Epidurography During Placement of Thoracic Epidural Catheters in Adolescents Undergoing Minimally-Invasive Pectus Excavatum Repair

Tom Austin, MD    Jenna Helmer Sobey, MD    Andrew Franklin, MD

Introduction

- Epidural analgesia is frequently used in the pediatric setting to improve postoperative pain control and avoid untoward side effects of intravenous opioids.
- The incidence of suboptimal analgesia provided by epidural catheters placed without radiographic confirmation in adults and children is between 20-30% (1-3).
- The use of epidurography during epidural catheter placement confirms vertebral level, allows for early detection of incorrect catheter position, and may predict spread of infusate in the epidural space (4).

Methods

- We examined the relationship between epidurography use during epidural catheter placement and failure of postoperative epidural analgesia as defined by catheter removal and conversion to an alternate form of analgesia or requirement for supplemental non-neuraxial opioid. We also evaluated OR time/cost with the utilization of epidurography, as well as total length of stay associated with successful and failed catheters.
- A retrospective cohort of 125 pediatric patients who underwent minimally-invasive pectus excavatum repair at Vanderbilt Children’s Hospital from 2007 to 2012 was analyzed. The authors compared epidural analgesia failure rate, average pain scores, time to surgical incision, and days to discharge between subgroups of patients with thoracic epidurals placed with or without the use of epidurography.

Results

- 40 patients (32%) had epidural placement confirmed by epidurogram. Use of epidurography was associated with decreased epidural analgesia failure ($P = 0.0205$, Figure 2). It was also associated with an increased time to surgical incision (75 min vs. 61 min, $P < 0.0001$).
- There was no difference in average pain scores or days to discharge between the two groups.

Conclusion

- Epidurography use decreases the failure rate of postoperative epidural analgesia in this patient cohort, but increases time to incision.
- Further prospective study is warranted to validate the utility and analyze the cost-effectiveness of this technique.

References