

Preoperative Hypertension as a Predictor for Postoperative Outcomes in Total Shoulder Arthroscopy

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Introduction: Total shoulder arthroscopy (TSA) has gained popularity over the last decade, resulting in a two-fold increase the number of procedures performed, with the largest growth reported in patients aged 55-64 years. Given the substantial increase in TSA incidence within this demographic, it is imperative to acknowledge the presence of multiple comorbidities, including hypertension, that impact this patient group. This study investigates the relationship between hypertension and postoperative complications following TSA.

Methods: All patients who underwent TSA between 2015 and 2020 from the American College of Surgeons National Surgical Quality Improvement (NSQIP) database were surveyed. The study population was divided into patients with no hypertension and patients with hypertension. Patient demographics, comorbidities, and 30-day postoperative complications were collected. Logistic regression analysis was used to investigate the relationship between hypertension and postoperative complications.

Results: Compared to no hypertension, hypertension was significantly associated with an increased likelihood of experiencing sepsis ($P = 0.021$), pneumonia ($P = 0.019$), myocardial infarction ($P = 0.038$), blood transfusions ($P = 0.006$), readmission ($P < 0.001$), reoperation ($P < 0.001$), non-home discharge ($P < 0.001$), and any complication ($P < 0.001$). After accounting for significant patient variables, compared to no hypertension, hypertension was independently significantly associated with an increased likelihood of experiencing reoperation (OR 1.47; 95% CI, 1.14-1.90; $P = 0.003$) and any complication (OR 1.10; 95% CI, 1.00-1.20; $P = 0.045$).

Discussion: In general, hypertensive patients are predisposed to a greater amount of surgical complications which may be attributed to the role of increased blood pressure in promoting organ damage, hemodynamic instability, and delayed wound healing. In this study, we identified hypertension as an independent significant predictor for both reoperation and any complication following TSA. Even after accounting for significant patient aspects that could contribute to the need for reoperation, including advanced age and bleeding disorders, hypertension was still found to be an independent risk factor for reoperation in the present study.

Significance/Clinical Relevance: This study provides evidence for incorporating a patient's hypertensive status into preoperative screening, aiming to improve surgical candidate selection and improve surgical outcomes following TSA. Future work is needed to further understand and control hypertension as a preoperative risk factor.

IMAGES AND TABLES:

Table III. Multivariate analysis of 30-day postoperative complications in patients with hypertension, adjusted for significantly associated patient demographics/comorbidities. Bold P Values indicate statistical significance with $P < .05$.

	Hypertension OR, P value (95% CI)
Sepsis	2.00, 0.135 (0.81-5.00)
Pneumonia	0.99, 0.949 (0.64-1.52)
Myocardial infarction	0.94, 0.829 (0.52-1.68)
Blood transfusions	0.92, 0.446 (0.74-1.14)
Readmission	1.13, 0.173 (0.95-1.35)
Reoperation	1.47, 0.003 (1.14-1.90)
Non-home discharge	1.08, 0.181 (0.97-1.21)
Mortality	1.20, 0.638 (0.56-2.55)
Any complication	1.10, 0.045 (1.00-1.20)

OR, odds ratio; CI, confidence interval