHHS), visual analog scale (VAS) for pain, Hip Osteoarthritis Outcome Score for Joint Replacement (HOOS-JR), and the Forgotten Joint Score (FJS) at the two- and five-year postoperative timepoints and identify differences in threshold achievement over time.

METHODS:

Data were retrospectively reviewed for all patients who underwent primary total hip arthroplasty (THA) at the study's institution between December 2016 – February 2020. Included patients had complete two-year and five-year outcome scores with anchor questions for the mHHS, VAS for pain, and HOOS-JR, as well as FJS postoperatively. Receiver operating characteristic (ROC) curve analyses were used to calculate PASS threshold values and rates of achieving these thresholds were compared between the two- and five-year postoperative time point. The MCID was determined according to the distribution method for the mHHS and VAS and rates of achievement were similarly compared.

RESULTS:

A total of 221 hips were included in the study. PASS thresholds and rates of achieving these thresholds at the 2-year mark for the mHHS, HOOS-JR, FJS, and VAS were as follows: 88.0 (76%); 71.9 (85.5%); 53.1 (89.1%), and 2.5 (84.6%). PASS thresholds and rates of achieving these thresholds at the five-year mark for the mHHS, HOOS-JR, FJS, and VAS were as follows: 75.0 (86.4%), 60.4 (91.0%), 51.0 (86.9%) and 2.3 (83.3%). Significantly more patients achieved the PASS at the five-year time point compared to the two-year time point for the mHHS (84.6% vs.76%; $p < 0.01$). The MCID threshold for the mHHS was 8.5, and rates of achieving this threshold for the mHHS at the 2-year and 5-year timepoints were 89.6% and 88.7% respectively. The MCID threshold for VAS was 1.4, and rates of achieving this threshold for VAS at the 2-year and 5-year timepoints were 95.0% and 97.3% respectively. MCID was achieved at similar rates over the two- and five-year time points for both the mHHS ($p = 0.76$) and VAS ($p = 0.22$).

DISCUSSION AND CONCLUSION:

Rates of achieving PASS thresholds increased from short- to mid-term follow-up. PASS threshold values also reflected lower functional demands as time went on. There were no significant differences in rates of achieving the MCID. Taken together, these findings suggest that while overall function may decrease with advancing age, as evidenced by lower PASS threshold scores, patient satisfaction with their surgical outcome continues to increase over time.