

Shoulder Arthroplasty In Patients With Systemic Lupus Erythematosus: What Are The Complication Risks?

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Disclosures: The authors have nothing relevant to disclose.

Introduction: Systemic Lupus Erythematosus (SLE) is a chronic inflammatory autoimmune disease affecting several organ systems with a prominent effect on the joints of the musculoskeletal system. Few studies have elicited an understanding of what the outcomes are in patients with SLE. The purpose of our study investigates and compares the complication rates of patients with Systemic Lupus Erythematosus undergoing shoulder arthroplasty.

Methods: We performed a retrospective review of the IBM Truven Marketscan commercial claims and medicare supplemental databases for all patients undergoing Total Shoulder Arthroplasty (TSA) from 2009-2021. The patients were divided into those with a preoperative diagnosis of SLE and all other patients were utilized as a control. After primary analysis patients were matched based on preoperative baseline characteristics and evaluated for their outcomes.

Results: A total of 69,860 patients underwent arthroplasty, of those 1.2% (815) of those had a preoperative diagnosis of SLE and 98.8% (69,045) of patients with no preoperative diagnosis of SLE were analyzed. In patients with SLE there were increased rates of stroke (3.3% vs 1.7%; p<0.001), surgical site infection (3.4% vs 2.0%; p=0.004), deep venous thrombosis (6.4% vs 2.9%; p<0.001), emergency department visit (19% vs 12.8%; p<0.001), prosthetic joint infection (1.8% vs 0.7%; p<0.001), and revision shoulder arthroplasty (6.7 vs 3.3% p<0.001). When compared to the matched cohort patients with SLE demonstrated higher rates of surgical site infection (3.5% vs 1.8%; p=0.049), a trip to the emergency department (17.1% vs 13.1%; p=0.03), and revision shoulder arthroplasty (6.1% vs 3.3%; p=0.01).

Conclusions: As the utilization of shoulder arthroplasty will likely increase in patients with SLE due to longer life expectancies with treatment advancements it is important to understand the risk profiles of these patients. Our results suggest that patients with SLE incur complications like revisions and infection at higher rates than the rest of the population. It is important for the optimization of these outcomes to not only counsel patients but to help create perioperative guidelines to assist in the care and treatment of these patients.

Significance/Clinical Relevance: Shoulder arthroplasty in patients with SLE poses important risks considerations and complexities that are important to understand for perioperative management of these patients in the future.

	Group		P-Value
	Control	SLE	
Total, n (%) ¹	69,045 (98.8)	815 (1.2)	
Age Group ¹			
>55	7,214 (10.4)	124 (15.2)	<0.001
55-64	28,465 (41.2)	394 (48.3)	
65-74	17,972 (26.0)	190 (23.3)	
75-84	13,279 (19.2)	100 (12.3)	
85+	2,115 (3.1)	7 (0.9)	
Sex ¹			<0.001
Male	34,064 (49.3)	136 (17.7)	
Female	34,981 (50.7)	679 (83.3)	
Charlson Comorbidity Index ²	3.9 (2.6)	4.5 (2.9)	<0.001
Comorbidities ¹			
Obesity	6,226 (9.0)	413 (50.7)	<0.001
Chronic DVT	350 (0.5)	16 (2.0)	<0.001
Smoking	9,721 (14.1)	122 (15.0)	<0.001
Alcohol Use Disorder	2,763 (4.0)	30 (3.7)	<0.001
Hypertension	53,414 (77.3)	667 (81.8)	<0.001
Hyperlipidemia	48,646 (70.5)	561 (69.6)	<0.001
Depression	18,883 (27.3)	342 (42.0)	<0.001
Anxiety	11,357 (16.4)	225 (27.6)	<0.001

¹Presented as number (percent) for each category

²Presented as Standard Deviation

	Group		P-Value
	Control	SLE	
Complication ¹			
MI	392 (0.6)	3 (0.4)	0.45
Stroke	1162 (1.7)	27 (3.3)	<0.001
Surgical Site Infection	1,384 (2.0)	28 (3.4)	0.004
DVT	2002 (2.9)	52 (6.4)	<0.001
Opioid Overdose	106 (0.2)	0 (0)	0.26
ED Visit	8,870 (12.8)	155 (19)	<0.001
ED Visit Pain	400 (0.6)	8 (1.0)	0.13
PJI	452 (0.7)	15 (1.8)	<0.001
Pneumonia	826 (1.2)	13 (1.6)	0.30
Revision TSA	2,253 (3.3)	55 (6.7)	<0.001

¹Presented as number (percent) for each category

	Group		P-Value
	Control	SLE	
Complication ¹			
MI	1 (0.1)	2 (0.3)	0.56
Stroke	18 (2.5)	24 (3.3)	0.35
Surgical Site Infection	13 (1.8)	25 (3.5)	0.049
DVT	24 (3.3)	32 (4.5)	0.28
Opioid Overdose	0 (0)	0 (0)	
ED Visit	94 (13.1)	123 (17.1)	0.03
ED Visit Pain	4 (0.6)	8 (1.1)	0.25
PJI	5 (0.7)	9 (1.3)	0.28
Pneumonia	8 (1.1)	10 (1.4)	0.64
Revision TSA	24 (3.3)	44 (6.1)	0.01

¹Presented as number (percent) for each category