Quality Improvement: Comparison of Postoperative Pain Management Strategies for Thoracotomies in Congenital Cardiovascular Surgery

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Background
-Children undergoing a thoracotomy for congenital cardiac surgery may receive a thoracic epidural, paravertebral catheter, extrapleural catheter, or intercostal nerve block (INB) for post operative pain control
-However, regional techniques may be avoided due to concerns with anticoagulation, difficulties in postoperative neurologic exams, safety and effectiveness, and local anesthetic (LA) toxicity in small children
-Study Aim: To review the strategies employed in management of post-thoracotomy pain in congenital cardiac surgery patients undergoing off-pump procedures

Methods
-Retrospective chart review
-January 1, 2013 to March 31, 2015
-Inclusion Criteria: Congenital cardiac surgical patients undergoing a thoracotomy
-Exclusion criteria: neonates <3kg, patients who required cardiopulmonary bypass, bilateral thoracotomies, and patients converted from video assisted to open thoracotomy
-Outcome assessed included pain scores, duration of intubation, and narcotic and adjuvant pain medication usage
-Adverse event data were collected

Results
-Patients more likely to receive LA and regional nerve catheters tended to be older, larger, and not intubated preoperatively
-Median Face, Legs, Activity, Cry, Consolability (FLACC) scale scores did not differ substantially between the patients who received nothing or any type of LA
-Of 15 who received a regional technique, the pain service was called 5 times (33%); a change was made in the patient’s infusion in 2 cases
-There were no major adverse events related to LA or regional techniques

Conclusion
-LA and regional anesthesia were under-utilized
-Advantages of using LA and regional techniques may include better pain control, decreased side effects / avoiding tolerance of narcotics and benzodiazepines, or better blood pressure control
-We did not find a measurable benefit in a small group of patients in whom local or regional anesthesia was used
-Importantly, no major adverse events were noted