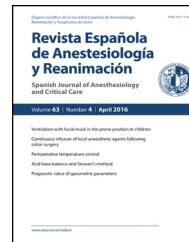




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ORIGINAL ARTICLE

Epidural anesthesia and analgesia in liver resection: Safety and effectiveness^{☆,☆☆}

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KEYWORDS

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Abstract

Objectives: Perioperative epidural analgesia in liver resection provides optimal dynamic pain relief. Coagulation disorders occurring in the postoperative period can lead to greater risk of complications during epidural catheter removal.

The aim of this study is to evaluate the effectiveness and complications of epidural analgesia and delayed epidural catheter removal due to postoperative coagulopathy.

Methods: A retrospective study of 114 patients undergoing open liver resection and epidural analgesia, from March 2012 to February 2015. Postoperative course of pain intensity, coagulation parameters and delayed catheter removal was analysed.

Results: Of the 114 operated patients, 73 met the inclusion criteria. 59% of patients received major hepatectomy (resection ≥ 3 segments) and 15% had Child's Class A cirrhosis (11/73). 96% of catheters functioned properly. 89% of patients had controlled pain (numerical rate scale <3) at rest and 8.2% (6 patients) had severe pain (numerical rate scale >6) with movement.

The INR peaked on postoperative day 2, 1.41 [0.99–2.30], and gradually returned to normal values in most patients by postoperative day 4, 1.26 [0.90–2.20]. The catheters were left in place 3.6 (± 1.1) days. In 6 patients (8%), catheter removal was postponed due to coagulation disorders.

Conclusions: Epidural analgesia for liver resection was a safe practice, which produced optimal control of postoperative pain. The percentage of delayed catheter removal due to postoperative coagulopathy was low, not requiring transfusion of blood products.

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PALABRAS CLAVE

Analgesia epidural; Hepatectomía; Hepatectomía analgesia postoperatoria; Hematoma epidural; Enhanced-recovery after surgery hepatectomía

Anestesia y analgesia epidural en la resección hepática: seguridad y efectividad

Resumen

Objetivos: La analgesia epidural perioperatoria (AE) en la cirugía hepática proporciona una analgesia dinámica óptima. Las alteraciones de la coagulación que se producen en el postoperatorio, añaden un riesgo de complicaciones tras la retirada de los catéteres epidurales.

El objetivo de este estudio es evaluar la efectividad y las complicaciones de la AE, así como el retraso en la retirada de los catéteres epidurales asociado a coagulopatía postoperatoria.

Métodos: Estudio retrospectivo de los 114 pacientes sometidos a cirugía hepática abierta y AE, de marzo 2012 a febrero 2015. Se analizó la evolución postoperatoria de la intensidad del dolor, de los parámetros de la coagulación y la retirada aplazada de catéteres.

Resultados: De los 114 pacientes intervenidos, 73 cumplieron criterios de inclusión. Un 59% de pacientes con hepatectomía mayor (resección ≥ 3 segmentos) y un 15% con cirrosis hepática Child A (11/73). El 96% de los catéteres funcionaron adecuadamente. Un 89% de los pacientes tuvo dolor controlado (escala numérica < 3) en reposo y un 8,2% (6 pacientes) presentaron dolor intenso (escala numérica > 6) al movimiento.

El INR se incrementó en el 2.^º día postoperatorio, 1,41 [0,99-2,30], normalizándose en la mayoría de los pacientes al 3.^{er} día postoperatorio, 1,26 [0,90-2,20]. El tiempo medio de permanencia del catéter fue de 3,6 ($\pm 1,1$) días. En 6 pacientes (8%), se aplazó la retirada por alteraciones de la coagulación.

Conclusiones: La AE en la hepatectomía resultó una práctica segura, que produjo un óptimo control del dolor postoperatorio. El porcentaje de retiradas aplazadas de catéter por coagulopatía postoperatoria fue bajo, no requiriendo trasfusión de hemoderivados.

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Introduction

Remarkable progress has been made in liver resection surgery in recent years, leading to improvements in surgical and oncologic outcomes and increasing the indications for these treatments.

Innovations in diagnostic, surgical and anaesthetic techniques, together with improved perioperative care, have helped reduce mortality from 10% to 20% in the 80s to today's figure of less than 5% in specialised hospitals.¹ As a result, indications for this type of surgery have been extended, and now include patients who a few years ago would not have been candidates for liver resection. Adjuvant chemotherapy and selective embolisation of liver tissue reduce tumour size and increase the size of the liver remnant.

Another field that has seen considerable advances in recent years is surgical treatment of liver metastases of colorectal cancer. Due to the increased survival observed in clinical practice, despite the absence of phase III trials, resection of colorectal cancer metastases is now a standard indication. Combined primary tumour and liver metastasis resection and rescue surgery for hepatic recurrence have helped extend existing indications for liver surgery.

The issue of which is the best analgesia for hepatectomy is still widely debated. Arguments in favour of epidural analgesia (EA) include less surgical stress, less intraoperative bleeding due to reduced central venous pressure (CVP), fewer postoperative complications and better dynamic (movement-related) analgesia quality.^{2,3} Arguments against, however, include the appearance of coagulation

abnormalities that could increase the risk of an epidural haematoma, hypotension and increased need for intraoperative fluids, the risk of motor blockade and delay in ambulation, and an epidural failure rate of between 20% and 37%.^{4,5}

The bilateral subcostal or right upper quadrant (inverted J) incision used in this type of surgery causes severe postoperative pain, which requires invasive analgesic techniques. Perioperative EA in hepatectomy provides excellent dynamic analgesia, which is why it is recommended in enhanced recovery after surgery (ERAS) programs.² However, coagulation abnormalities, frequently observed in the postoperative period, can appear after removal of epidural catheters.⁶

The objectives of this study are to assess the effectiveness EA in hepatectomy and its associated complications, and to analyse the correlation between delayed removal of epidural catheters and persistent coagulopathy.

Patients and methods

A retrospective study of daily monitoring parameters obtained from a prospective database of all patients undergoing liver surgery by laparotomy and EA between March 2012 and February 2015 (114 patients). Patients fulfilling any of the following criteria were excluded: epidural anesthesia not performed or not used postoperatively for whatever reason (baseline coagulopathy, patient refusal, technical failure, haemodynamic instability), surgery ruled out due to unresectable liver tumour, surgical reintervention, laparoscopic surgery and liver resection combined with another

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