

Intercostal Nerve Cryoablation for Postoperative Analgesia following Minimally Invasive Lung Resection

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BACKGROUND

- Intercostal nerve cryoablation (IC) has shown promise as an effective postoperative pain management tool, with many patients reporting subsequent pain relief lasting weeks to months.
- Previous studies have compared outcomes in patients undergoing IC after thoracotomy, especially for Nuss procedures.
- However, limited data exist on the utility of IC after robotic video assisted thoroscopic surgery (RVATS) for anatomic lung resections.

OBJECTIVES

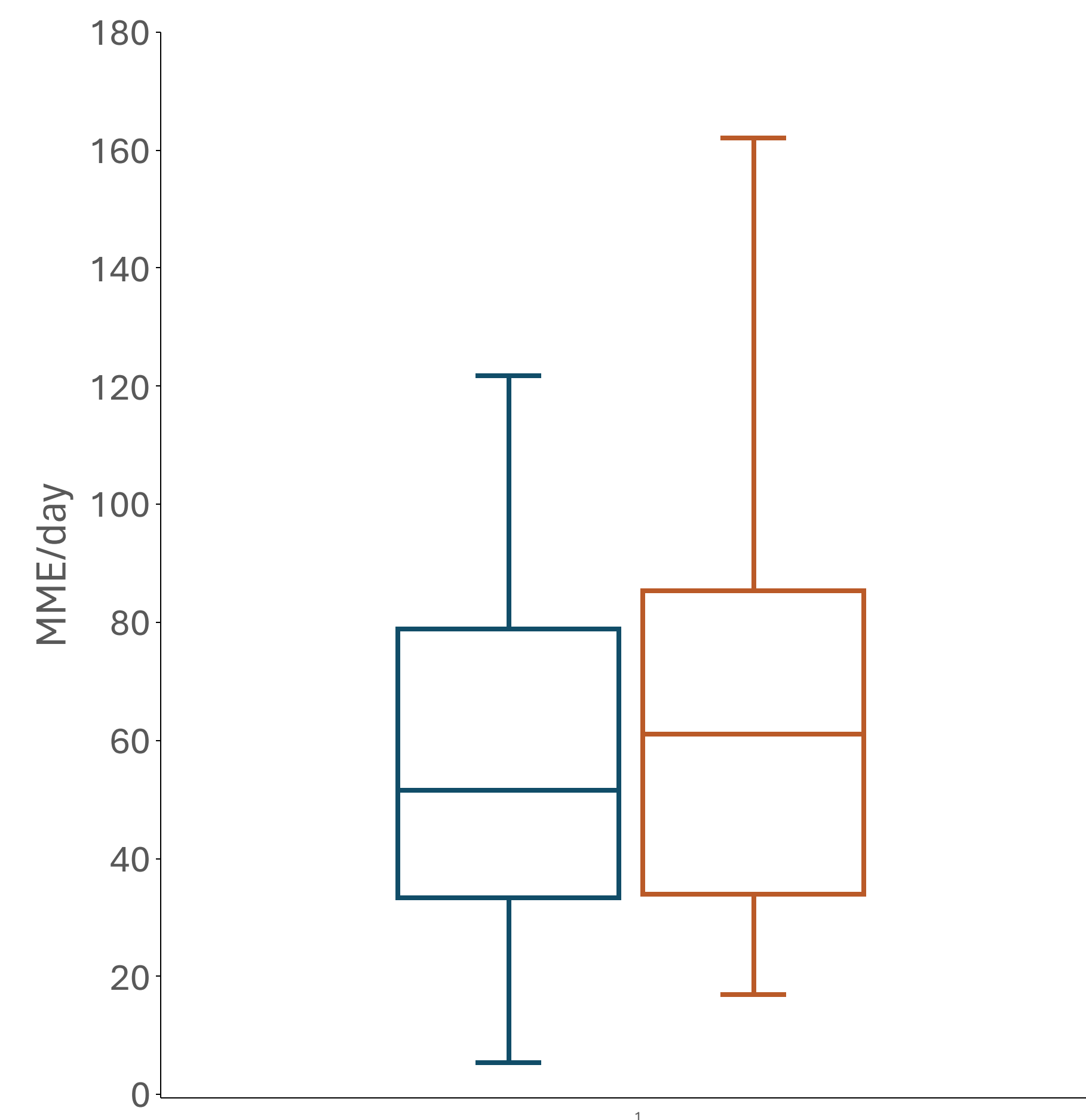
- Identify average total opioid administration intra, peri, and postoperatively for patients with and without IC.
- Explore whether there are differences in postoperative usage of opioid for patients with and without IC.

METHODS

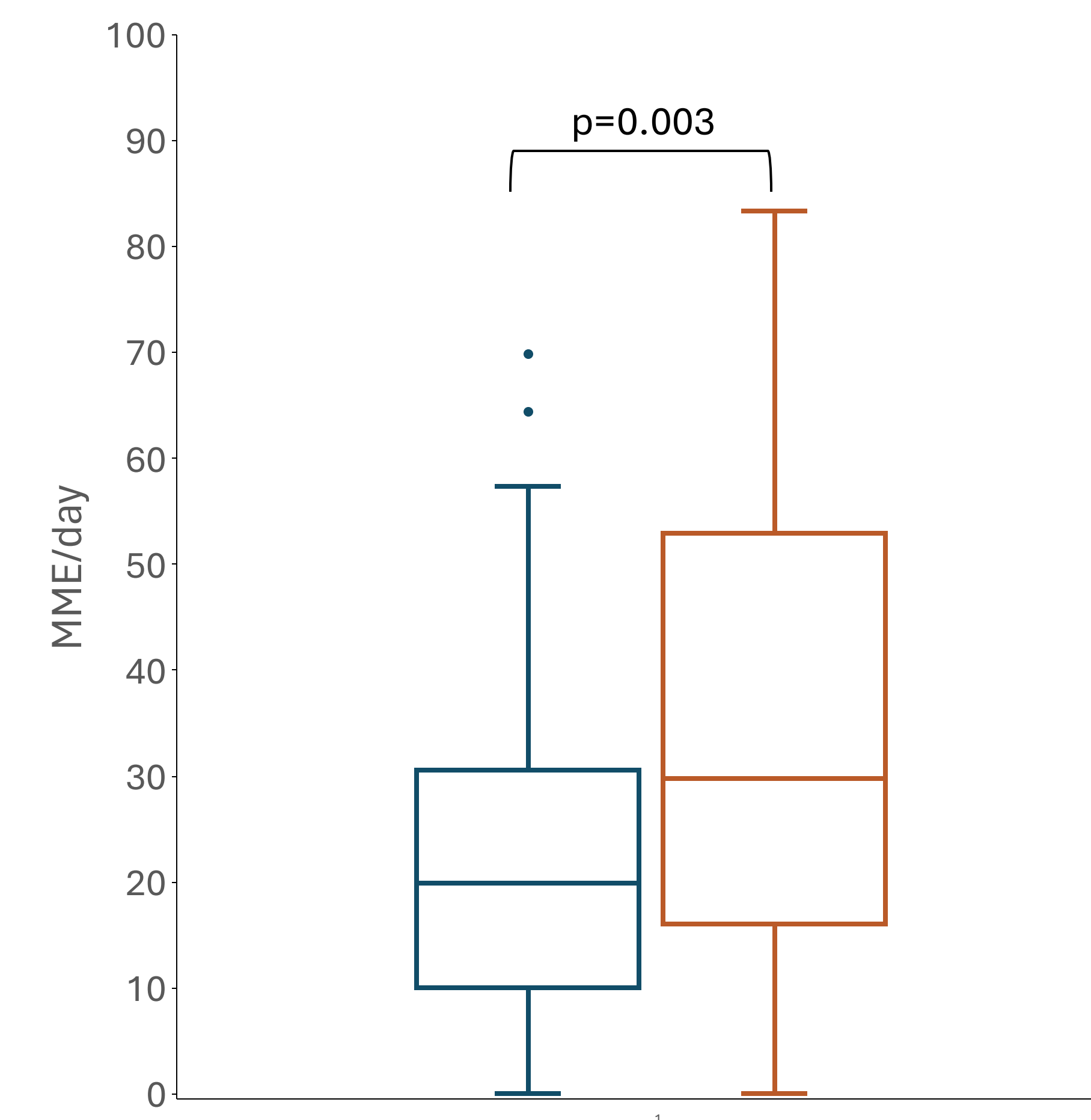
- A retrospective chart review was conducted on thoracic surgery patients who underwent RVATS for anatomic lung resection between 2023 and 2024.
- Collected variables included length of stay (LOS), readmissions, emergency department visits (EDVs), complications, and total opioid usage (including fentanyl, dilaudid, oxycodone, and morphine, all calculated as morphine milligram equivalents) across intraoperative, perioperative, and postoperative periods.
- Length of stay was calculated as time of surgery to time of discharge.
- Perioperative opioid usage was defined as any opioids received after leaving the operating room but before being transferred to the ward.

RESULTS

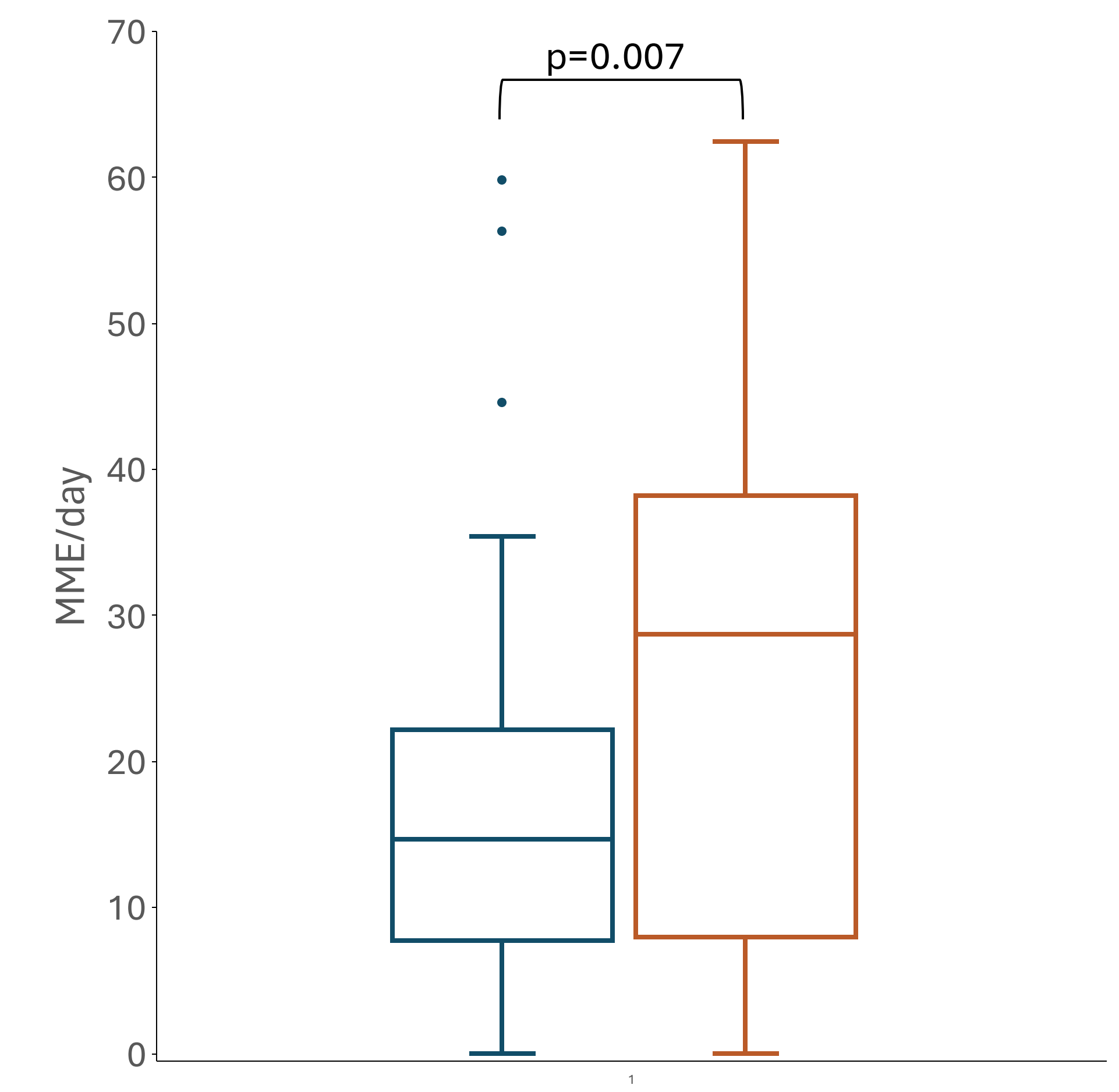
Total Opioid (intra, peri, post-op)



Opioids Post-operatively



Opioids on Floors



Patients with IC Patients without IC

- The average total opioid administration, was 65.7 MME/day for patients without IC and 54 MME/day for patients with IC (p=0.06).
- When analyzing post operative usage with T test, patients without IC required 34.6 MME/day and patients with IC required 21.5 MME/day (p=0.003).
- When looking at only that which was given on the floors, patients without IC required 25.9 MME/day and patients with IC required 16.5 MME/day (p=0.007).

DISCUSSION

- Intercostal nerve cryoablation is a safe and effective pain management strategy in minimally invasive thoracic surgery that reduces overall opioid usage.
- Given that it takes about 24 hours for cryoablation to become effective, the significance of decreased opioid usage in the post operative period could be of clinical value.
- There was no difference found in LOS, readmissions or EDV, but this may change with a more powered study.
- Overall, **IC has demonstrated significant promise as a superior pain management modality for thoracic surgery patients**, warranting continued and expanded investigation.