

Improved pain control after cardiac surgery: results of a randomized, double-blind, clinical trial.

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OBJECTIVE: We sought to determine whether a continuous regional infusion of a local anesthetic delivered to the operative site would result in decreased levels of postoperative pain and narcotic requirements for patients who undergo a standard median sternotomy for cardiac surgery. **METHODS:** A double-blind, randomized, controlled trial was conducted at a single center. Patients who were undergoing elective coronary artery bypass graft surgery alone or combined with laser transmyocardial revascularization received bilateral intercostal nerve blocks with either ropivacaine or saline. At wound closure, 2 catheters with multiple side openings were inserted percutaneously and placed directly over the sternum. The same agent (ropivacaine vs saline) was then administered as a continuous regional infusion for 48 hours through an elastomeric pump. Requirements for postoperative systemic narcotic analgesics and pain assessment scores were recorded for 72 hours after the operation. Secondary outcome measures were hospital length of stay and pulmonary function test results. Pain scores and narcotic use on the second postoperative day were also compared to avoid the confounding influence of anesthesia administered at the time of the operation. **RESULTS:** The total amount of narcotic analgesia required by the ropivacaine group was significantly less than that of the control group (47.3 vs 78.7 mg, respectively; $P = .038$). The ropivacaine group required less narcotics on postoperative day 2 as well (15.5 vs 29.4 mg, $P = .025$). The mean overall pain scores for the ropivacaine group were significantly less than the mean overall scores for the normal saline group (1.6 vs 2.6, respectively; $P = .005$). **Patients receiving ropivacaine had a mean length of stay of 5.2 days compared with 8.2 days for patients in the normal saline group ($P = .001$).** Excluding the data from outliers (length of stay = 39 days), the normal saline group mean length of stay was 6.3 days ($P < .01$). There was no difference in assessment of pulmonary function. **CONCLUSION:** Continuous delivery of local anesthetics significantly improved postoperative pain control while decreasing the amount of narcotic analgesia required in patients who underwent standard median sternotomy. There was also a significant decrease in hospital length of stay, which is likely to result in significant cost reductions.

Publication Types:

- Clinical Trial
- Randomized Controlled Trial