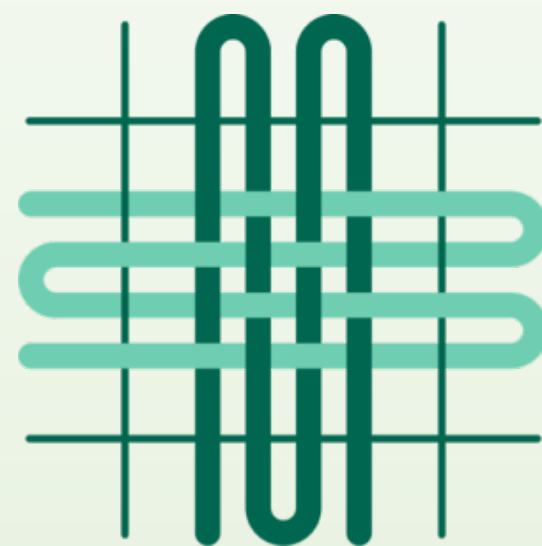


The Impact of Thoracic Epidurals on Hospital Length of Stay

An Observational Study



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INTRODUCTION

- Preoperative thoracic epidurals are widely considered the gold standard for analgesia for a variety of surgery types
- The clinical benefits, including reductions in opioid use and post-operative pain scores, are well described in the literature¹. Despite this, epidural use may be declining due in part to concerns they may delay discharge
- The clinical and financial ramifications of hospital length of stay (LOS) are significant^{2,3}
- The purpose of this study was to evaluate the effect of thoracic epidural placement on hospital LOS (vs. no epidural) for elective surgical procedures where epidural was deemed appropriate by the Acute Pain Medicine Service (APMS) team

METHODS

- A retrospective cohort study was performed to examine the relationship between thoracic epidural analgesia and LOS
- Our study population were patients identified for epidural placement by the APMS via pre-operative screening, in whom epidural analgesia was thought to be strongly indicated

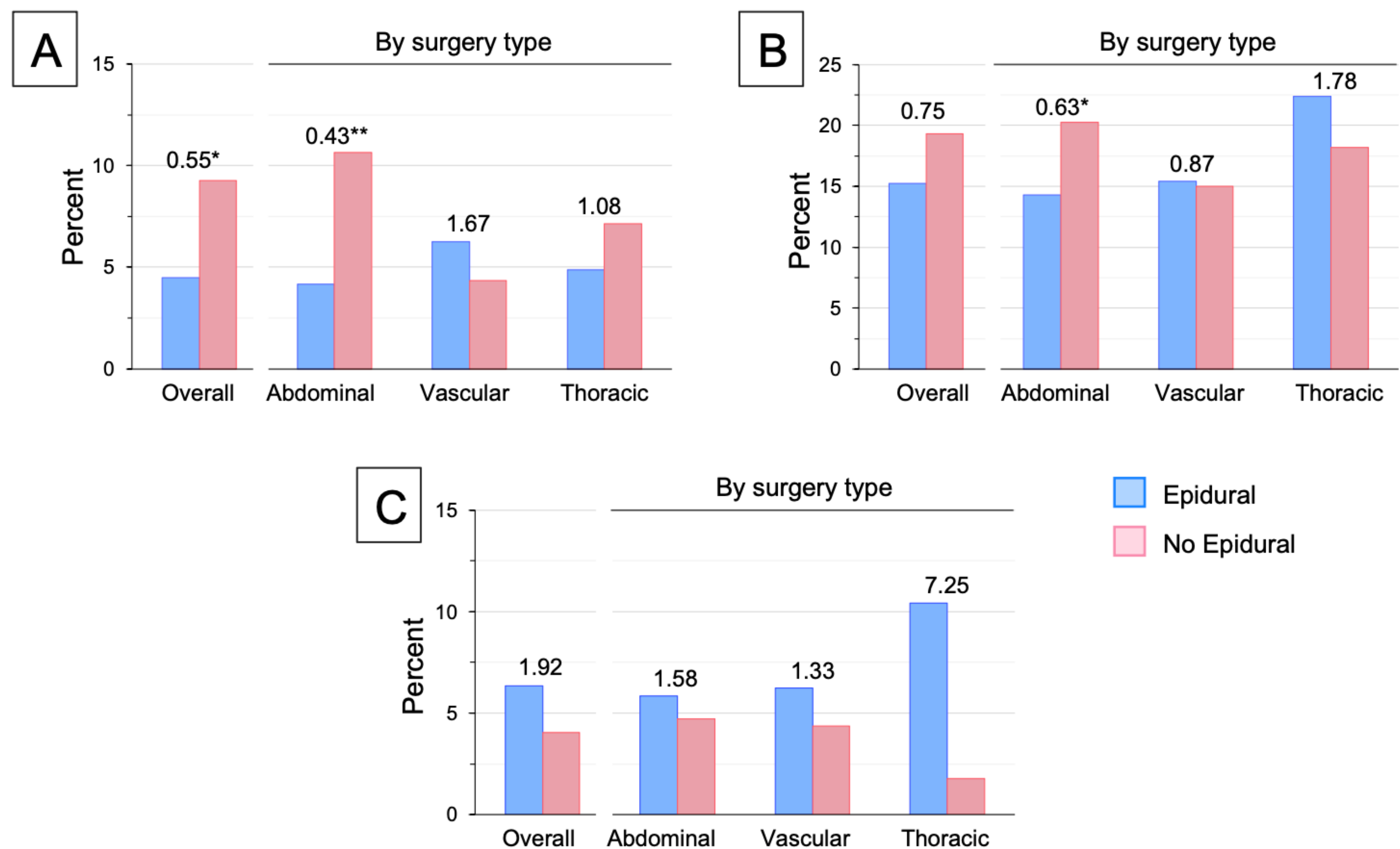
Study participant characteristics by thoracic epidural status.

Characteristic	Epidural n = 1499	No Epidural n = 248	p-value ^a
Sociodemographic			
Mean age in years (SD)	60.8 (13.7)	62.9 (13.3)	0.07
Sex, n (%)			0.8
Male	681 (44.9)	123 (44.4)	
Female	837 (55.1)	154 (55.6)	
Race/Ethnicity, n (%)			0.3
White	1,437 (95.7)	241 (97.2)	
Other	62 (4.1)	7 (2.8)	
Health status and surgery			
ASA Classification, n (%)			0.001
I, II	363 (24.2)	42 (16.9)	
III	1,083 (72.3)	187 (75.4)	
IV	53 (3.5)	19 (7.6)	
Mean Body Mass Index (SD)	28.2 (6.9)	28.7 (8.4)	0.4
Surgical Procedures, n (%)			<0.001
Abdominal, General	698 (46.6)	125 (50.4)	
Abdominal, Urologic	193 (12.9)	18 (7.3)	
Abdominal, Gynecologic	304 (20.1)	26 (10.5)	
Vascular	160 (10.7)	23 (9.3)	
Thoracic	144 (9.6)	56 (22.6)	

Abbreviations: SD, standard deviation; ASA, American Society of Anesthesiologists
Note, column totals may not add up to 100% due to rounding
^a p-value compare Epidural versus No Epidural groups, two sample t-test used to compare means and chi-squared test used to compare proportions

RESULTS

- Among the 1,747 patients, 85.7% (1,499) received epidural analgesia
- 78% (1,364) underwent abdominal, 11.5% (200) thoracic, and 10.5% (183) vascular surgeries
- After adjustment for sociodemographic and health differences, receiving epidural analgesia was associated with a 45% reduction in the odds of prolonged LOS (OR 0.55, 95% CI 0.33)
- No statistically significant association was noted overall in either 30-day readmission or escalation of care



Association between epidural status and prolonged hospital stay^a (A), 30-day readmission (B), and escalation of care^a (C) overall and by surgery type.

Values presented are odds ratios for the association between epidural status and outcome, adjusted for age (continuous), sex, body mass index, and ASA status (I/II, III, versus IV).
a: Defined as length of stay longer than 21 days.
b: Escalation of care defined as moving from regular floor to either step down unit or intensive care unit
* p-value < 0.05
** p-value < 0.01
*** p-value < 0.001

DISCUSSION

- We found that thoracic epidural analgesia, adjusted for sociodemographic and health differences, was associated with a 45% reduction in the odds of a prolonged LOS (>21 days), regardless of surgery type among elective open abdominal, vascular, or thoracic surgery
- There was no statically significant association overall for either 30-day readmission or escalation of care
- Further subgroup analysis did demonstrate that this signal was largely due to the protective effect of thoracic epidurals on open abdominal surgery, where there was a significant reduction in odds of prolonged LOS (OR 0.42, 95% CI 0.23) and 30-day readmission (OR 0.63, 95% CI 0.41)
- Given the observational design, it is possible that unmeasured confounders may exist. However, based on the inclusion criteria (where all patient cases were offered epidural analgesia based on screening), those patients receiving versus not receiving epidural analgesia were quite similar
- Additionally, more detailed subgroup analysis could provide additional insight as to why epidurals appear more protective in open abdominal surgeries vs. thoracic and vascular cases
- Despite this, a statistically significant indication of reduced prolonged LOS among all surgeries is a noteworthy finding that holds significant clinical and economic implications

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