



Epidural analgesia in abdominal major surgery: pros, cons, and unresolved issues beyond pain control

Analgesia epidural en cirugía abdominal mayor: pros, contras y puntos sin resolver mas allá del control del dolor

Fredy Ariza^{a,b,c}, Hector Rodriguez-Mayoral^b, Karen Villarreal^b

^a Universidad ICESI, Cali, Colombia

^b Universidad del Valle, Cali, Colombia

^c Fundación Valle del Lili, Cali, Colombia.

Keywords: Analgesia, Epidural, Pain, Morbidity, Acute Pain, Image

Palabras clave: Analgesia Epidural, Dolor, Morbilidad, Dolor agudo, Imágenes

Epidural analgesia (EPA) is a recognized approach to pain control that is used in approximately 50% to 60% of all abdominal major surgeries around the world. It constitutes an important issue among strategies of multimodal postoperative analgesia, due to its potential to improve rehabilitation, low rate of complications, and high satisfaction reported by patients.^{1,2}

Worldwide trends to use epidural catheters at high spinal levels (usually T6-T8) and new delivery systems that provide pain rescue modalities added to classic continuous infusions have the potential to reducing the rates of related adverse events (uncontrolled pain, motor block, and urinary retention).³ Besides recognized advantages of EPA based on moderate to strong evidence, there are detractors who warn on a potential increase of intestinal leakage, but available information is of low/doubt quality and recent related papers have not found any association.^{4,5}

Hypotension remains as a big problem related to EPA and future research must focus on strategies to prevent it. Acute pain management services play a key role to

implementation of standardized protocols of EPA in order to reduce postoperative morbidity and improve quality and safety (Fig. 1).

Ethical disclosures

Protection of human and animal subjects. The authors declare that no experiments were performed on humans or animals for this study.

Right to privacy and informed consent. The authors declare that no patient data appear in this article.

Funding

Author's own resources.

Conflicts of interest

Authors declare no conflicts of interest implied in the writing of this manuscript.

How to cite this article: Ariza F, Rodriguez-Mayoral H, Villarreal K. Epidural analgesia in abdominal major surgery: pros, cons, and unresolved issues beyond pain control. Rev Colomb Anestesiología. 2018;46:175-176.

Read the Spanish version of this article at: <http://links.lww.com/RCA/A52>.

Copyright © 2018 Sociedad Colombiana de Anestesiología y Reanimación (S.C.A.R.E.). Published by Wolters Kluwer. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Correspondence: Fundación Valle del Lili, Av, Simón Bolívar, Cra. 98 No 18-49, Cali, 760032, Colombia. E-mail: fredyariza@hotmail.com

Rev Colomb Anestesiología (2018) 46:2

<http://dx.doi.org/10.1097/CJ9.0000000000000033>

Epidural Analgesia in Abdominal Major Surgery: Pros. Cons & Unresolved Issues beyond Pain Control

Epidural analgesia (EPA) is calculated to be used in 50-60% of all abdominal major surgeries around the world.

(Pros) Cardiopulmonary Morbidity

- Respiratory Depression OR 0.61 (95%CI 0.39-0.93)
- Atelectasis OR 0.67% (95%CI 0.48-0.93)
- Pneumonia OR 0.56 (95%CI 0.45-0.70)
- Heart A-V Blockade OR 0.25 (95%CI 0.11-0.57)
- Atrial fibrillation OR 0.63 (95%CI 0.49-0.82)
- Other tachyarrhythmias OR 0.69 (95%CI 0.55-0.87)

(Pros) Gastrointestinal Morbidity²

- Ileus OR 0.43 (95%CI 0.21-0.88)
- PONV OR 0.76 (95%CI 0.58-0.99)
- Dizziness OR 0.42 (95%CI 0.24-0.72)
- Time to first postop. feces 0.67 (95%CI 0.47 to -0.87)

It constitutes an important issue among strategies of multimodal postoperative analgesia, due to its potential to improve rehabilitation, its low rate of complications and high satisfaction reported by patients.

(Pros) Mortality¹

- Global Mortality Epidural analgesia (EPA) 3.1% vs. endovenous analgesia (EVA) 4.9%; [OR 0.6 (95%CI 0.39-0.93)].
- Vascular Surgery Mortality EPA 2.5% vs EVA 5.3% [OR 0.39 (95%CI 0.17-0.88)].

(Cons) Cardiovascular Morbidity

- Hypotension OR 4.92 (95%CI 3.11-7.78)

EPA is recommended to be assessed and managed by an institutional acute pain management service in order to assure prompt adjusting and treatment of morbid events.

A reduction of rate infusion, local anesthetic concentration or to make the patient lie on the side with the blocked leg up, must be considered when unilateral motor block is detected.

(Cons) Other Morbidities

- Pruritus OR 1.47 IC95% (1.15-1.88)
- Urinary Retention OR 1.60 IC95% (1.02-2.51)

Unresolved but important*

- Length of hospital stay OR 0.8 (95%CI 0.65-0.96)
- Hospital readmission OR 1.23 IC95% (0.56-2.7)
- Anastomotic leakage OR 1.36 IC95% (0.72-2.57)

*low quality or insufficient evidence

Most Frequent Regimens (but not limited to...)

Local Anesthetic	With or Without Opioid (mcg/ml)	Continuous Rate (ml/hr)	Rescue by Patient (ml)
Bupivacaine 0.1-0.125% Ropivacaine 0.1%	Fentanyl 2-5 Hydromorphone 5-10	4-7	4-5

This infographic is dedicated to epidural analgesia (EPA), a classic but permanently renewed strategy against postoperative pain after major abdominal surgery. Worldwide trends to use epidural catheters at high spinal levels (usually T6-T8) and new delivery systems providing pain rescue modalities added to classic continuous infusions have the potential to reduce the rates of related adverse events (uncontrolled pain, motor block and urinary retention).³

Besides recognized advantages of EPA based on moderate to strong evidence, there are detractors who warn on a potential increase of intestinal leakage but available information is of low/doubt quality and recent related papers have not found any association.^{4,5} Hypotension remains as a big problem related to EPA and future research must focus on strategies to prevent it. Acute pain management services play a key role to implementation of standardized protocols to reduce postoperative morbidity and improve quality and safety.

Figure 1. Impact of epidural analgesia for major surgery on perioperative outcomes and recommended puncture levels for different procedures. Source: Authors.

References

- Popping D, Elia N, Van Aken H, et al. Impact of epidural analgesia on mortality and morbidity after surgery. Systematic review and meta-analysis of randomized controlled trials. *Ann Surg* 2014;259:1056-1067.
- Guay J, Nishimori M, Koop S. Epidural local anesthetics versus opioid-based analgesic regimens for postoperative gastrointestinal paralysis, vomiting, and pain after abdominal surgery: a Cochrane review. *Anesth Analg* 2016;123:1591-1602.
- Ahmed A, Latif N, Khan R. Post-operative analgesia for major abdominal surgery and its effectiveness in a tertiary care hospital. *J Anaesthesiol Clin Pharmacol* 2013; 29:472-477.
- Piccioni F, Mariani L, Negri M, et al. Epidural analgesia does not influence anastomotic leakage incidence after open colorectal surgery for cancer: a retrospective study on 1,474 patients. *J Surg Oncol* 2015;112:225-230.
- Wang W, Zhao G, Wu L, et al. Risk factors for anastomotic leakage following esophagectomy: impact of thoracic epidural analgesia. *J Surg Oncol* 2017;116:164-171.