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Original Research

Dexamethasone, Glycemic Control, and Outcomes in Patients With Type 2 Diabetes Mellitus Undergoing Elective, Primary Total Joint Arthroplasty

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ABSTRACT

Background: Dexamethasone (DEX) has been shown to reduce pain and postoperative nausea and vomiting for patients undergoing elective total joint arthroplasty (TJA). We investigated the impact of DEX on glycemic control and outcomes in patients with type 2 diabetes mellitus undergoing elective primary TJA.

Methods: All patients with type 2 diabetes mellitus undergoing primary elective TJA between January 2016 and December 2021 at 4 sites within 1 hospital system were identified. Propensity scores were calculated to match patients receiving or not receiving DEX. Primary outcomes were perioperative blood glucose levels and the incidence of hyperglycemia. Secondary outcomes were the amount of insulin administered, the occurrence of 30-day postoperative surgical site infections, hospital readmission, and mortality.

Results: After matching, we identified 1372 patients. DEX administration was associated with a significant increase in mean blood glucose levels in mg/dL on postoperative days (PODs) 0 to 2: POD 0 (28.4, 95% confidence interval [CI]: 24.6-32.1), POD 1 (14.4, 95% CI: 10.1-18.8), POD 2 (12.4, 95% CI: 7.5-17.2) when comparing patients who did or did not receive DEX. Additionally, patients receiving DEX, compared to patients who did not receive DEX, had increased odds of experiencing hyperglycemia on POD 0 (odds ratio: 4.0, 95% CI: 3.1-5.2). DEX was not associated with a significant difference in insulin administration, surgical site infections, hospital readmission, or mortality.

Conclusions: In our review of 1372 patients with propensity-matched type 2 diabetes mellitus undergoing elective, primary TJA, we found that DEX administration was associated with an increased risk of elevated mean glucose on POD 0-2, hyperglycemia on POD 0, but was not associated with an increase in total insulin dose administered nor occurrence of surgical site infections, hospital readmission, or mortality within 30 days of surgery in patients who received DEX compared to patients who did not receive DEX.

Level of Evidence: IV.

Introduction

Dexamethasone (DEX) is an effective nonopioid analgesic that also reduces the incidence of postoperative nausea and vomiting in patients with lower-extremity total joint arthroplasty (TJA) [1]. There are, however, situations where the data are less clear. For instance, there are still clinical questions concerning the use of DEX

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in patients with a history of type 2 diabetes mellitus (T2DM). Specifically, there is concern that using DEX could lead to perioperative hyperglycemia and subsequent infectious complications in these patients.

Previous studies have demonstrated that DEX does not appear to increase the risk of infectious complications after general surgery [2] and TJA in patients with T2DM [3]. However, these studies have neither focused on patients with newly implanted TJA [2] nor matched "like" diabetics to "like" diabetics [3], allowing questions concerning risks for postoperative complications. We do know that DEX increases postoperative serum glucose levels in surgical patients [4]. This leaves a gap in our knowledge related to outcomes for patients with T2DM receiving DEX during their operations. This is further problematic as the number of patients with T2DM, and, therefore, the number of T2DM patients undergoing TJA, in the United States continues to increase [5].

The aim of this study was to investigate the impact of DEX administration in patients with T2DM undergoing elective primary TJA on perioperative glycemic control, and complications. To do this, we evaluated perioperative blood glucose levels, hospital insulin administration prior to discharge, hospital readmission, surgical site infections (SSIs), and mortality within 30 days of surgery. We hypothesized that the administration of DEX compared to patients with T2DM undergoing TJA would not increase the risk of complications.

Material and methods

After obtaining institutional review board approval, we utilized our institution's electronic medical record to identify all patients with T2DM undergoing elective, primary TJA between January 2016 and December 2021. Patients were identified utilizing the International Classification of Diseases-10 codes (Appendix A). Patients were included if they were over 18 years of age, had an American Society of Anesthesiologists' physical status classification (ASA) <5, received an elective, inpatient procedure, and provided research authorization for inclusion in research studies. Exclusion criteria included patients with more than 1 surgery over the study period (if so, we only included the first TJA), patients with length of stay greater than 7 days, revision surgery, prediabetics, patients with type 1 diabetes, emergency surgeries, patients who received dexamethasone >10 mg on postoperative day (POD) 0, patients with bone cancer, and patients who were pregnant. Additionally, we excluded patients who were missing preoperative hemoglobin A1c (HbA1c) measures, Charlson scores, ASA classification, or recorded blood glucose values on POD 0. Patients who could qualify to be in the DEX group had to have received DEX on POD 0. In all, 1769 patients with T2DM undergoing TJA were identified, and after matching, we identified 1372 patients (686 matched pairs) (Fig. 1).

Patient demographic variables included age, sex, race, ethnicity, and body mass index (BMI). Hospital site (masked as A, B, C, and D), year of surgery, ASA class, type of surgery (total knee arthroplasty vs total hip arthroplasty), preoperative hemoglobin, preoperative HbA1c, preoperative diabetic medications (none, insulin or insulin and other, metformin, and other noninsulin), and patient comorbidities were also included. The hospital sites are part of a single health system consisting of 2 tertiary care level 3 trauma academic medical centers, 1 system of 16 community hospitals servicing level 2 trauma, and 1 tertiary care level 1 trauma academic medical center. Patients' comorbidities were classified using the Charlson-

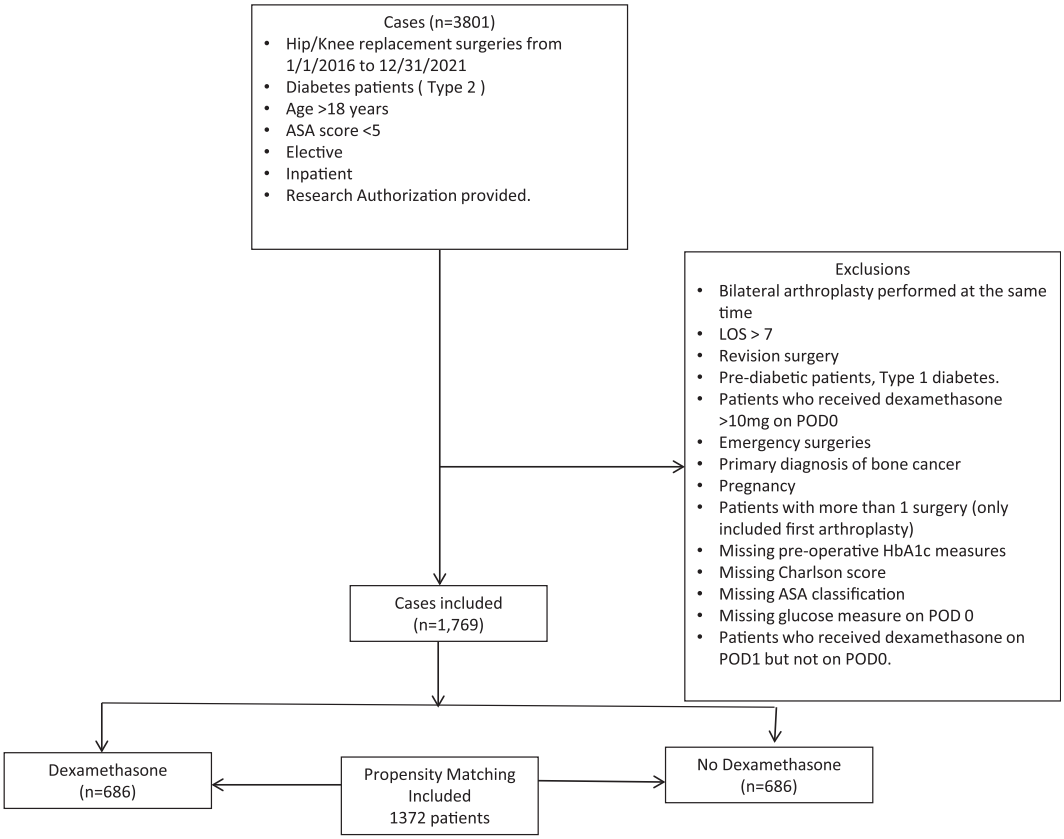

Figure 1. Flow diagram for study selection. ASA, American Society of Anesthesiologists physical status classification; HbA1c, hemoglobin A1c; LOS, length of stay (in days); POD, postoperative day; TJA, total joint arthroplasty.

Deyo comorbidity score. Table 1 displays patient characteristics stratified by receipt of DEX.

Our primary outcomes were perioperative blood glucose levels and perioperative hyperglycemia (defined as blood glucose values ≥180 mg/dL). Our secondary outcomes were the amount of insulin administered in units, the occurrence of postoperative SSIs within 30 and 90 days (see Appendix A), all cause hospital readmission within 30 and 90 days, and mortality within 30 and 90 days of discharge after TJA.

We included glucose and insulin data from POD 0-3 as most patients (70.9%) were discharged from the hospital on or before POD 2. In addition, as the half-life ($t^1/_2$) of DEX is approximately 36-72 hours, even individuals in our study who received the lowest amount of DEX on POD 0 (2 mgs) would still be expected to have supraphysiologic levels of glucocorticoid present during our study period.

Statistical analysis

Risk factors by treatment groups (DEX vs no DEX) and study demographics and outcomes were described as percentages or means. Categorical and continuous variables were assessed by Pearson chi-square and Kruskal-Wallis tests, respectively. Dependent variables included perioperative hyperglycemia (defined as any glucose ≥180 mg/dL) per POD, the occurrence of SSI, hospital readmission, and mortality within 30 days of discharge.

Propensity scores for DEX administration (administered vs not administered) were calculated using logit models. Nearest-neighbor matching was used to match patients in each group, using 1 patient receiving DEX to 1 that did not (1:1 matching) with a caliper of 0.02. [6-8] The standardized mean differences before and after propensity matching for each POD (0-3) are described in Figure 2, and all were under 10%. [7] The matching variables included the following: age, BMI, ASA class, preoperative diabetic medications, Charlson score, sex, preoperative HbA1c, surgery type (knee vs hip arthroplasty), race, and ethnicity. Age, BMI, ASA class, and Charlson score were modeled as continuous variables. Preoperative diabetic medications were categorized as none; insulin or insulin + other; metformin; and other noninsulin. Sex was categorized as men or women. Preoperative HbA1c was categorized as 5-5.9, 6-6.9, 7-7.9, or >8%. Race was categorized as White, Black/African American, Asian, or Native Hawaii/Pacific Islander/American Indian/Alaskan Native/Other/Unknown. Finally, ethnicity was categorized as not Hispanic or Latino, Hispanic or Latino, or unknown. These propensity models were used to assess differences in our outcomes of interest. Parameters were estimated as the average treatment effect on the treated and reported as adjusted odds ratios

Table 1
Patient demographics.

Variable	Dexamethasone: No (N = 1033)	Dexamethasone: Yes (N = 736)	Total (N = 1769)	*P* value
Age				.102
Mean (SD)	70.0 (9.4)	69.2 (9.6)	69.7 (9.5)	
BMI				.674
Mean (SD)	35.0 (6.9)	34.9 (6.4)	34.9 (6.7)	
Charlson Score				.387
Mean (SD)	3.4 (1.9)	3.3 (1.9)	3.3 (1.9)	
Surgery year				<.001
Mean (SD)	2017.3 (1.2)	2018.5 (1.3)	2017.8 (1.4)	
ASA				.004
1/2	269 (26.0%)	234 (31.8%)	503 (28.4%)	
3	740 (71.6%)	475 (64.5%)	1215 (68.7%)	
4	24 (2.3%)	27 (3.7%)	51 (2.9%)	
Location				<.001
A	46 (4.5%)	102 (13.9%)	148 (8.4%)	
B	156 (15.1%)	113 (15.4%)	269 (15.2%)	
C	503 (48.7%)	214 (29.1%)	717 (40.5%)	
D	328 (31.8%)	307 (41.7%)	635 (35.9%)	
Sex				.587
Male	517 (50.0%)	378 (51.4%)	895 (50.6%)	
Female	516 (50.0%)	358 (48.6%)	874 (49.4%)	
Preoperative HbA1c				.248
5-5.9	192 (18.6%)	139 (18.9%)	331 (18.7%)	
6-6.9	476 (46.1%)	340 (46.2%)	816 (46.1%)	
7-7.9	278 (26.9%)	213 (28.9%)	491 (27.8%)	
8 or more	87 (8.4%)	44 (6.0%)	131 (7.4%)	
Type of surgery				.450
Hip	379 (36.7%)	283 (38.5%)	662 (37.4%)	
Knee	654 (63.3%)	453 (61.5%)	1107 (62.6%)	
Race				.607
Asian	10 (1.0%)	12 (1.6%)	22 (1.2%)	
Black/African American	28 (2.7%)	23 (3.1%)	51 (2.9%)	
Native Hawaii/Pacific Islander/American Indian/Alaskan Native/Other/Unknown	25 (2.4%)	17 (2.3%)	42 (2.4%)	
White	970 (93.9%)	684 (92.9%)	1654 (93.5%)	
Ethnicity				.500
Hispanic or Latino	31 (3.0%)	16 (2.2%)	47 (2.7%)	
Not Hispanic or Latino	987 (95.5%)	707 (96.1%)	1694 (95.8%)	
Unknown	15 (1.5%)	13 (1.8%)	28 (1.6%)	
Preoperative medications				.300
Insulin or insulin + other	271 (26.2%)	197 (26.8%)	468 (26.5%)	
Metformin	464 (44.9%)	356 (48.4%)	820 (46.4%)	
None	224 (21.7%)	137 (18.6%)	361 (20.4%)	
Other noninsulin	74 (7.2%)	46 (6.2%)	120 (6.8%)	

ASA, American Society of Anesthesiologists physical status classification; BMI, body mass index; HbA1c, hemoglobin A1c; SD, standard deviation.

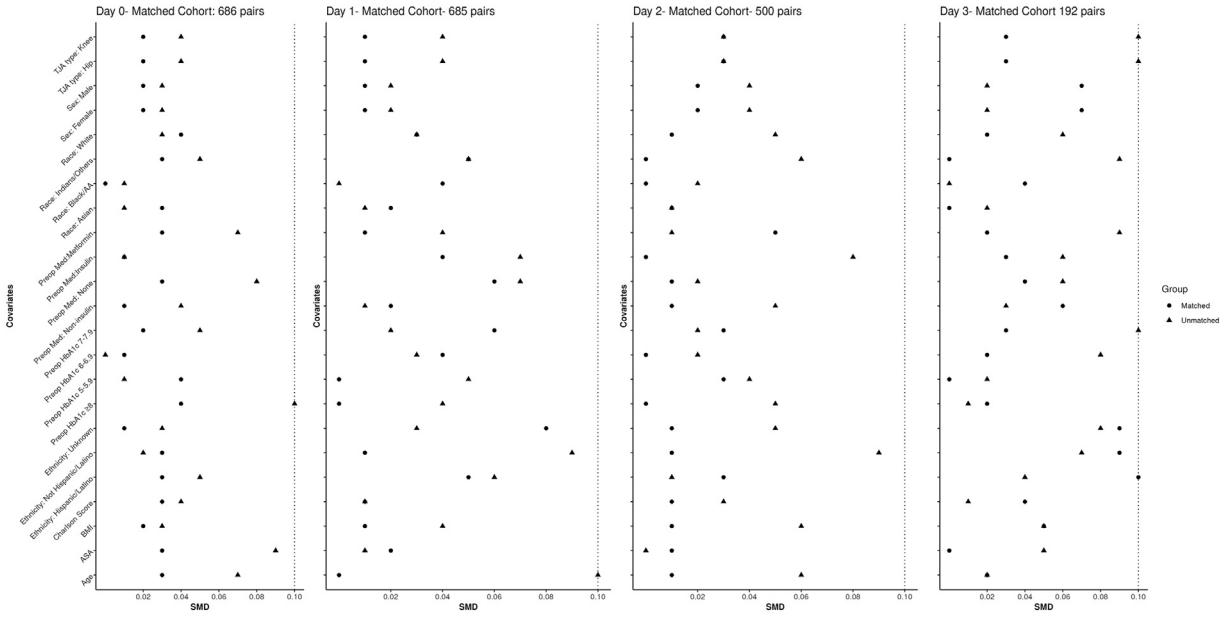

Figure 2. Standardized mean differences. ASA, American Society of Anesthesiologists physical classification; BMI, body mass index; HbA1c, hemoglobin A1c; SMD, standardized mean differences; TJA, total joint arthroplasty.

(ORs). Statistical significance was defined as a P value <.05 and an OR and 95% confidence interval (CI) exclusive of 1.0. Stata/MP 16.1 was used to conduct the analysis.

Results

Prior to matching, patients in the DEX group (Table 2) had higher glucose readings in mg/dL on POD 0 (mean 174 vs 146; max 227 vs 183, $P < .001$), POD 1 (mean 171 vs 157; max 203 vs 186, $P < .001$), and POD 2 (mean 172 vs 157; max 203 vs 186, $P < .001$). Similarly, patients receiving DEX had a higher percentage of hyperglycemia on POD 0 (76% vs 48%, $P < .001$). There were no differences between the groups for insulin administration on PODs 0-3 nor 30 or 90-day readmissions, death, and SSI. Patients in the DEX group received a mean dose of 6.8 mg (range 2-10, standard deviation 2.2) on POD 0.

After matching, POD 0 had 686 pairs, POD 1 had 685 pairs, POD 2 had 500 pairs, and POD 3 had 191 pairs. Analysis demonstrated that patients receiving DEX on POD 0 had a significantly greater POD 0, POD 1, and POD 2 mean and max blood glucose (Table 3). Specifically, the POD 0 mean was 173 vs 145 (β 28.4, 95% CI: 24.6-32.1), and the POD 0 max was 226 vs 181 (β 45.4, 95% CI: 39.3-51.5). The POD 1 mean was 171 vs 157 (β 14.4, 95% CI: 10.1-18.8), while the POD 1 max was 202 vs 184 (β 17.6, 95% CI: 11.8-23.5). The POD 2 mean was 171 vs 159 (β 12.4, 95% CI: 7.5-17.2) and the POD 2 max was 207 vs 191 (β 16.5, 95% CI: 9.6-23.3). In addition, patients receiving DEX, compared to patients not receiving DEX, were associated with a significant increase in hyperglycemia on POD 0 (OR: 4.0, 95% CI: 3.1-5.2), and a borderline significant increase in hyperglycemia on POD 1 (OR: 1.2, 95% CI: 0.9-1.5). Total mean insulin doses in units on POD0 (14 vs 13, $P = .345$), POD1 (22 vs 21, $P = .674$), POD2 (20 vs 21, $P = .582$), and POD3 (19 vs 19, $P = .789$) were similar between the DEX and no-DEX groups, respectively. The incidence of SSIs within 30 days (2.3% vs 2.8%, $P = .612$) and 90 days (3.5% vs 3.6%, $P = .886$) were similar between the DEX and no-DEX groups, respectively. The incidence of readmission at 30 days (3.8% vs 4.2%, $P = .685$) and 90 days (9.5% vs 10.7%, $P = .460$) postdischarge were similar between the DEX and no DEX groups, respectively. Mortality at 30 days (0.0% vs 0.4%, $P = 1.00$) and 90 days (0.4% vs 0.6%, $P = .71$) postdischarge was similar between the DEX and no-DEX groups, respectively. Additionally, regression models considering year and site mirrored these identified outcomes (Appendix B).

Discussion

In our review of 1372 propensity matched patients with T2DM presenting for elective, primary TJA, we found that the administration of DEX was associated with significantly increased POD 0, POD 1, and POD 2 mean and maximum blood glucose as well as increased odds of being hyperglycemic on POD 0, and the odds of being hyperglycemic on POD 1 approaching borderline significance. However, we found that DEX was not associated with an increase in insulin administration, nor the occurrence of SSIs, hospital readmission, or mortality. Our study supplies interval evidence on clinically relevant hyperglycemia and complications in patients with T2DM undergoing primary, elective TJA who receive dDEX.

While the safety of DEX in T2DM presenting for TJA has been studied in the past, these cohorts enrolled smaller numbers of patients and did not utilize propensity matching [3]. Specifically, our question was how do outcomes compare between matched patients with T2DM? By factoring in patients' preoperative glycemic regimens, preoperative HbA1c, BMI, and perioperative insulin administration, we attempted to limit confounders to isolate DEX's influence on glycemic control and outcomes.

Godshaw et al. [3] investigated the association between DEX and glycemic and infectious outcomes in 2317 patients who underwent TJA from 2011 to 2015 at 1 institution. They found that DEX administration was not associated with an increased risk of SSI. However, there were only 25 infections in the entire cohort, limiting statistical comparisons. Furthermore, their cohort only included 657 total diabetic patients, with only 428 receiving DEX. Although they did not specify whether the diabetic patients were type 1 or type 2 diabetics, we assume that most were patients with T2DM.

More recently, in a landmark prospective, randomized controlled trial of the impact of DEX on SSI, Corcoran et al. [2] investigated 8880 patients for major elective, noncardiac surgery. They were randomized to receive 8 mg of dexamethasone or a placebo. The primary outcome was SSI within 30 days of surgery, and there was no association between DEX and SSI. Furthermore, postoperative nausea and vomiting was reduced in the DEX group. Of the T2DM subset of patients, 557 were randomized to DEX compared to 559 randomized to placebo. Although 1712 (19.6% of all study patients) orthopaedic surgeries were included, there is no information on the breakdown of patients with diabetes within those groups, nor what kinds of orthopaedic surgeries were performed.

Regarding patients who underwent TJA, a recent meta-analysis of DEX and postoperative SSI by Feeley et al. [9] reviewed 29 studies, including prospective and retrospective study designs. Their overall analysis ended up including 28,987 combined patients who underwent TJA. They concluded that the combined evidence did not associate DEX with an increased risk of SSI in patients who underwent TJA. However, they cautioned that additional data was needed in at-risk patients, such as T2DM.

To our knowledge, this is the largest single health system study on the impact of DEX on perioperative glycemic control in propensity matched patients with T2DM presenting for TJA. Within our patient population, we estimate an ability to detect a 0.2 effect size with 90% power of our low-frequency secondary outcomes. While it is known that DEX administration will raise blood glucose levels, the question we sought to investigate was: what is the relative elevation of blood glucose in T2DM undergoing TJA who receive DEX, and does the subsequent blood glucose elevation provide any signal of harm? An increased incidence of hyperglycemia without appropriate monitoring and treatment is associated with worse outcomes in patients with diabetes undergoing surgery [10]. We did not detect a difference in major complications, but this may have been due to close perioperative serum glucose monitoring and appropriate treatment with insulin.

Our study has several limitations. First, due to the study's retrospective nature, diagnoses and outcomes were based on coding within our EMR. This coding may, on occasion, be inaccurate. However, this is not a unique limitation of our study compared to other analyses of the safety and DEX in patients with T2DM undergoing TJA [3]. This study of one health system may be subject to

Table 2
Outcome measures prior to matching.

Variable	Dexamethasone: No (N = 1033)	Dexamethasone: Yes (N = 736)	Total (N = 1769)	*P* value
Glucose mean: POD 0				<.001
Mean (SD)	146 (32)	174 (39)	158 (38)	
Glucose max: POD 0				<.001
Mean (SD)	183 (49)	227 (65)	201 (61)	
Glucose mean: POD 1				<.001
Mean (SD)	157 (34)	171 (46)	163 (40)	
Glucose max: POD 1				<.001
Mean (SD)	186 (46)	203 (63)	193 (54)	
Glucose mean: POD 2				<.001
Mean (SD)	157 (34)	172 (46)	163 (40)	
Glucose max: POD 2				<.001
Mean (SD)	186 (47)	203 (63)	193 (55)	
Glucose mean: POD 3				.872
Mean (SD)	153 (36)	153 (39)	153 (37)	
Glucose max: POD 3				.644
Mean (SD)	174 (49)	173 (51)	174 (50)	
Total insulin dose: POD 0				.404
Mean (SD)	14 (18)	15 (17)	14 (18)	
Total insulin dose: POD 1				.716
Mean (SD)	21 (27)	22 (30)	21 (28)	
Total insulin dose: POD 2				.648
Mean (SD)	20 (26)	20 (24)	20 (25)	
Total insulin dose: POD 3				.998
Mean (SD)	19 (22)	19 (22)	19 (22)	
Hyperglycemic POD 0				<.001
Yes	492 (48%)	556 (76%)	1048 (59%)	
Hyperglycemic POD 1				.096
Yes	513 (50%)	395 (54%)	908 (51%)	
Hyperglycemic POD 2				.114
Yes	515 (50%)	395 (54%)	910 (51%)	
Hyperglycemic POD 3				.006
Yes	337 (33%)	195 (27%)	532 (30%)	
Death within 30 d of discharge				.143
Yes	3 (0.3%)	0 (0.0%)	3 (0.2%)	
Death within 90 d of discharge				.455
Yes	7 (0.7%)	3 (0.4%)	10 (0.6%)	
SSI within 30 d of discharge				.475
Yes	28 (2.7%)	16 (2.2%)	44 (2.5%)	
SSI within 90 d of discharge				.972
Yes	34 (3.3%)	24 (3.3%)	58 (3.3%)	
Readmission within 30 d of discharge				.789
Yes	39 (3.8%)	26 (3.5%)	65 (3.7%)	
Readmission within 90 d of discharge				.258
Yes	114 (11.0%)	69 (9.4%)	183 (10.3%)	

Glucose, serum glucose in mg/dL; Max, maximum; POD, postoperative day; SD, standard deviation; SSI, surgical site infection.

Table 3
Matched results.

Outcomes	N	Dexamethasone				Coeff	LCL	UCL	*P* value
		No		Yes					
		Mean	SD	Mean	SD				
Glucose mean (mgs/dL): POD 0	686	145	32	173	38	28.4	24.6	32.1	<.001
Glucose max: POD 0	686	181	48	226	65	45.4	39.3	51.5	<.001
Glucose mean: POD 1	685	157	33	171	46	14.4	10.1	18.8	<.001
Glucose max: POD 1	685	184	44	202	62	17.6	11.8	23.5	<.001
Glucose mean: POD 2	500	159	33	171	43	12.4	7.5	17.2	<.001
Glucose max: POD 2	500	191	46	207	61	16.5	9.6	23.3	<.001
Glucose mean: POD 3	191	157	38	157	39	−0.5	−8.4	7.5	.908
Glucose max: POD 3	191	189	51	191	51	2.3	−8.2	12.8	.671
Total insulin dose (units): POD 0	686	13	17	14	17	1.1	−1.1	3.2	.345
Total insulin dose: POD 1	685	21	25	22	30	0.8	−2.9	4.5	.674
Total insulin dose: POD 2	500	21	27	20	24	−1.2	−5.6	3.1	.582
Total insulin dose: POD 3	191	19	21	19	23	0.9	−5.4	7.1	.789
Outcomes	N	N	%	N	%	OR	LCL	UCL	*P* value
Hyperglycemia POD 0: Yes	686	315	46	518	75.6	4.0	3.1	5.2	.000
Hyperglycemia POD 1: Yes	685	336	49	371	54.1	1.2	0.9	1.5	.058
Hyperglycemia POD 2: Yes	500	276	55.2	291	58.2	1.1	0.9	1.4	.338
Hyperglycemia POD 3: Yes	191	91	47.6	94	49.2	1.1	0.7	1.7	.735
SSI within 30 d of discharge	686	19	2.8	16	2.3	0.8	0.4	1.6	.612
SSI within 90 d of discharge	686	25	3.6	24	3.5	1.0	0.6	1.7	.886
Readmission within 30 d of discharge	686	29	4.2	26	3.8	0.9	0.5	1.5	.685
Readmission within 90 d of discharge	686	73	10.7	65	9.5	0.9	0.6	1.3	.460
Death within 30 d of discharge	686	3	0.4	0	0	0.0	0.0	Inf	1.000
Death within 90 d of discharge	686	4	0.6	3	0.4	0.80	0.2	3.4	.71

Coeff, coefficient; LCL, lower confidence limit; Max, maximum; POD, postoperative day; SD, standard deviation; SSI, surgical site infection; UCL, upper confidence limit.

patient clustering and cultural bias. We acknowledge that results could differ in other distinct patient cohorts, and further testing is warranted. Additionally, our secondary outcomes are low-frequency events (SSI, readmission, and mortality), which limits our ability to make conclusive statements about their occurrences. Our data includes nonprotocolized administration and dosing of dexamethasone. There is also a potential for patients to be lost to follow-up or have follow-up outside of our institution which would not be detected in our EMR. Finally, our propensity score models were limited as we could not balance on site or year of surgery. Practice patterns that vary across locations and changes in practice over time could influence outcomes. However, regression analysis, including location and surgical year, conducted on the prematched sample demonstrated consistent outcomes as observed in the matched cohort. This suggests that while additional variation may be explained by location and year, those variables do not negate the matched results reported in this study.

We excluded patients with an ASA 5 classification, as this refers to a moribund patient likely to die without prompt surgical intervention (eg, a ruptured aortic aneurysm). As such, we felt that no elective T2DM TJA patient should qualify for this designation. We excluded patients with a hospital stay >7 days as this is very atypical of primary, elective in the modern era. Furthermore, only 19 patients were excluded from our initial potential cohort of 3801 for this exclusion criterion.

The American Diabetes Association has issued recent standards of care for inpatient management of patients with diabetes [11]. These include the following: (1) blood glucose levels persistently above >140 mg/dL (7.8 mmol/L) warrant prompt interventions; (2) insulin should be administered using validated protocols that allow for predefined adjustments in the dosage based on glycemic fluctuations; and (3) insulin therapy should be initiated for the treatment of hyperglycemia starting at a threshold ≥180 mg/dL (10.0 mmol/L) to a target range of 140 to 180 mg/dL (7.8-10.0 mmol/L). We support these standards, and the impetus for this study was to investigate whether DEX administration led to clinically relevant derangements in perioperative glycemic control in hospitalized patients. Importantly, we did not study patients with type 1 diabetes mellitus. As these patients do not produce endogenous insulin, they represent a unique derangement in glucose homeostasis. We do not intend our results to be applied to that population.

Conclusions

In conclusion, we provide incremental evidence concerning patients with T2DM undergoing TJA who received DEX. Our results indicate that DEX administration was not associated with a significant increase in 30- nor 90-day SSI, readmission, or mortality. However, our data show that DEX administration was associated with increased perioperative hyperglycemia. In the era of outpatient TJA, we recommend vigilance concerning DEX administration in patients with T2DM undergoing TJA who will not be monitored following POD 0.

Conflicts of interest

The authors declare there are no conflicts of interest.

For full disclosure statements refer to https://doi.org/10.1016/j.artd.2024.101391.

CRediT authorship contribution statement

Steven B. Porter: Writing – review & editing, Writing – original draft, Visualization, Resources, Project administration, Methodology, Investigation, Conceptualization, Data curation, Formal analysis, Funding acquisition. **Jessica R. Wilson:** Methodology, Investigation, Conceptualization, Writing – original draft, Writing – review & editing. **Courtney E. Sherman:** Methodology, Writing – original draft, Writing – review & editing, Conceptualization,

Investigation. **Launia J. White:** Writing – review & editing, Visualization, Resources, Project administration, Conceptualization, Data curation, Investigation, Methodology. **Shalmali R. Borkar:** Writing – review & editing, Writing – original draft, Visualization, Resources, Methodology, Investigation, Formal analysis, Data curation. **Aaron C. Spaulding:** Writing – review & editing, Writing – original draft, Visualization, Resources, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization.

Appendix A. Supplementary data

Supplementary data related to this article can be found at https://doi.org/10.1016/j.artd.2024.101391.

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