Shoulder Arthroplasty Outcomes in Patients with Functional Somatic Syndromes

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INTRODUCTION:
Shoulder arthroplasty is commonly used to treat patients with conditions ranging from irreparable rotator cuff tears to glenohumeral osteoarthritis. Multiple studies have shown that certain surgical procedures are associated with worse outcomes in patients diagnosed with functional somatic syndromes (FSS), which are physical symptoms with no identifiable organic cause. The purpose of this study was to compare the patient-reported outcomes measures, complication rates, and return to hospital in a cohort of patients undergoing either anatomic total shoulder arthroplasty (aTSA) or reverse total shoulder arthroplasty (rTSA) with at least one FSS to a cohort of patients without FSS. We hypothesized that the FSS cohort would have a smaller proportion of patients meeting Minimal clinically important differences (MCID) for Patient-Reported Outcomes Measurement Information System (PROMIS) scores following shoulder arthroplasty.
METHODS:
A retrospective review of the electronic medical record identifying patients age who underwent rTSA or aTSA from 2015-2022 at a single hospital system was performed. Patients with a diagnosis of 1+FSS were included in the FSS cohort and a control cohort consisted of patients without a diagnosis of FSS. Demographic data, medical comorbidities, operative data, and patient recorded outcomes including Patient-Reported Outcomes Measurement Information System Upper Extremity (PROMIS-UE), Pain Interference (PROMIS-PI), and Depression (PROMIS-D) at 6 weeks, 3 months, 6 months, and last follow up after 6 months postoperatively were collected. Minimal clinically important differences (MCID) were calculated using a distribution method with a threshold of 0.5 standard deviation from the mean. A 1:1 propensity matching to control for age, gender, and BMI was performed for the final analysis.
RESULTS:
The final study included 144 patients in the FSS cohort and 275 patients in the control cohort. Demographic analysis showed the FSS cohort had significantly more females ($p=0.024$) and higher BMI ($p=.001$). Propensity matching for age, gender, and BMI resulted in the FSS cohort of 144 and a control cohort of 144. The FSS cohort had significantly higher rates of Type 2 diabetes mellitus ($p=0.03$), depression ($p<0.001$), and anxiety ($p<0.001$) diagnoses. The FSS group had a significantly higher rate of postoperative complications (11.1% vs. 4.2%, $p=0.03$), readmission within 30 days of index surgery (9.7% vs. 2.8%, $p=0.02$), and emergency department visits within 90 days of surgery (13.9% vs. 5.6%, $p=0.02$). Change in PROMIS UE, PI, and D scores at 6 weeks, 3 months, and 6 months showed no significant difference between cohorts. A smaller proportion of patients met MCID for PROMIS UE at 6 weeks postoperatively in the FSS group (30.6% vs. 44.4%, $p=0.04$). There was no significant difference between groups meeting MCID for PROMIS UE at 3 months, 6 months, and 2 years. MCID for PROMIS PI and PROMIS D showed no significant difference between groups at any timepoint.
DISCUSSION AND CONCLUSION: Patients with FSS undergoing shoulder arthroplasty had higher rates of complications and readmission to the hospital within 30 days of surgery; however PROMIS scores were similar to the control group. Patients with FSSs may be at higher risk of complications following rTSA or aTSA. To limit these risks, physicians and patients may consider optimizing the patient's FSS symptoms prior to surgery.