2023 Congress Abstracts: Shoulder Arthroplasty

Outpatient Shoulder Arthroplasty in the Covid-19 Era: 90-Day Complications and Risk Factors

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Summary:
Patients who are above 70 years of age, use tobacco, and have ASA score of 3 may be less suitable for outpatient arthroplasty and should be counseled regarding the higher risk of unplanned overnight hospitalization.

Data:
Introduction: With the COVID-19 pandemic placing an increased burden on healthcare systems, shoulder arthroplasties (TSA) are more commonly being performed as outpatient procedures. The purpose of this study was to characterize the 90-day episode-of-care complications of consecutive shoulder arthroplasties defaulted for outpatient surgery without using a prior algorithm for patient selection and to assess for their risk factors. We hypothesized that outpatient shoulder arthroplasty would be a safe procedure for all patients, regardless of patient demographics and comorbidities. Methods: A retrospective review of consecutive patients who underwent planned outpatient anatomic or reverse total shoulder arthroplasty between March 2020 and January 2022 with 3-month follow-up was performed. All patients were scheduled for outpatient surgery regardless of medical comorbidities. Patient demographics, patient-reported outcomes (PROs) including visual analog scale (VAS), subjective shoulder value (SSV), and American Shoulder and Elbow score (ASES); range of motion (ROM); and complications were collected. Multivariate logistic regression was used to identify predictors of the following outcomes: 1. Unplanned overnight hospital stay, 2. 90-day unplanned ED/clinic visit, 3. 90-day hospital readmission, 4. 90-day complications requiring revision. Results: 127 patients (47% male, 17% tobacco users, 18% diabetics) with a mean age 69±9 years were identified, of whom 92 underwent reverse TSA (rTSA) and 35 underwent anatomic TSA (aTSA). All PROs and ROM were significantly improved at 3 months. There were 15 unplanned overnight hospital stays (11.8%) after the procedure. Within 90 days postoperatively, there were 17 unplanned ED/clinic visits (13.4%), 7 hospital readmissions (5.5%), and 4 complications requiring revision (3.1%). Surgical site infection occurred in 1 patient (0.8%), while deep vein thrombosis and pulmonary embolism occurred in 3 (2.4%) and 2 patients (1.6%), respectively. Factors predictive of unplanned overnight stay included age above 70 years (OR, 36.80 [95% CI, 2.20-615.49]; p= 0.012), tobacco use (OR, 12.90 [95% CI, 1.23-135.31]; p= 0.033), and ASA status of 3 (OR, 13.84 [95% CI, 1.22-156.57]; p= 0.034). The only factor predictive of unplanned ED/clinic visit was age over 70 years old (OR, 7.52 [95% CI, 1.26-45.45]; p= 0.027). No factors were predictive of 90-day hospital readmission, or revision. Conclusion: Outpatient shoulder arthroplasty is a safe procedure with excellent outcomes and low rates of readmissions and can be considered as the default plan for all patient undergoing shoulder arthroplasty. Patients who are above 70 years of age, use tobacco, and have ASA score of 3, however, may be less suitable for outpatient arthroplasty and should be counseled regarding the higher risk of unplanned overnight hospitalization.

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Effects Of Different Humeral Stem Length On Stem Alignment And Proximal Stress Shielding In Reverse Total Shoulder Arthroplasty

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Summary:
Although shorter stem could be beneficial for bone preservation, in patients with lower bone mineral density or larger humerus canal diameter, the short stem could lead to humeral stem malalignment resulting in increased proximal humerus stress shielding. Therefore, surgeons should be careful in selecting the length of humeral stem in RTSA.

Data:
Introduction: Humeral stem malalignment and proximal humerus stress shielding are complications neither uncommon nor negligible after reverse total shoulder arthroplasty (RTSA). Furthermore, it is still unclear whether such an association exists between stem malalignment and stress shielding. This study was designed to investigate the effects of different humeral stem length on stem alignment and proximal stress shielding after RTSA. Materials and Methods: Retrospective review was performed on 326 patients who underwent primary RTSA from October 2010 to May 2020 with a minimum 2-year follow-up. The participants were classified into 3 groups according to the humeral stem length of different types of prosthesis used in surgery: Group A (short stem, n = 91), Group B (medium stem, n = 158), Group C (standard stem, n = 77). For radiologic assessment, immediate postoperative neck shaft angle (NSA) was measured to evaluate malalignment. Canal filling ratio (CFR) of humerus metaphysis, distal one-third and distal tip of the humeral stem were measured. Humerus canal diameter at the distal tip of the humeral stem and distal tip decentering of the humeral stem were also measured. At the final follow up, cortical bone thinning, bone resorption and humeral stem subsidence were reviewed to evaluate proximal humerus stress shielding. Functional outcomes were evaluated with range of motion, ASES forms, Simple Shoulder Test and Constant Score. Results: The proportion of humeral stem malalignment was significantly higher in Group A than Group B and C (20.9%, 11.6% and 9.1%, respectively, P = 0.022). The humerus canal diameter was wider at the distal tip of the humeral stem in Group A (P < 0.001), and the distal tip of the humeral stem was more decentered in Group A (P = 0.02). Meanwhile, in terms of stress shielding, there were more cases of bone resorption at medial and lateral metaphysis (P = 0.015 and 0.003, respectively) in Group C. For subgroup analysis in patients of stem malalignment, more stress shielding occurred at medial and lateral metaphysis (P = 0.013 and 0.010, respectively) in Group A. Furthermore, those patients’ bone mineral density was lower and humerus canal diameter at the distal tip of the humeral stem was wider in Group A than Group B and C. There were no differences in functional outcomes among three groups. Discussion and Conclusion: Humeral stem alignment and proximal stress shielding in RTSA had significantly affected by different humeral stem length. Although shorter stem could be beneficial for bone preservation, in patients with lower bone mineral density or larger humerus canal diameter, the short stem could lead to humeral stem malalignment resulting in increased proximal humerus stress shielding. Therefore, surgeons should be careful in selecting the length of humeral stem in RTSA.