Influenza Infection Has Higher Risk of Postoperative Complications than COVID-19 in Shoulder Arthroplasty Patients

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INTRODUCTION:
The COVID-19 pandemic has captured the attention of healthcare systems worldwide and testing for the virus remains a mainstay of preoperative testing before all surgical procedures, including shoulder arthroplasty (SA). Other viral illnesses, specifically influenza, while still having severe complications, are either overshadowed by testing for COVID-19 or not tested at all. This study aims to compare postoperative outcomes following TSA in patients with influenza infection versus those with COVID-19 infection.

METHODS:
A multi-institutional cohort study using the TriNetX network examined patients undergoing total or hemi shoulder arthroplasty from January 1, 2020, to March 27, 2024. Two matched cohorts were created: one with influenza and one with COVID-19 infection 14 days before surgery. Propensity score matching controlled for demographics and comorbidities, and both cohorts were analyzed for medical complications within 90 days and mechanical complications within 2 years postsurgery.

RESULTS:
A total of 3,233 and 18,209 patients were included in the Influenza and COVID-19 cohorts, respectively. The matched cohorts both consisted of 3,232 patients. Comparing patients in the Influenza and COVID-19 cohorts, patients in the influenza cohort had a significantly higher risk of sepsis (3.3% vs 1.9%, p=0.001), stroke (0.8% vs 0.3%, p=0.015), readmission (17.4% vs 11.3%, p<0.001), anemia (9.9% vs 6.1%, p<0.001), transfusion (1.9% vs 1.2%, p=0.037), ED visits (26.4% vs 21.9%, p<0.001) and inpatient hospitalization (54.9% vs 44.6%, p<0.001) during the perioperative period. Compared to the Influenza cohort, patients in the COVID-19 cohort had a significantly higher risk of opioid analgesics usage (69.9% vs 65.7%, p<0.001) in the perioperative period.

DISCUSSION AND CONCLUSION:
Patients with recent influenza infections prior to shoulder arthroplasty have a great risk of medical complications with no difference in implant related complications compared to COVID-19, emphasizing the need for perioperative patient counseling and surgical planning.

Condition	% of outcomes Influenza	% of outcomes COVID19	Risk Ratio RR	95% confidence Interval (CI)	P-Value
Sepsis	3.30%	1.90%	1.787	(1.264, 2.528)	<0.001
Infection	1.00%	1.20%	0.838	(0.517, 1.356)	0.471
Wound Disruption	0.70%	0.80%	0.838	(0.464, 1.514)	0.558
PE	1.00%	0.90%	1.105	(0.662, 1.844)	0.703
DVT	0.90%	0.60%	1.51	(0.834, 2.736)	0.171
MI	1.20%	1.10%	1.075	(0.653, 1.772)	0.775
Stroke	0.80%	0.3%	2.42	(1.160, 5.052)	0.015
Readmission	17.40%	11.3%	1.538	(1.271, 1.860)	<0.001
Anemia	9.90%	6.10%	1.624	(1.263, 2.088)	<0.001
Pneumonia	3.30%	2.40%	1.374	(0.974, 1.940)	0.069
Renal Failure	3.30%	2.80%	1.176	(0.839, 1.647)	0.347
Transfusion	1.90%	1.20%	1.543	(1.022, 2.330)	0.037
Opioid Analgesics	65.70%	69.90%	0.94	(0.909, 0.973)	<0.001
ED Visits	26.40%	21.9%	1.204	(1.104, 1.314)	<0.001
Inpatient Hospitalization	54.90%	44.60%	1.232	(1.173, 1.295)	<0.001

Condition	% of outcomes Influenza	% of outcomes COVID19	Risk Ratio RR	95% confidence Interval (CI)	P-Value
Periprosthetic Fracture	0.80%	1.20%	0.678	(0.409, 1.124)	0.13
Prosthetic Joint Infection	0.80%	0.60%	1.324	(0.731, 2.399)	0.353
Prosthetic Joint Dislocation	2.30%	2.60%	0.895	(0.650, 1.232)	0.495
Mechanical loosening	1.30%	1.30%	1.006	(0.651, 1.554)	0.98
Revision SA	2.60%	3.20%	0.827	(0.618, 1.107)	0.201