

## Introduction

- Obstructive sleep apnea (OSA) is prevalent in older adults and narrows the throat muscles during sleep<sup>1</sup>
- OSA is linked to cerebrovascular, cardiovascular, and metabolic diseases, increasing surgical risks<sup>2</sup>
- Effects 9-24% of the general population<sup>3</sup>
- While studies exist on postoperative complications in undiagnosed OSA, data is scarce for diagnosed OSA patients undergoing TJA<sup>4</sup>
- This study aims to evaluate 90-day postoperative complications in total joint arthroplasty (TJA) patients with and without OSA

## Methods

- Study Period: 04/01/2014-12/31/2022
- Included patients aged 18-89 undergoing TJA
- Data collected prospectively and analyzed retrospectively
- Examined 17,272 TJAs; 3,876 with OSA, 13,396 without
- Significant patient characteristic differences were noted and, after propensity matching, there were no differences
- Matching criteria: age, gender, BMI, ASA class, and surgery type
- Final sample: 7,014 matched patients (3,507 with OSA, 3,507 without)
- Statistical Analysis: Chi-square for patient characteristics and complications; t-tests for age and length of stay; multivariable logistic regression for primary outcome

Table 1

Patient Characteristic	Unmatched Sample			Matched Sample		
	No OSA, n=13396	OSA, n=3876	P-Value	No OSA, n= 3507	OSA, n=3507	P-Value
<b>Age Group, n (%)</b>			<b>&lt;0.01</b>			<b>0.86</b>
<55	1406 (10.50)	384 (9.91)		336 (9.58)	336 (9.58)	
55-64	3741 (27.93)	1293 (33.36)		1095 (31.22)	1095 (31.22)	
65-75	4934 (36.83)	1523 (39.29)		1398 (39.86)	1424 (40.60)	
75+	3315 (24.75)	676 (17.44)		678 (19.33)	652 (18.60)	
<b>Gender, n (%)</b>			<b>&lt;0.01</b>			<b>1.00</b>
Female	8171 (61.00)	1673 (43.16)		1596 (45.51)	1596 (45.51)	
Male	5225 (39.00)	2203 (56.84)		1911 (54.49)	1911 (54.49)	
<b>Body Mass Index, n (%)</b>			<b>&lt;0.01</b>			<b>0.81</b>
<25	2622 (19.57)	191 (4.93)		187 (5.33)	187 (5.33)	
25-29.99	5040 (37.63)	834 (21.52)		827 (23.58)	827 (23.58)	
30-34.99	3481 (25.99)	1232 (31.79)		1224 (34.90)	1189 (33.90)	
35+	2252 (16.81)	1619 (41.77)		1269 (36.18)	1304 (37.18)	
<b>ASA Class, n (%)</b>			<b>&lt;0.01</b>			<b>0.31</b>
I	195 (1.46)	2 (0.05)		2 (0.06)	2 (0.06)	
II	9643 (72.02)	1779 (45.93)		1748 (49.84)	1784 (49.84)	
III	3528 (26.35)	20.72 (53.50)		1756 (50.07)	1751 (49.93)	
IV	24 (0.18)	20 (0.52)		1 (0.03)	6 (0.17)	
<b>Joint Replaced, n (%)</b>			<b>&lt;0.01</b>			<b>1.00</b>
Hip	6375 (47.59)	1534 (39.58)		1403 (40.01)	1403 (40.01)	
Knee	7021 (52.41)	2342 (60.42)		2104 (59.99)	2104 (59.99)	

Table 2: Multivariable Logistic Regression Predicting Any Complication

Patient Characteristic	Estimate (SE)	Odds Ratio	P-Value
<b>OSA</b>			<b>0.56</b>
No	ref	n/a	
Yes	0.028 (0.048)	1.06 (0.088, 1.28)	
<b>Gender, n (%)</b>			<b>&lt;0.07</b>
Male	ref	n/a	
Female	-0.089 (0.049)	0.84 (0.069, 1.01)	
<b>ASA Class, n (%)</b>			<b>&lt;0.01</b>
I-II	ref	n/a	
III-IV	0.205 (0.052)	1.51 (1.23, 1.84)	
<b>Charlson Comorbidity Index</b>			<b>&lt;0.01</b>
Mild (0-2)	ref	n/a	
Moderate (3-4)	-0.086 (0.065)	1.30 (1.04, 1.61)	
Severe (5+)	0.430 (0.084)	2.17 (1.63, 2.88)	

## Results

- Multivariate logistic regression revealed no significant association between OSA and surgical complications (p=0.56).
- Higher ASA class (III-IV) patients were more likely to experience complications compared to those with a lower ASA class (I-II) (p<0.01).
- Greater Charlson Comorbidity Index (CCI) also correlated with a higher odds of complications (p<0.01).

## Conclusions

- Our study found no increased postoperative complications in TJA patients with OSA compared to those without
- However, higher ASA class and CCI were independent predictors of complications
- Future research could benefit from a prospective study design to mitigate limitations
- The absence of increased postoperative complications in TJA patients with OSA, as demonstrated in this study, may aid surgeons in evaluating the candidacy of TJA patients

## References

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