Factors Associated With Increased Discharge Opioid Prescriptions Following Primary Anterior Cervical Spine Surgery

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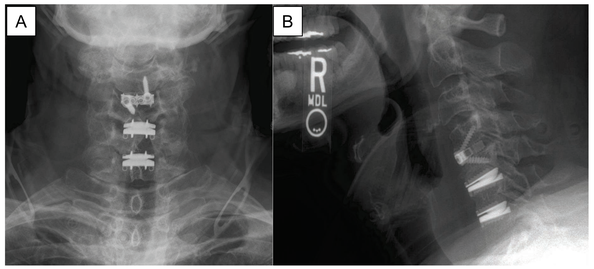
Introduction

- Opioid overuse is a substantial cause of morbidity and mortality, and orthopaedic surgeons are the third highest prescribers.[1]
- Data on factors associated with discharge opioid prescriptions after elective anterior cervical surgery (ACS) is limited.
- ACS includes anterior cervical discectomy and fusion (ACDF) and cervical disk replacement (CDR) for cervical radiculopathy and/or myelopathy.

Figure 1: Anteroposterior (A) and lateral (B) radiographs of a patient status post hybrid C4-5 ACDF and two-level CDR at C5-6 and C6-7.

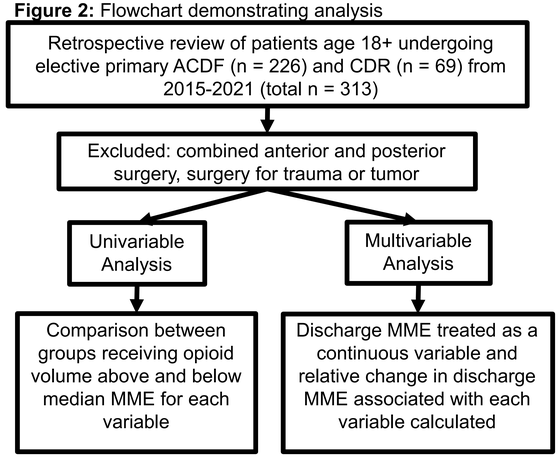


Objectives

- To evaluate the volume of postoperative opioids prescribed and factors associated with increased volume after ACS.

Material & Methods

Figure 2: Flowchart demonstrating analysis



Results

Figure 3: Distribution of Total Opioid Prescription Volumes for All Patients

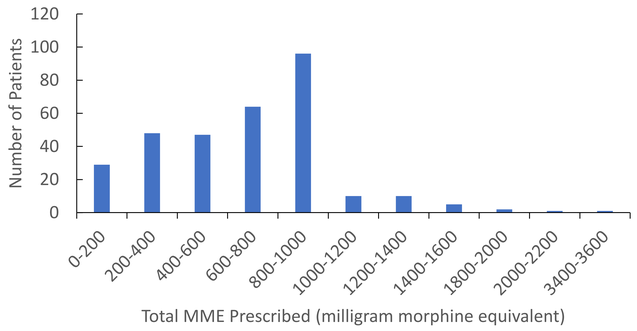


Figure 4: Total Opioid Prescriptions, By Procedure Type

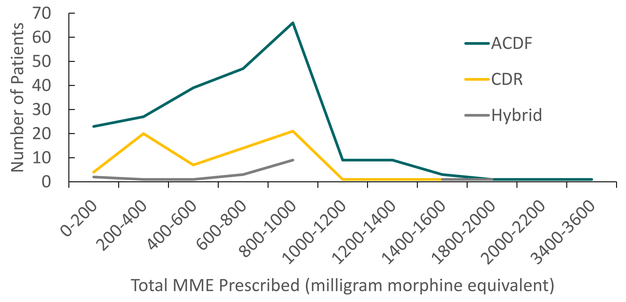


Figure 5: Total Opioid Prescriptions, By Prescriber Type

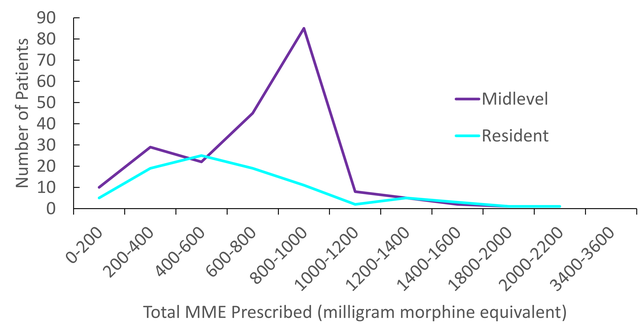


Figure 6: Total Opioid Prescriptions, By Pre-Op Opioid Use

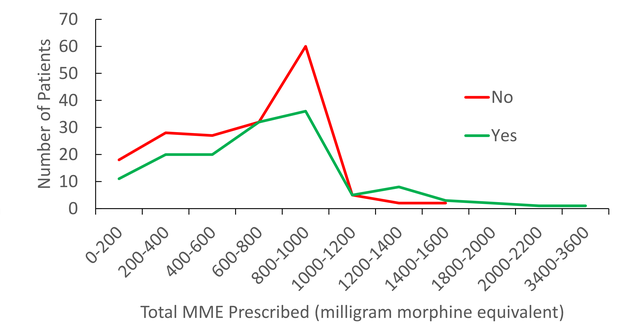


Figure 7: Total Opioid Prescriptions, by Presence or Absence of Preoperative Radiculopathy

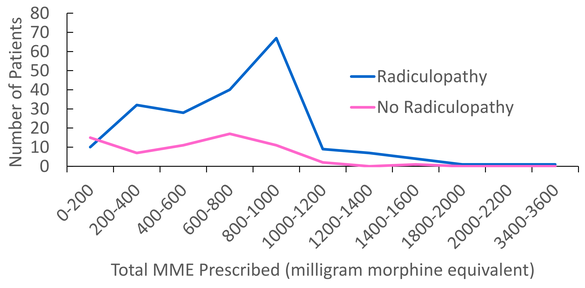
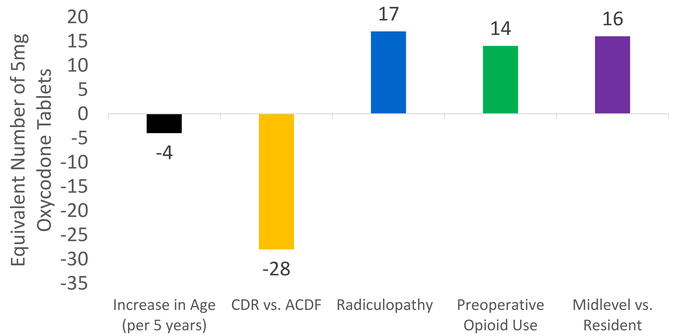


Figure 8: Increased Number of 5mg Oxycodone Tablets Prescribed at Discharge for ACS Patients for Each Factor



Calculations based on CMS opioid conversion tables, rounded to nearest whole number.

Demographic, Surgical, and Prescriber Information	Number	%
Total	313	100.0%
Age (years, average)	57.2	N/A
Male	157	50.2%
Female	156	49.8%
Pre-operative Opioid Use		
No	174	55.6%
Yes	139	44.4%
Surgical Indication		
Radiculopathy	199	63.6%
Myelopathy	60	19.2%
Myeloradiculopathy	51	16.3%
Procedure Type		
ACDF	226	72.2%
CDR	69	22.0%
Hybrid	18	5.8%
Prescriber Type		
Midlevel Prescriber	208	69.6%
Resident Prescriber	91	30.4%

Abbreviations: ACDF: anterior cervical discectomy and fusion, CDR: cervical disc replacement

- Factors independently associated with greater discharge opioid prescription volume:
  - Younger age (p = 0.010)
  - Procedure type (ACDF, p < 0.001)
  - Preoperative radiculopathy (p = 0.029)
  - Preoperative opioid use (p = 0.012)
  - Prescription written by a midlevel provider (p = 0.010)

Summary & Conclusions

- There is wide variability in prescription opioid discharge volumes after ACS surgery.
- Several patient, procedure, and perioperative factors associated with increased discharge opioid volumes were identified.
- These factors should be considered when designing protocols and interventions to reduce and optimize postoperative opioid use after ACS surgery.

Acknowledgements

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References

1. Volkow ND, McLellan TA, Cotto JH, Karithanom M, Weiss SR. Characteristics of opioid prescriptions in 2009. Jama. Apr 6 2011;305(13):1299-301. doi:10.1001/jama.2011.401

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