



Opioid-Sparing Multimodal Anesthesia in Robotic Thoracic Surgery: a Single-Center Case Series

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BACKGROUND

- RATS is increasingly adopted due to reduced surgical trauma and enhanced recovery
- Postoperative pain management remains crucial for ERAS adherence
- Opioid-sparing anesthesia combines multimodal systemic analgesia and regional techniques
- Evidence regarding structured OSA protocols in robotic thoracic surgery remains limited

METHODS

- Prospective single-center case series (n=10)
- Procedures performed using the da Vinci Xi robotic platform
- 10 consecutive adult patients (mean age 60.5 ± 13.7 years)
- Jun–Nov 2025
- Standardized multimodal opioid-sparing anesthetic protocol

PREOPERATIVE PHASE

Robot-assisted pulmonary and mediastinal surgery

INTRAOPERATIVE OPIOID-SPARING ANESTHESIA

KETAMINE
0.3 mg/kg

LIDOCAINE
1.5 mg/kg + 1–2 mg/kg/h

MAGNESIUM
1 g + 5–20 mg/kg/h

LOW-DOSE OPIOIDS
Fentanyl 1 µg/kg



DEXAMETHASONE, KETOROLAC AND ACETAMINOPHEN

REGIONAL ANALGESIA

TPVB

ESPB

SAPB

POSTOPERATIVE OUTCOMES

Pain scores (NRS)

PONV and delirium

Rescue opioid analgesia

Hemodynamic stability

RESULTS

- All procedures were completed without conversion
- Postoperative NRS
1h 1.9 → 6-12h peak 3.3 → 24h 2.5
- Rescue opioid analgesia was required in 2/10 patients
- No postoperative delirium was observed
- No cases of PONV occurred
- Hemodynamic stability was maintained intraoperatively
- No major anesthetic-related adverse events occurred

CONCLUSIONS

- Standardized multimodal opioid-sparing anesthesia was feasible in RATS
- Combination of systemic multimodal analgesia and ultrasound-guided regional techniques provided satisfactory perioperative pain control
- Opioid exposure and opioid-related adverse effects appeared limited
- This preliminary experience supports further evaluation of structured opioid-sparing protocols in robotic thoracic surgery