Validation of the Outpatient Arthroplasty Risk Assessment Tool for Safe Same-Day Discharge after Primary Shoulder Arthroplasty: A Retrospective Expansion Study

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INTRODUCTION: Early discharge has been a target of cost control efforts given the growing demand for joint replacement surgery. A medically based risk assessment score known as Outpatient Arthroplasty Risk Assessment (OARA) has shown high predictive ability in achieving safe early discharge following outpatient lower extremity arthroplasty utilizing a score threshold initially set at ≤59, but more recently adapted to ≤79. Shoulder arthroplasty has been shown to have lower associated medical risks than lower extremity arthroplasty. A recent study has shown that an OARA score threshold of 110 can be safe for same day discharge (SDD) following shoulder arthroplasty. That study utilized 422 patients and was conducted prior to the COVID-19 pandemic. The purpose of this study is to reexamine the OARA score threshold for shoulder arthroplasty by evaluating its effectiveness in selecting patients for SDD utilizing a larger population of patients. We hypothesize that the OARA threshold for shoulder arthroplasty will remain higher than for lower extremity arthroplasty.

METHODS: A retrospective review was performed on 734 patients who underwent a primary anatomic or reverse shoulder arthroplasty between April 2018-December 2020 by a single surgeon. As standard practice, all patients were counseled preoperatively regarding SDD and given the choice to stay overnight. Medical history, length of stay, 30 and 90-day readmissions, and 90-day emergency room and urgent care visits were obtained from medical records. Analysis of variance (ANOVA) testing and screening test characteristics compared OARA score performance with American Society of Anesthesiologist Physical Status (ASA-PS) and a previously published OARA threshold used to define low risk for outpatient lower extremity arthroplasty.

RESULTS: A preoperative OARA score cutoff of ≤110 points demonstrated a sensitivity of 93.7% for identifying patients who SDD after shoulder arthroplasty, compared to 65.7% using the hip and knee OARA threshold of ≤59 points (p=0.008) and 63.0% using ASA-PS ≤2 (p=0.003). OARA scores ≤110 also showed a negative predictive value of 87.7% and false negative rate of 6.3% but remained incomprehensive with a specificity of 23.8% (p<0.0001). Patients with OARA scores ≤110 were also 2.3 times less likely to have 90-day emergency room visit (p=0.04) than those with >110. There was no difference in 30-day and 90-day readmission rates for patients with OARA scores ≤59, ≤110, and ASA-PS ≤2.

DISCUSSION AND CONCLUSION: Our study further suggests that a preoperative OARA threshold of ≤110 is effective and conservative in screening patients for SDD following shoulder arthroplasty, with low rates of 90-day emergency room visits and readmissions. This threshold is a useful screening tool to identify patients that are not good candidates for SDD.