

# Dexamethasone is Associated with Lower Rates of Complications Following Revision Hip and Knee Arthroplasty for Periprosthetic Joint Infection

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**INTRODUCTION:** There is emerging evidence that dexamethasone ameliorates major postoperative adverse events. Despite a lack of supporting data, a vocal minority continue to question its appropriateness in cases where the hyperglycemic burden and/or risk of infection are increased. This study aimed to assess the benefits of dexamethasone in a cohort of patients undergoing first stage revision TJA for periprosthetic joint infection (PJI). We hypothesized that dexamethasone exposure is associated with fewer postoperative complications.

**METHODS:** The Premier Healthcare Database was queried for adult patients between 2016 and 2023. Using billing and procedural codes, patients undergoing stage-one arthroplasty for PJI following total hip or total knee arthroplasty were identified. Propensity scoring was used to generate control groups for both non-diabetic and diabetic patients who received dexamethasone. Multivariable logistic regression models were used to assess our primary outcomes of wound infection and aggregate medical complications.

**RESULTS:** In total, 61,527 patients were identified. 30,644 non-diabetic patients and 14,996 diabetic patients were 1:1 matched based on dexamethasone exposure. Dexamethasone-treated patients had fewer complications in both cohorts (non-diabetic: adjusted odds ratio [aOR]=0.91, 95% confidence interval [CI]=0.85-0.98; diabetic: aOR=0.81, 95%CI=0.75-0.89). Dexamethasone was also associated with fewer wound (non-diabetic: aOR=0.89, 95%CI=0.82-0.96; diabetic: aOR=0.88, 95%CI=0.79-0.98) and infectious (non-diabetic: aOR=0.864, 95%CI=0.802-0.930; diabetic: aOR=0.827, 95%CI=0.754-0.908) complications. Only diabetic patients saw a statistically significant decrease in mortality (aOR=0.692, 95%CI=0.532-0.901).

**DISCUSSION AND CONCLUSION:** Dexamethasone administration is associated with lower odds of aggregate complications regardless of diabetic status in patients undergoing first stage revision TJA for PJI. Contrary to conventional wisdom, these benefits may be even greater among diabetics.

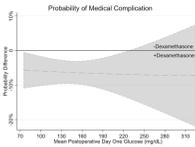


Figure 1. Probability difference of 90-day postoperative composite medical complications by mean postoperative day one glucose (mg/dL).

	Dexamethasone + No-DM		Dexamethasone + No-DM		P-Value	
	Average	Standard Deviation (SD)	Average	Standard Deviation (SD)		
Agreement	45.1	4.7	47.1	4.9	<0.001	
Length of Stay (days)	5.2	1.1	5.2	1.1	<0.001	
Readmission	51.0 (2.2)	10.0 (2.0)	50.8 (2.2)	10.0 (2.0)	0.300	
PJOI average (range)	134.0	45.0	134.0	45.0	0.300	
Procedure	TKA	22,316	22,316	22,316	0.000	
	TKA	8,617	27,673	8,617	27,673	<0.001
Medication	Yes	15,301	26,000	15,301	26,000	<0.001
	No	2,015	6,675	2,015	6,675	<0.001
Site	Knee	20,111	18,676	20,111	18,676	<0.001
	Hip	2,199	8,394	2,199	8,394	<0.001
Hemoglobin	Mean	13.68	11.93	13.68	11.93	<0.001
	SD	2.613	4.403	2.613	4.403	<0.001
Age	Mean	67.38	11.90	67.38	11.90	<0.001
	SD	12.07	24.51	12.07	24.51	<0.001
Emergency Admission	Yes	14,233	17,800	14,233	17,800	<0.001
	No	1,083	8,196	1,083	8,196	<0.001
Discharge Facility	Home	1,116	10,395	1,116	10,395	<0.001
	Other	1,042	7,485	1,042	7,485	<0.001
Readmission	100-109	4,214	13,874	4,214	13,874	<0.001
	110-119	3,643	19,390	3,643	19,390	<0.001
Readmission	100-109	4,214	13,874	4,214	13,874	<0.001
	110-119	4,148	13,611	4,148	13,611	<0.001
Readmission	100-109	31,885	30,880	31,885	30,880	<0.001
	110-119	11,739	26,719	11,739	26,719	<0.001
Readmission	Yes	15,100	26,700	15,100	26,700	<0.001
	No	5,179	11,719	5,179	11,719	<0.001
Readmission	Yes	11,931	14,128	11,931	14,128	<0.001
	No	4,713	11,576	4,713	11,576	<0.001

Table 1. Comparison of patient and hospital characteristics. PJOI: composite of one major, multiple or device; TKA: total knee arthroplasty; TJA: total joint arthroplasty.

	Dexamethasone + No-DM		Dexamethasone + No-DM		P-Value
	N	%	N	%	
Complete Fracture	4,842	15.9%	5,027	16.1%	<0.001
Dislocation	1,660	5.4%	1,585	4.9%	<0.001
Patellar Fracture	2,077	6.8%	1,957	6.0%	<0.001
Patellar Dislocation	808	2.6%	1,078	3.3%	<0.001
Patellar Osteolysis	6,677	21.9%	7,223	22.6%	0.008
Patellar Osteonecrosis	1,711	5.6%	1,676	5.1%	<0.001
Patellar Osteomyelitis	16,841	54.7%	16,417	51.2%	<0.001
Patellar Osteolysis	6,684	21.9%	6,868	21.3%	<0.001
Patellar Osteonecrosis	2,080	6.8%	2,088	6.3%	0.008
Patellar Osteomyelitis	1,611	5.2%	1,591	4.9%	0.008
Other osteolysis	1,111	3.6%	1,101	3.4%	0.008
Other osteonecrosis	2,211	7.2%	2,181	6.6%	<0.001
Other osteomyelitis	3,011	9.7%	3,012	9.3%	<0.001
Other osteolysis	4,111	13.1%	4,111	12.6%	<0.001
Other osteonecrosis	5,760	18.6%	5,808	18.0%	0.008
Other osteomyelitis	3,211	10.4%	3,211	9.9%	<0.001
Other osteolysis	1,211	3.9%	1,211	3.7%	0.008
Other osteonecrosis	1,611	5.2%	1,611	5.0%	0.008
Other osteomyelitis	2,111	6.9%	2,111	6.5%	0.008
Other osteolysis	1,111	3.6%	1,111	3.4%	0.008
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