Establishing Clinically Meaningful Outcomes Following Revision Reverse Shoulder Arthroplasty

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INTRODUCTION:
As the volume of total shoulder arthroplasty (TSA) increases, so does the need for revision procedures. Revision reverse shoulder arthroplasty (rRSA) presents greater technical challenges and variable patient outcomes. However, thresholds for clinically meaningful improvement remain poorly defined. This study establishes minimum clinically important difference (MCID) and substantial clinical benefit (SCB) values for patient-reported outcomes (PROMs) and range of motion (ROM) after revision rRSA to guide clinical decision-making and patient counseling.
METHODS: A retrospective review was conducted on patients undergoing revision rRSA for failed shoulder arthroplasty between 2007 and 2020 by a single fellowship-trained shoulder surgeon. PROMs included the Simple Shoulder Test (SST), Constant-Murley Score (CMS), American Shoulder and Elbow Surgeons (ASES) score, UCLA Shoulder Score, Shoulder Activity Scale (SAS), and SPADI. MCID and SCB were determined using anchor-based methods. Paired and independent t-tests assessed change, and logistic regression identified predictors of achieving MCID and SCB.
RESULTS:
A total of 91 patients were included in this analysis. The cohort had a mean age of 67.8 years and a mean body mass index (BMI) of 29.7 kg/m². A majority of the cohort was male (51.7%) and Caucasian (93.2%). The MCID was found to be 3.5 for SST, 30.6 for CMS, 25.3 for ASES, 11.2 for UCLA, -42.1 for SPADI, 17.4 for SAS, 56.4° for forward flexion, 47.6° for abduction and 11.7° for external rotation. The SCB was found to be 6.3 for SST, 34.3 for CMS, 45.6 for ASES, 17.6 for UCLA, -56.8 for SPADI, 30.1 for SAS, 78.4° for forward flexion, 66.8° for abduction and 7.9° for external rotation. MCID was achieved by 72.5% of patients and 43.9% (n=40) met SCB at final follow up. Age, sex, and BMI were not found to be significantly associated with meeting MCID or SCB.
DISCUSSION AND CONCLUSION: The majority of patients undergoing revision rRSA for failed arthroplasty achieve meaningful clinical improvement. The MCID and SCB thresholds defined here provide critical benchmarks for evaluating outcomes in revision settings. These findings provide shoulder surgeons with objective tools to evaluate outcomes, define surgical success, and counsel patients facing complex revision surgery with greater confidence and precision.