Effect of One-Month Oral Oxycodone on Postoperative Pain Following Total Knee Arthroplasty: A Randomized Clinical Trial

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INTRODUCTION:

Effective postoperative pain management is crucial for early mobilization, reduced hospital stay, and optimal functional outcomes following total knee arthroplasty (TKA). This study evaluated the impact of a one-month course of oral oxycodone, in addition to standard over-the-counter (OTC) analgesics, on postoperative pain and recovery outcomes after TKA.

METHODS:

In this triple-blind, randomized controlled trial, 190 patients undergoing primary TKA for knee osteoarthritis were randomized to receive either oral oxycodone (5 mg twice daily) or placebo for 30 days postoperatively. All participants were advised to continue using OTC analgesics for pain management. The primary outcome was pain intensity measured by the Visual Analogue Scale (VAS) on postoperative days 1, 7, and 30. Secondary outcomes included hospital length of stay, Knee Injury and Osteoarthritis Outcome Score (KOOS), Oxford Knee Score (OKS), Pittsburgh Sleep Quality Index (PSQI) at one month, and KOOS and patient satisfaction at six months. Adverse events were tracked over a six-month follow-up period.

RESULTS:

A total of 190 patients (mean age, 65.15 years; 69% female) were randomized 1:1 to the oxycodone group (n=95) and placebo group (n=95). On postoperative day 1, the oxycodone group reported significantly lower VAS scores than the placebo group (6.7 ± 1.5 vs. 7.2 ± 1.5; p = 0.015); however, the difference did not reach the minimal clinically important difference (MCID). No significant differences in VAS were observed on days 7 or 30. The oxycodone group had a shorter hospital stay (1.7 ± 0.8 vs. 1.9 ± 0.8 days; p = 0.047). There were no significant differences between groups in KOOS, OKS, PSQI, or patient satisfaction at one or six months. Minor adverse events occurred in five patients in the oxycodone group (mainly nausea) and four in the placebo group. Two deaths due to myocardial infarction occurred in the placebo group within six months.

DISCUSSION AND CONCLUSION:

A one-month course of oral oxycodone following TKA provided only modest short-term pain relief on the first postoperative day and slightly reduced hospital stay. It did not improve long-term pain, function, sleep quality, or patient satisfaction. Extended outpatient use of oxycodone post-TKA is not recommended.

Outcome	Oxycodone (N=95)	Placebo (N=95)*	Effect Size (cohen's d; 95%CI)	P-Value
Primary outcome				
VAS Pain day 1	6.7 ± 1.5	7.2 ± 1.5	0.322 (0.035, 0.608)	**0.015**
VAS Pain day 7	5.8 ± 2.3	6.3 ± 1.6	0.287 (0.001, 0.573)	0.085
VAS Pain day 30	4.2 ± 2.3	4.4 ± 1.8	0.132 (−0.154, 0.417)	0.300
Secondary Outcomes				
Days of Hospitalization	1.7 ± 0.8	1.9 ± 0.8	0.269 (−0.017, 0.554)	**0.047**
KOOS Symptoms at 1 month	42.6 ± 18.9	43.4 ± 16.1	0.046 (−0.240, 0.331)	0.635
KOOS Pain at 1 month	28.7 ± 16.4	29.1 ± 16.1	0.018 (−0.268, 0.304)	0.551
KOOS ADL at 1 month	30.3 ± 18.7	31.7 ± 17.2	0.076 (−0.210, 0.362)	0.576
KOOS Recreation at 1 month	14.5 ± 20.2	16.1 ± 20.8	0.075 (−0.211, 0.361)	0.385
KOOS QoL at 1 month	18.8 ± 13.5	21.6 ± 16.6	0.182 (−0.105, 0.468)	0.508
Overall KOOS at 1 month	27 ± 13.1	28.4 ± 13.3	0.103 (−0.183, 0.389)	0.545
OKS Pain at 1 month	20.7 ± 5.3	28.4 ± 13.3	−0.089 (−0.375, 0.197)	0.446
OKS Function at 1 month	14.5 ± 3.6	14.5 ± 3.4	−0.015 (−0.301, 0.271)	0.942
Overall OKS at 1 month	35.3 ± 8.7	34.8 ± 8.2	−0.062 (−0.348, 0.224)	0.484
PSQI at 1 month	8.2 ± 3.9	8.0 ± 3.9	−0.064 (−0.350, 0.222)	0.667
KOOS Symptoms at 6 months	74.2 ± 16.9	72.7 ± 19.9	−0.084 (−0.370, 0.202)	0.813
KOOS Pain at 6 months	71.1 ± 22.1	72.2 ± 22.8	0.049 (−0.237, 0.335)	0.624
KOOS ADL at 6 months	66.8 ± 22.2	67.5 ± 23.9	0.031 (−0.255, 0.317)	0.778
KOOS Recreation at 6 months	37.2 ± 30.5	39.6 ± 31.8	0.076 (−0.210, 0.362)	0.608
KOOS QoL at 6 months	45.4 ± 25.7	46.9 ± 27.9	0.056 (−0.230, 0.342)	0.777
Overall KOOS at 6 months	58.9 ± 20.1	59.8 ± 22.2	0.039 (−0.247, 0.325)	0.788
VAS Patients' satisfaction at 6 months	8.9 ± 1.2	8.8 ± 1.3	−0.002 (−0.288, 0.283)	0.849