Impact of Postoperative Sleep Medication Use on 90-Day Complications Following Total Knee Arthroplasty

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INTRODUCTION: Insomnia is common following a total knee arthroplasty (TKA) and can impair recovery. The safety of sleep medications following TKA is not understood, thus we sought to evaluate their safety.

METHODS: Using an administrative claims database, we identified 149,627 patients undergoing primary TKA from 2011 to 2022 using prescription sleep medications 90 days following surgery and 1,080,655 patients not using, which formed the control group. We further analyzed the effects of standard prescription sleep medications (Daridorexant, Eszopiclone, Lemborexant, Suvorexant, Temazepam, Triazolam, Zaleplon, Zolpidem) and less potent prescription sleep medications (Doxepin, Ramelteon). The outcomes investigated were risk of falls, revision, dislocation, fractures, and emergency department (ED) visits. Multivariable logistic regressions were used to calculate odds ratios in the 90-day postoperative window, adjusting for age, gender, region, insurance plan, and Elixhauser-comorbidity-index.

RESULTS: Usage of any sleep medication was associated with increased 90-day risk of falls (OR 1.29, 95% CI: 1.23-1.35, p<0.001), revisions (OR 1.15, 95% CI: 1.08-1.23, p<0.001), dislocations (OR 1.21, 95% CI: 1.05-1.39, p=0.009), distal radius fractures (OR 1.53, 95% CI: 1.29-1.80, p<0.001), and ED visits (OR 1.15, 95% CI: 1.13-1.17, p<0.001) (Table 1). Usage of standard sleep medications was associated with increased 90-day risk of falls (OR 1.20, 95% CI: 1.12-1.27, p<0.001), revisions (OR 1.19, 95% CI: 1.10-1.30, p<0.001), distal radius fractures (OR 1.52, 95% CI: 1.22-1.87, p<0.001), and ED visits (OR 1.07, 95% CI: 1.05-1.09, p<0.001) (Figure 1). Usage of less potent sleep medications was associated with increased 90-day fall risk (OR 1.69, 95% CI: 1.29-2.00, p<0.001) and ED visits (OR 1.25, 95% CI: 1.14-1.37, p<0.001).

DISCUSSION AND CONCLUSION:

Both standard and less potent prescription sleep medication use is associated with surgical complications. Post-operative sleep disturbance remains a major problem following TKA, but prescription sleep medications may be unsafe for routine postoperative use.

Table 1. Incidence of 90-day Complications for Any Sleep Medication Usage

	Odds Ratio (95% CI)	p-value
Fall	**1.29 (1.23, 1.35)**	**<0.001**
Revision	**1.15 (1.08, 1.23)**	**<0.001**
Prosthetic joint dislocation	**1.21 (1.05, 1.39)**	**0.009**
Periprosthetic joint fracture	1.02 (0.88, 1.18)	0.76
Distal radius fracture	**1.53 (1.29, 1.80)**	**<0.001**
Proximal humerus fracture	1.17 (0.88, 1.52)	0.27
Femoral neck fracture	1.12 (0.91, 1.38)	0.27
ED visit	**1.15 (1.13, 1.17)**	**<0.001**

Figure 1. Incidence of 90-day Complications for A) Standard Sleep Medication Usage and B) Less Potent Sleep Medication Usage