

Time Required to Achieve Clinically Significant Outcomes following Arthroscopic Capsular Release for the Treatment of Idiopathic Shoulder Adhesive Capsulitis

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INTRODUCTION:

Clinically significant outcome (CSO) thresholds have been previously established for Patient-Reported Outcome Measurements (PROMs) in the context of Arthroscopic Capsular Release (ACR) as a treatment for Idiopathic Shoulder Adhesive Capsulitis. However, the specific time required to reach these CSOs for PROMs scores remains unknown.

The purpose of this study was to 1) determine the time required to achieve the minimal clinically important difference (MCID), substantial clinical and Patient Acceptable Symptom State (PASS) score thresholds after ACR for Visual Analogue Scale (VAS), American Shoulder and Elbow Surgeons score (ASES), Single Assessment Numeric Evaluation (SANE), and Constant score and 2) identify patient factors associated with earlier or delayed achievement of these clinical benchmarks.

METHODS:

A prospective analysis was performed of patients who underwent arthroscopic capsular release for the treatment of idiopathic shoulder adhesive capsulitis between October 2019 and August 2020. Patients completed preoperative, 2-month, 4-month, 6-month, 1-year PROMs. Threshold values for MCID, PASS were obtained from previous literature for the VAS, ASES, SANE, and Constant score. The time in which patients achieved MCID, and PASS was calculated using Kaplan-Meier analysis. A Cox multivariate regression model was used to identify variables correlated with earlier or later achievement of CSOs.

RESULTS:

Included were 73 patients undergoing ACR (age, 55.5 ± 9.2 years; body mass index, 26.6 ± 4.5 kg/m²). (**Table 1**) By 1-year follow up, the cumulative percentage of patients achieving the MCID for VAS, ASES, SANE, and Constant was 98.6%, 100%, 100%, and 98.6%, respectively. By 1-year follow up, the cumulative percentage of patients achieving PASS for VAS, ASES, SANE, and constant was 95.8%, 98.6%, 91.7%, and 84.9%, respectively. (**Figure 1-4**) The mean time required to reach the MCID thresholds for VAS, ASES, SANE, and Constant was 1, 1, 2, and 1 months, respectively. The mean time required to reach the PASS thresholds for VAS, ASES, SANE, and Constant was 4, 4, 4, and 2 months, respectively. Factors associated with delayed achievement of MCID for SANE included higher BMI (Hazard Ratio (HR) 0.94, 95% Confidence Interval (CI) 0.8-0.9) and diabetes (HR 0.48, 95% CI 0.2-0.9). Age was associated with delayed achievement of the PASS for VAS.

DISCUSSION AND CONCLUSION: Most patients undergoing ACR achieved CSOs within a 4-month timeframe. Notably, patients experienced improvements in clinical significant outcomes within one month, while satisfactory outcomes were achieved within four months following ACR. These findings highlight the effectiveness of ACR in facilitating timely and favorable patient outcomes.

Table 1. Baseline demographic characteristics of the study population

	Count (%)
Age (mean (SD))	55.5 (9.2)
Sex (%)	
Male	47 (64.1)
Female	26 (35.9)
BMI (mean (SD))	26.6 (4.5)
Smoking (%)	
Nonsmoker	68 (93.2)
Smoker	5 (6.8)
Comorbidity (%)	
Asthma	10 (13.7)
Hypertension (%)	
No	67 (91.8)
Yes	6 (8.2)
Diabetes (%)	
No	67 (91.8)
Yes	6 (8.2)
Diabetes (%)	
No	67 (91.8)
Yes	6 (8.2)

Figure 1. The proportion of the population that achieved MCID and PASS for VAS at various follow-up timepoints.

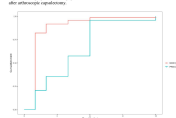


Figure 2. The proportion of the population that achieved MCID and PASS for ASES at various follow-up timepoints.

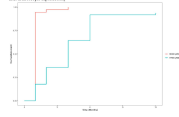


Figure 3. The proportion of the population that achieved MCID and PASS for SANE at various follow-up timepoints.

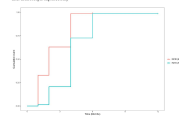


Figure 4. The proportion of the population that achieved MCID and PASS for Constant at various follow-up timepoints.

