

Preoperative Opioid Use and Hospital Length of Stay After Elective Complex Spine Surgery

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Introduction

- Complex spine surgery, defined as surgical fusion of greater than 6 vertebral levels or spine surgery greater than 6 hours of operative duration, remains the definitive treatment for symptomatic adult spinal deformity (ASD).
- The symptomatology of patients with ASD often includes chronic back pain for which many patients are on chronic opioid therapy (COT).
- Long-term daily opioid exposure predisposes patients to poorly controlled postoperative pain due to phenomena including tolerance and opioid induced hyperalgesia.¹
- It has been well established that COT is an independent risk factor for prolonged hospital length of stay.²
- Recently, it has also been established that COT predicts likelihood of ongoing opioid use 6 months after adult spinal deformity surgery in a dose dependent manner.³
- It remains to be established whether COT predicts hospital length of stay (LOS) after elective complex spine surgery and what effect, if any, tapering opioids pre-operatively has on post-operative hospital length of stay .

Materials and Methods

- This is a retrospective review of patients who underwent elective complex spine surgery at a single center from June 2009 to March 2022.
- Demographic and clinical data was collected through electronic medical records.
- Preoperative opioids were converted into oral morphine equivalents dose (MED).
- Patients with an intrathecal pump and on buprenorphine were excluded from the study.

Results

- A total of 310 patients who underwent complex spine surgery were included in the study.
- Patients were placed in groups based on preoperative MED on the day of surgery: 0-29 MED (198 patients, 64%), 30-59 MED (43 patients,14%), 60-119 MED (43 patients,14%), and ≥120 MED (26 patients, 8%).
- Mean length of stay for each group was 11.40, 9.81, 10.40, and 11.22 days, respectively. (Table 1).
- **There was no significant difference between a patient's preoperative MED and hospital length of stay (p=0.44).**

MED	Mean LOS	SD LOS	p value from ANOVA
0-29	11.40	17.57	0.44
30-59	9.81	5.56	
60-119	10.40	5.17	
>=120	11.22	5.09	

Table 1: Morphine Equivalent Dose and Mean Hospital Length of Stay

References

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Discussion

- **In conclusion, this study found no significant difference in hospital LOS between patients on different MED ranges undergoing elective complex spine surgery. (Figure 1)**
- One potential explanation is that prior to every elective complex spine surgery at our institution, patients meet with a pain medicine specialist for pain medication optimization prior to surgery.
- An integral part of this visit is to help patients on COT wean opioids, as able, prior to surgery.
- **Given that there was no difference in LOS based on pre-operative MED, this study argues against tapering opioids pre-operatively below an absolute threshold/value**
- Further research is needed to determine if *relative* pre-operative tapering of opioids improves outcomes including LOS

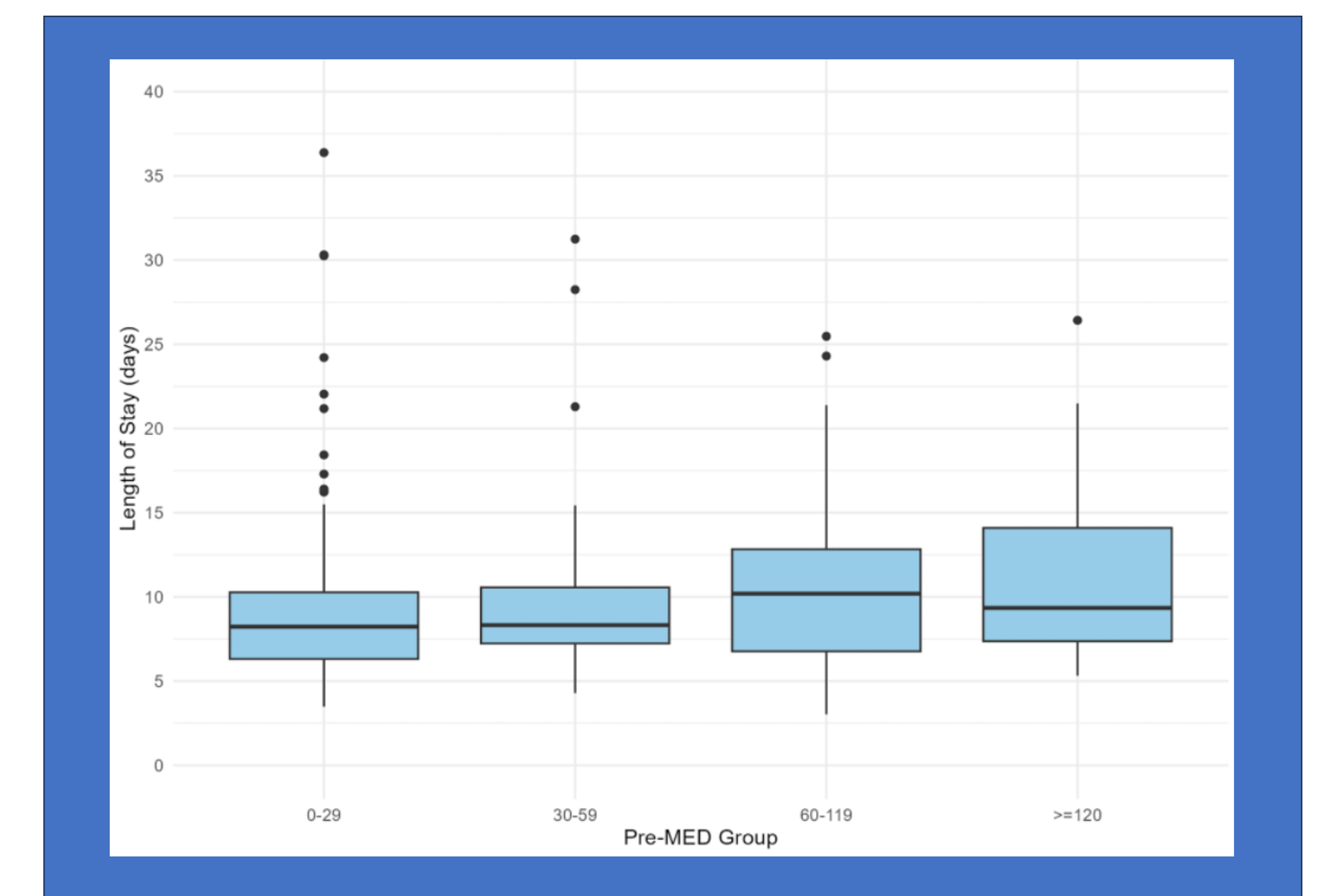


Figure 1: Boxplot of Hospital Length of Stay based on Preoperative MED