

Is the analgesic effect of tapentadol comparable to oxycodone post open heart surgery?

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INTRODUCTION

Pain following open cardiac surgery such as coronary artery bypass graft (CABG) or valvular surgery (VS) is common, unavoidable, and classed as moderate to severe up to 75% of patients. [1]

Adequate pain control can prevent various negative outcomes such as hypertension, arrhythmias, respiratory impairment, ileus, and poor wound healing. [2] Tapentadol is an atypical opioid that has lower reported rates of persistent opioid use (POU) compared to oxycodone post-orthopaedic surgery. [3] It is estimated that 5% to 10% opioid naïve patients that undergo open cardiac surgery develop POU. [4]

Cabrini Health post open-cardiac surgery analgesic protocol once extubated was oxycodone 10 mg SR twice daily for at least 3 doses with when needed oxycodone IR. In January 2024, the protocol transitioned to tapentadol 50 mg or 100 mg SR (dose based on weight and age) twice daily for at least 3 doses with when needed tapentadol IR first line and oxycodone IR second line.

AIM

To compare the daily reported worst pain scores at rest and on movement for 7 days in patients prescribed oxycodone SR versus tapentadol SR after being extubated post open-cardiac surgery.

METHODS

Retrospective audit of medical notes of opioid naïve patients admitted post-open cardiac surgery between October 2023 to February 2024.

Inclusion criteria: adult patients who underwent CABG and/or VS, opioid naïve prior to surgery

37 patients in each group were studied. 6 patients were excluded from the study as they were not opioid naïve or received less than 3 doses of SR opioid post-op. Pain score measured as a patient reported numerical rating scale (1 to 10).

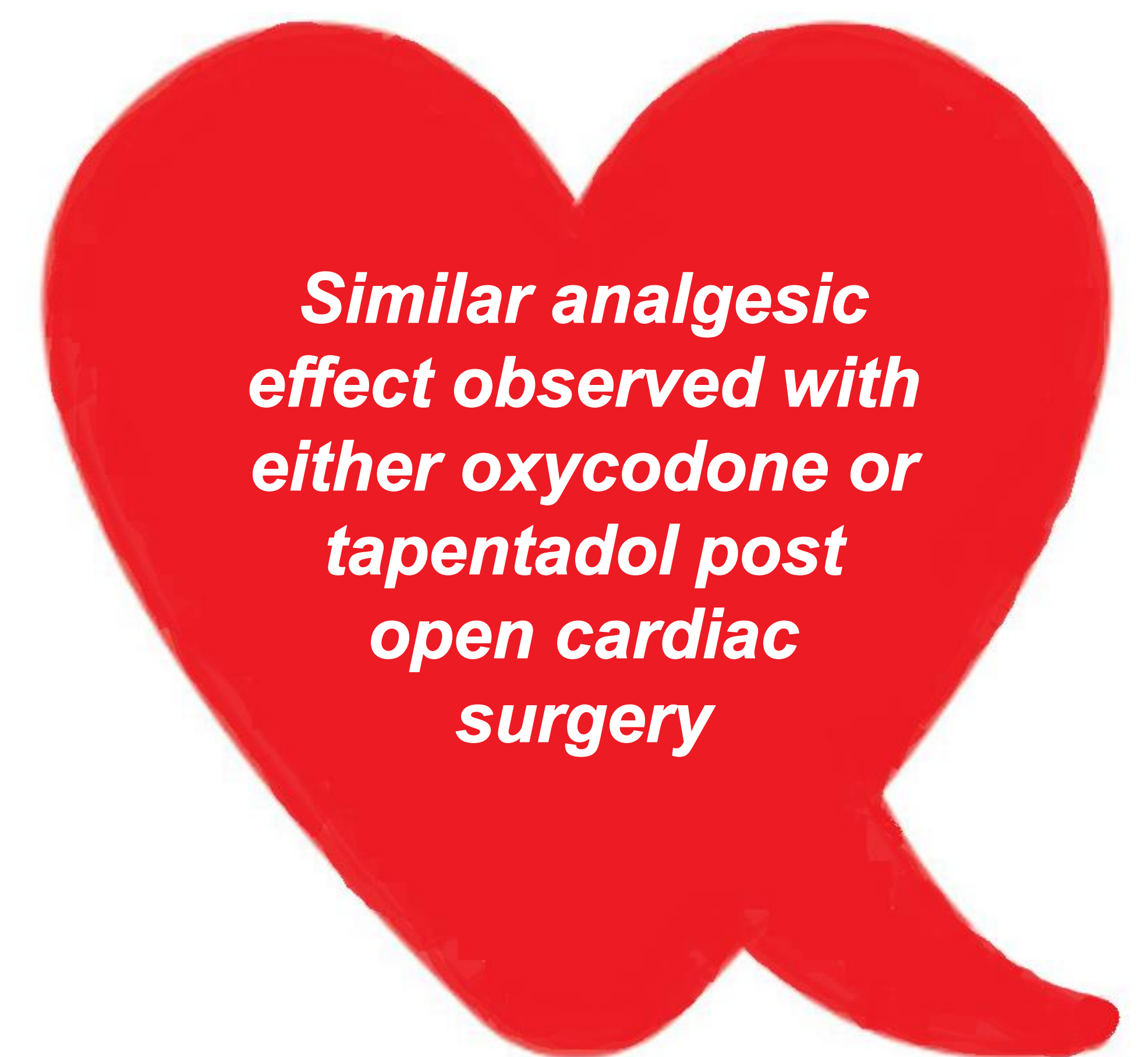
	Oxycodone SR	Tapentadol SR	P-value
Age (years)	69	69	0.95
Gender (male)	31	31	1.00
BMI (kg/m ²)	28	27	0.64
Type of open cardiac surgery			
CABG	19	19	0.99
VS	16	15	
CABG + VS	2	2	
Other (sternotomy)	0	1	
Comorbidities			
Hypertension	24	26	0.62
Dyslipidaemia	22	21	0.81
Heart Failure	1	0	0.31
Ischemic Heart Disease	11	13	0.62
Kidney Disease	3	0	0.08
Diabetes	8	4	0.21
Anxiety / Depression	7	2	0.08
Bipolar Disease	0	0	
Psychosis	0	0	
Regular preadmission analgesic medications			
Anti-inflammatory	0	0	
Benzodiazepine	1	1	1.00
Gabapentin	1	2	0.56
Paracetamol	3	0	0.08

Table 1. Patient demographic data

RESULTS

Demographic information was comparable between each group (Table 1). Worst pain at rest and on movement was comparable between each group (Figure 1 and 2). Most patients received 3 to 4 doses of SR opioid post-operatively (78% in oxycodone SR and 81% tapentadol SR).

There was no significance differences in adverse events between each group. The length of stay within the intensive care unit and acute ward was comparable.



DISCUSSION

Reported analgesic effect was comparable between each group. The observed difference in day 1 analgesia may have been a result of less nursing familiarity with tapentadol causing hesitation to use breakthrough doses. This would require further investigation.

This study highlights that rapid tapering of opioids did not result in an increase in pain post open-cardiac surgery. Guidelines are increasingly recommending atypical opioids post-operatively to prevent POU and adverse events. [3,4]

The study has several limitations including information bias secondary to incomplete or missing data. The study is unpowered and the small sample size within a single site may limit the studies generalisability.

CONCLUSION

- Analgesic effect and adverse effect profile from either oxycodone SR or tapentadol SR was comparable post open cardiac surgery.
- A rapid down titration of SR formulations post operatively did not result in an increase in patient reported pain scores.
- The role of pharmacists in the safe and effective use of analgesics post open cardiac surgery should be explored in future studies.

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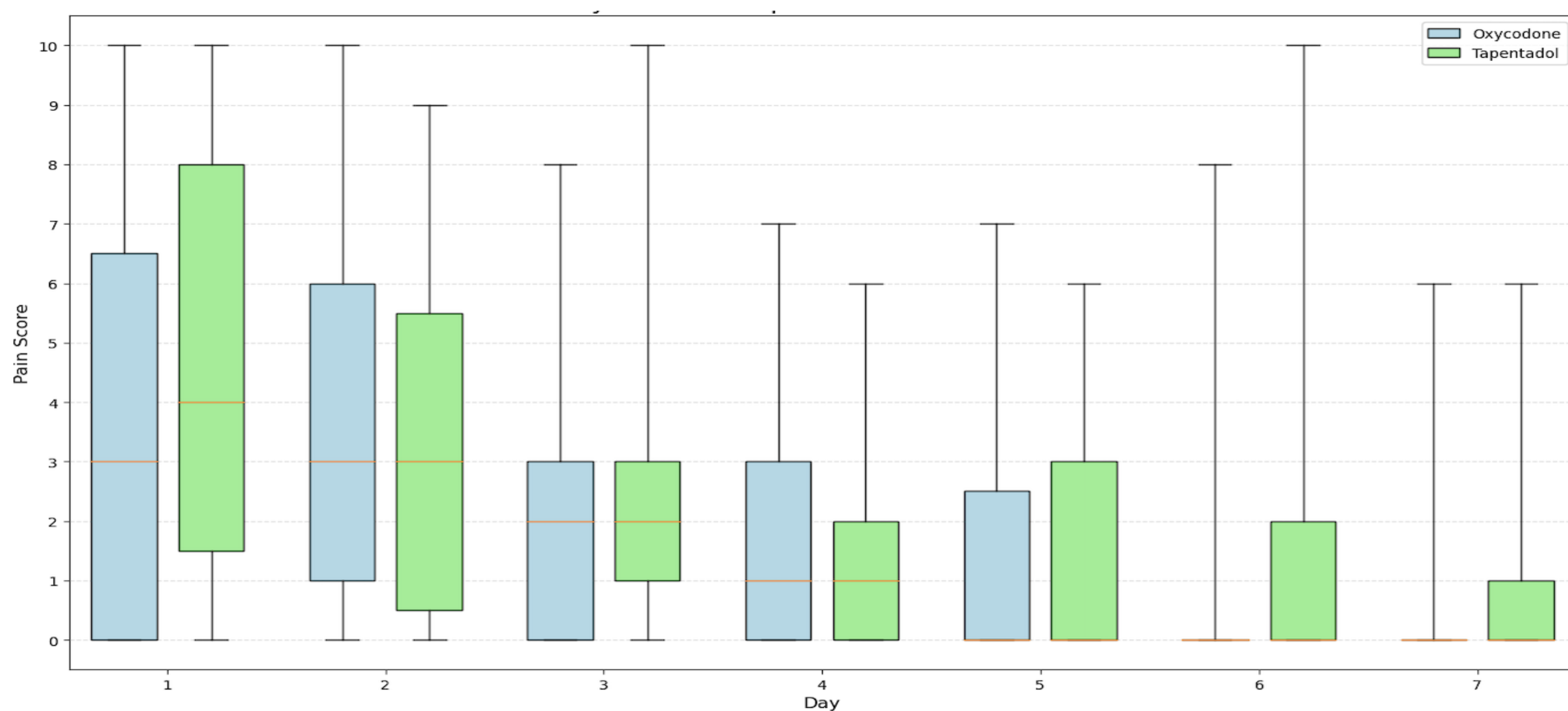


Figure 1. Oxycodone SR and Tapentadol SR worst pain score at rest

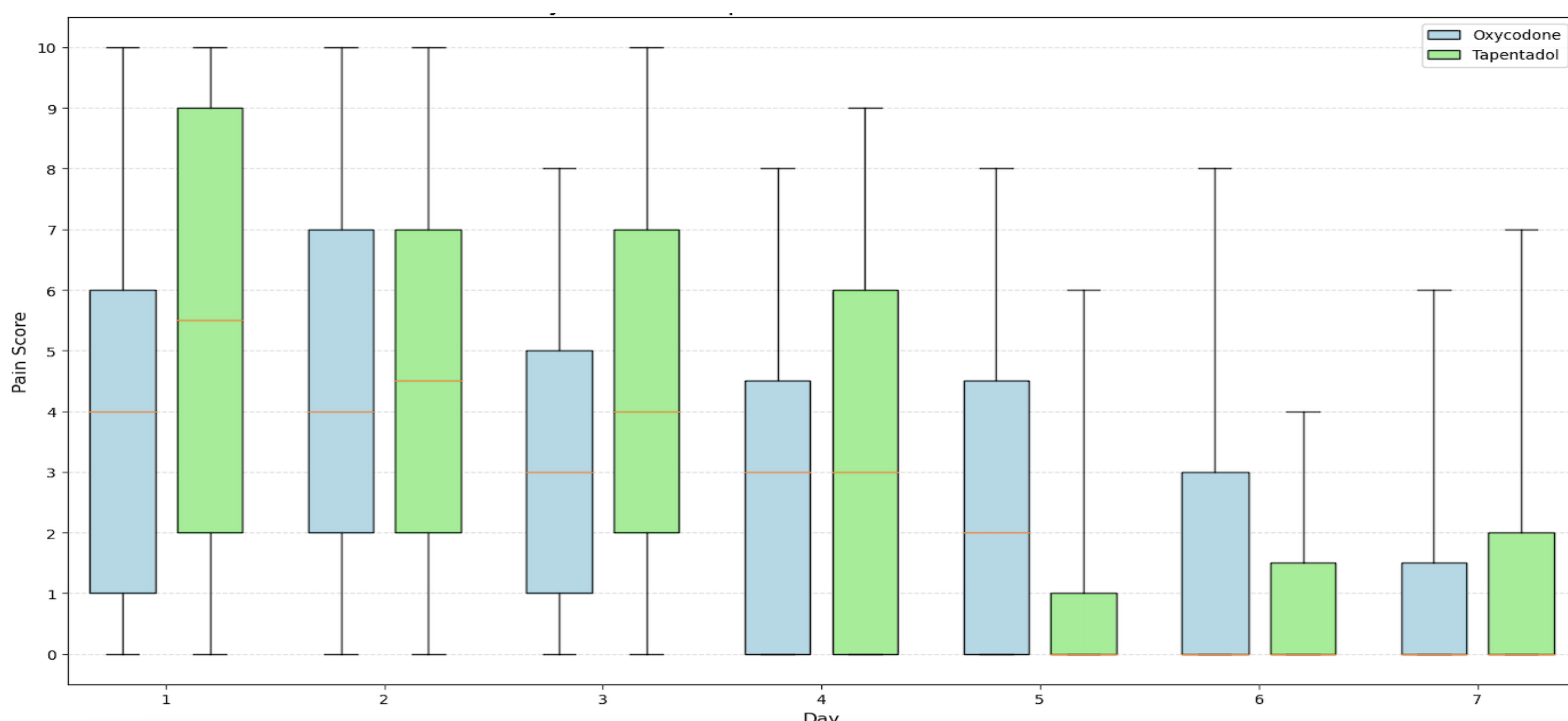


Figure 2. Oxycodone SR and Tapentadol SR worst pain score on movement