Research Report

Intraperitoneal ropivacaine and early postoperative pain and postsurgical outcomes after laparoscopic herniorrhaphy in toddlers: a randomized clinical trial

Version of Record online: 27 JUN 2016
DOI: 10.1111/pan.12953
© 2016 John Wiley & Sons Ltd

Pediatric Anesthesia

Early View (Online Version of Record published before inclusion in an issue)

How to Cite


Keywords:

- ropivacaine;
- postoperative pain;
- laparoscopic herniorrhaphy
Summary

Background

Postoperative pain can cause physiological distress, postoperative complications, and extended lengths of hospitalized stay. In children, management of postoperative pain is still recognized as being inadequate.

Objective

The aim of this trial was to investigate the effects of intraperitoneal ropivacaine on postoperative pain, and recovery of bowel function and emetic events after laparoscopic herniorrhaphy in toddlers.

Methods

Seventy-six children aged from 9 months to 3 years were recruited between August 2013 and June 2014 at Tongji Hospital and randomly assigned into two groups. One group received intraperitoneal ropivacaine right before surgery and the control group received intraperitoneal saline. A standard combined general anesthesia procedure was performed under regular monitoring. Postoperative pain was assessed by the FLACC scale. Postoperative analgesic consumption, time to flatus, time to first stool, and postoperative emetic events were also recorded.

Results

When compared with the control group, children who received intraperitoneal ropivacaine experienced less pain 0–4 h after surgery \( P < 0.001 \), difference in median FLACC (95% CI) for 2 h time point is 2.00 (0.87–3.13), for 4 h time point is 1.00 (0.55–1.45)]. In addition, the number of toddlers who received analgesia 0–24 h after surgery in the ropivacaine group was lower than that in the control group \( P < 0.001 \), difference in proportions (95% CI) is 0.575 (0.3865–0.7638)]. Compared with the control group, time to flatus in ropivacaine group was also much shorter \( 21.1 \text{ h} \text{ vs} 16.7 \text{ h}, \text{ } P = 0.04, \text{ difference in mean (95\% CI) is 4.4 (1.49–7.28)} \], and the time to first stool after surgery was earlier in the ropivacaine group \( 30.7 \text{ h} \text{ vs} 25.6 \text{ h}, \text{ } P = 0.003, \text{ difference in mean (95\% CI) is 5.1 (1.78–8.45)} \]. Furthermore, the incidence of emetic events in the ropivacaine group was significantly lower than the control group \( 32.4\% \text{ vs} 11.1\%, \text{ } P = 0.03, \text{ difference in proportions (95\% CI) is 0.212 (0.0246–0.4002)} \].

Conclusion

The present results indicate that intraperitoneal ropivacaine reduces early postoperative pain and improves recovery after laparoscopic herniorrhaphy in toddlers. Therefore, IPLA is a good stratagem for postoperative pain management after laparoscopic surgery in toddlers.