Caudal Epidural Block vs Peripheral Nerve or Field Block for Postoperative Pain Control in Children Undergoing Bilateral Hernia Repair

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BACKGROUND

There are different ways to provide postoperative pain relief in children who undergo inguinal hernia repair. In our institution, children may receive a caudal epidural block, an ilioinguinal/iliohypogastric block, or an intraoperative field block performed by the surgeon, depending on the anesthesiologist and surgeon’s preferences. The aim of this study is to compare postoperative pain scores and recovery opioid use between children who received a caudal block and those who received peripheral nerve blocks by either anesthesiologist or surgeon.

METHODS

Using a de-identified electronic database of anesthesia and PACU records, we performed a retrospective analysis of postoperative pain scores in all children less than 5 years of age who underwent bilateral inguinal hernia repair at our institution from 1998 through January 2016. We excluded children that had unilateral hernia repair, and those who underwent additional procedures. De-identified database research does not require IRB approval at our institution. Applying categorical statistical methods (i.e., Fisher’s exact test), we compared the efficacy of caudal epidural block versus peripheral nerve block (e.g., either ilioinguinal/iliohypogastric block or intraoperative field block) for alleviating postoperative pain. Further differences between groups were compared using Fisher’s exact test for categorical data (e.g., administration of opioid) and t-test methods for continuous data (e.g., age). The primary outcomes consist of the highest achieved postoperative pain scores using the Face, Leg, Activity, Cry, Consolability (FLACC) pain assessment. Specifically, we looked at the percentage of patients in each group with a high pain score of 0, a high pain score of 10, and a high pain score more than 4, but less than 10.

RESULTS

During the study period, 507 patients underwent bilateral inguinal hernia repair; 436 received a caudal epidural block, and 71 had a peripheral or field block. The patients in the caudal group were younger than the peripheral block group (mean ± SD: 0.17 ± 0.55 years vs 1.86 ± 1.42 years, p < 0.001). Children who received a caudal block were more likely to have a high FLACC of 0. Although not statistically significant, p < 0.05, approximately half as many children who received a caudal block had a FLACC > 4, and were four times less likely to have a high FLACC of 10.

- For patients < 1 year of age, 47% PNB group received PACU opioids vs. 28% Caudal group (p=0.14).
- For patients 1-4 years of age, 93% PNB group received PACU opioids vs. 54% Caudal group (p< 0.0001)

CONCLUSIONS

Patients less than 1 year of age were much more likely to receive a caudal than a PNB, and greater than 1 year were more likely to receive a PNB. Regardless of age, children who received a caudal block demonstrated better postoperative pain relief than patients who received a peripheral nerve or field block, and received less PACU opioids.