

A comparison of postoperative opioid consumption following thoracotomy between patients who received thoracic epidural analgesia or cryoablation: a single center retrospective study

Shreya Jatla,^a Emily H. Garmon,^b Michael R. Fettiplace,^c Prashant C. Shah,^d Ryan C. Russell,^b Chandni Raiyani,^e Michael P. Hofkamp^b

a. University of Texas at Austin, b. Department of Anesthesiology, Baylor Scott & White Medical Center-Temple, c. Department of Anesthesiology, University of Illinois at Chicago, d. Department of Surgery, Baylor Scott & White Medical Center-Temple, e. Biostatistics Core, Baylor Scott & White Research Institute

INTRO.

- We hypothesized that postoperative opioid consumption for thoracotomy patients would be higher for those who received cryoablation compared to patients who received thoracic epidural analgesia.

METHODS

- Participants: 95 patients who received thoracic epidural analgesia and 43 patients who received cryoablation.
- A study investigator ran a report in our EMR (Epic, Verona, Wisconsin) for patients who had thoracic procedures at Baylor Scott & White Medical Center-Temple from January 1, 2019 through December 31, 2022.
- The primary outcome was morphine milligram equivalent (MME) consumption for the first 24 postoperative hours.

RESULTS

- Postoperative MME consumption was 30.6 mg (13.1-64.8) for thoracic epidural and 76.0 mg (40.0-116.0) for cryoablation
- Eleven (12%) and 37 (86%) patients who received thoracic epidural analgesia and cryoablation, respectively, had missing intravenous patient-controlled analgesia (PCA) data and had an average of 301 and 492 missing minutes of data, respectively.

Patients who had thoracotomy and received cryoablation had clinically and statistically significant higher postoperative opioid consumption compared to patients who received thoracic epidural analgesia

Postoperative morphine milligram equivalent (mg)

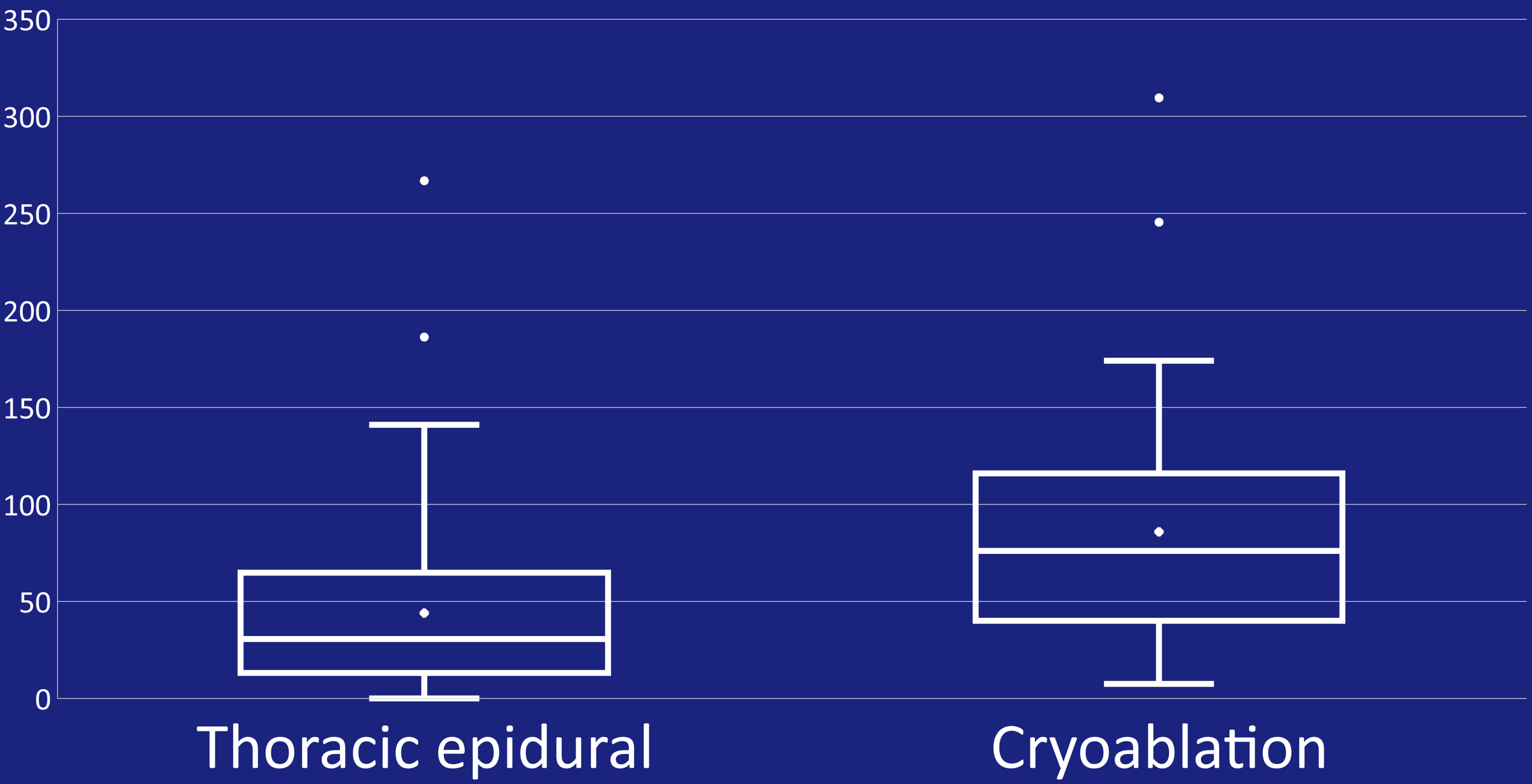


Table 1. Patient demographic characteristics, physical characteristics, and operative indications

Variable	Received thoracic epidural (N=95)	Received cryoablation (N=43)	P value
Female gender (percentage)	30 (32%)	15 (35%)	0.70
Age (years)	64 ± 12	68 ± 10	0.10
Height (cm) (mean (SD))	171.3 ± 10.7 (N=94)	170.7 ± 10.8 (N=42)	0.76
Weight (kg)	81.4 ± 21.8 (N=94)	76.8 ± 19.7 (N=44)	0.24
Body mass index (kg/m²)	27.6 ± 6.5	26.3 ± 6.5	0.31
Previous thoracotomy (yes) (percentage)	17 (18%)	1 (2%)	0.01*
Operative indication			0.90
Malignancy related	81 (85%)	37 (86%)	
Not related to malignancy	14 (15%)	6 (14%)	

Table 2. Characteristics of operative procedure

Variable	Received thoracic epidural (N=95)	Received cryoablation (N=43)	P value
Time from incision to wound closure	273 (203-419)	240 (196-399)	0.40
Time of wound closure			0.22
0630-1529	27 (28%)	16 (37%)	
1530-1839	49 (52%)	22 (51%)	
1900-0629	19 (20%)	5 (12%)	
Intraoperative morphine milligram equivalent consumption	50.5 (40.0-70.0)	40.0 (27.0-50.0)	<0.01*
Received ketamine intraoperatively (yes) (percentage)	24 (25%)	9 (21%)	0.58
Estimated blood loss	250 (100-450)	150 (100-200)	0.04*
Days from procedure to discharge from hospital	8 (5-15)	8 (4-10)	0.09

Table 3. Multimodal analgesia and analgesic outcomes

Variable	Received thoracic epidural (N=95)	Received cryoablation (N=43)	P value
Received preoperative acetaminophen	36 (38%)	10 (23%)	0.06
Received preoperative gabapentin	27 (28%)	3 (7%)	<0.01*
Received intraoperative acetaminophen	51 (54%)	34 (79%)	<0.01*
Acetaminophen for first 24 postoperative hours	3000 (2000-4000)	3000 (3000-4000)	0.75
Gabapentin for first 24 postoperative hours	250 (0-600)	300 (200-500)	0.10
Received ketorolac for first 24 postoperative hours	23 (24%)	6 (14%)	0.17
Morphine milligram consumption for first 24 postoperative hours	30.6 (13.1-64.8)	76.0 (40.0-116.0)	<0.01*

DISCUSSION

- Of patients who underwent thoracotomy, those who received cryoablation had a significantly higher postoperative opioid consumption compared to patients who received thoracic epidural analgesia.
- Our finding of increased opioid consumption in the immediate postoperative period following thoracotomy for patients who received cryoablation compared to patients who received thoracic epidural analgesia stands in contrast to previous studies.
- Future studies are needed to measure patient satisfaction between cryoablation and thoracic epidural analgesia following thoracotomy.