

CHINESE MEDICAL SCIENCES JOURNAL

ORIGINAL ARTICLE

Efficacy and Safety of a Continuous Wound Catheter in Open Abdominal Partial Hepatectomy

Lu Che¹, Xin Lu², and Lijian Pei^{1*}

¹Department of Anesthesiology, ²Department of Hepatology, Peking Union Medical College Hospital, Chinese Academy of Medical Sciences & Peking Union Medical College, Beijing 100730, China

Key words: continuous wound catheter; postoperative pain; partial hepatectomy

Objective To investigate the efficacy and safety of continuous local anesthetic wound infiltration following open abdominal partial hepatectomy.

Methods We performed a prospective, non-randomized, concurrent and controlled study. Patients undergoing open abdominal partial hepatectomy, according to their willingness, accepted one of the following managements for the postoperative pain: continuous wound catheter (CWC) infiltration, patient-controlled epidural analgesia (PCEA), patient-controlled intravenous analgesia of morphine (PCIAM), and patient-controlled intravenous analgesia of sufentanil (PCIAS). The primary outcome was postoperative visual analogue scale (VAS) scores at rest and on movement. Secondary outcomes included consumption of rescue medication, side effects, and complications associated with postoperative pain management.

Results From August 2013 to December 2013, 80 patients were allocated to receive CWC ($n=10$), PCEA ($n=22$), PCIAM ($n=29$), or PCIAS ($n=19$). After adjusting for age, sex, body mass index, percentage of resected liver, operation time, and Amsterdam Preoperative Anxiety and Information Scale, there was no significant difference in the VAS scores at rest or on movement between Group CWC and the other groups, namely PCEA, PCIAM, and PCIAS, at 4, 12, 48, and 72 hours postoperatively (all $P>0.05$). The need for rescue medication was not significantly different between Group CWC and the other three groups at 48 and 72 hours postoperatively (all $P>0.05$). There was no significant difference in the incidence of postoperative nausea and vomiting or anal exsufflation time between group CWC and the other three groups (all $P>0.05$). No severe adverse effects associated with continuous wound infiltration were observed during the study period.

Conclusions CWC has a comparable analgesic effect compared with traditional analgesia methods at most time points postoperatively. CWC is a safe alternative for the postoperative analgesic management of open liver surgery.

Chin Med Sci J 2017; 32(3):171-176. DOI: 10.24920/J1001-9294.2017.024

ADEQUATE postoperative analgesia decreases the incidence of complications and in-hospital death, shortens hospital stay length, and lowers costs. Patients undergoing liver resection report moderate to severe pain after the surgical procedure.¹⁻³ Postoperative drug metabolism and hemostasis may be changed because of either preoperative liver dysfunction or abnormalities that develop postoperatively owing to liver resection. These situations make postoperative management of analgesia for liver surgery a unique challenge. Patient-controlled intravenous opioids are widely used to relieve the pain postoperatively. However, when used alone, high doses of intravenous opioids are required to treat movement-related pain after liver surgery. Unwanted opioid-related side effects, such as postoperative nausea and vomiting (PONV), sedation, and respiratory depression, can be manifested. Epidural analgesia used to be recommended for provision of analgesia following liver surgery. However, epidural analgesia is associated with serious complications including hypotension, bradycardia, dural puncture, and neurological deficits. Continuous wound infiltration of local anesthetic with an indwelling catheter placed directly by the surgeon at the target site may be an effective alternative in this patient group. Therefore, this prospective, non-randomized, concurrent, controlled study was carried out to examine the efficacy and safety of continuous wound catheter (CWC) infiltration following open abdominal partial hepatectomy.

PATIENTS AND METHODS

Enrollment and management of patients

From August 2013 to December 2013, patients who were scheduled for an open abdominal partial hepatectomy at Peking Union Medical College Hospital were prospectively enrolled in this study. Patients with an older age (>65 years), American Society of Anesthesiologists (ASA) classification ≥ 3 , or the inability to cooperate were excluded.

During the preoperative visit, baseline anxiety evaluations were carried out using the Amsterdam Preoperative Anxiety and Information Scale (APAIS).⁴ Benefits and risks associated with patient-controlled epidural analgesia (PCEA), patient-controlled intravenous analgesia (PCIA), and CWC infiltration were thoroughly explained to the patients. Patients' questions and concerns were all answered before choosing the treatment method they were willing to accept.

On the day of surgery, patients were managed with a standard general anesthesia protocol. Induction was carried out with propofol 1.5-2.0 mg/kg intravenously, fentanyl 2-3 μ g/kg, and rocuronium 1 mg/kg. Sevoflurane with

a target minimum alveolar concentration of 1.3 was administered for maintenance of anesthesia. For the prevention of PONV, dexamethasone 5 mg was administered intravenously at the start of surgery; ondansetron 4 mg was administered intravenously 30 minutes before the end of surgery. All the operations of liver resection were performed by the same surgical team, through a right subcostal incision extending upwards to the midline.

Postoperative pain management

In the CWC group, the ON-Q Pain Relief System (I-Flow Corp., Lake Forest, CA, USA) was used for postoperative pain management. This device consists of an elastomeric pump that holds 300 ml of 0.4% lidocaine and allows continuous infusion of local anesthetic to nearby tissues for 72 hours. At the end of the surgical procedure, wound catheters were placed between the transversus abdominis and rectus abdominis under direct vision by the surgeon.

In the PCEA group, before induction of anesthesia, patients received mid-thoracic epidural catheter insertion at T9-10. Infusion of 0.2% ropivacaine at 4 ml/h with a bolus of 4 ml and a lockout time of 15 minutes was provided.

In the PCIA group, at the end of surgery, PCIA pump infusion with either morphine 0.25 mg/ml or sufentanil 0.6 mcg/ml was started at 4 ml/h, with a bolus of 4 ml and a lockout time of 15 minutes. The choice of sufentanil or morphine was made by the anesthesiologist in charge of the patient.

Data collection

Baseline demographic information including sex, age, and body mass index were extracted from electronic records.

Intraoperative data including duration of anesthesia, operation time, and the percentage of resected liver were all recorded.

Patients were checked up at 4, 12, 48, and 72 hours postoperatively. Pain at rest and on movement was evaluated using visual analogue scale (VAS) scores. Rescue medication was indicated with a VAS score greater than 6. The time and amount of rescue medication provided was recorded. The incidence of PONV was recorded. PONV was evaluated on a numerical rating scale (NRS) of 1 to 3 (1=vomiting or feeling extremely nauseous; 2=no vomiting, but feeling moderately nauseous; and 3=no feeling of nausea or feeling mildly nauseous). Anal exsufflation time after surgery was noted. Adverse effects associated with CWC infiltration were recorded. Patients' platelet (PLT) level, prothrombin time (PT), activated partial thromboplastin time (APTT), and international normalized ratio were monitored daily for 1 week after surgery.

Download English Version:

<https://daneshyari.com/en/article/8757147>

Download Persian Version:

<https://daneshyari.com/article/8757147>

[Daneshyari.com](https://daneshyari.com)