LOCAL ANESTHESIA AND PAIN IV

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TITLE: Comparison of Epidural Opioids and Intravenous Opioids in the Postoperative Management of Pediatric Anti-reflux Surgery.

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Introduction: Regional anesthesia is becoming commonplace in the pediatric population for the control of postoperative pain. Potential benefits of postoperative epidural morphine have been described in adult patients undergoing high risk surgery[1], however similar reports of improved postsurgical outcome in high risk pediatric patients remain sparse. The purpose of this study was to compare the postoperative course of pediatric patients receiving epidural analgesia versus parenteral morphine following anti-reflux surgery (fundoplication).

Methods: The charts of all patients undergoing gastroesophageal fundoplication over the course of one year were reviewed, and data was collected by an individual who did not participate in the anesthestic care plan. Twenty patients received an inhalation anesthetic supplemental with caudal or lumbar 0.025% bupivacaine and preservative-free morphine (.03 -.06 mg/kg/dose or .005 mg/kg/hr continous infusion) via an indwelling 22-gauge nylon cathetor left in place postoperatively, while 20 age-matched control patients received an inhalation anesthetic supplemented with intravenous opioid with postoperative analgesia maintained with intravenous morphine (.05 -.1mg/ky/dose). Postoperatively, patients were monitored with continous ECG, transthoracic impedence, and pulse-oximetry. Epidural catheters were removed 36-96 hours postoperatively. Outcome variables selected included major morbidity factors, recovery of bowel, bladder function and ecomonic impact. Data were analyzed by two-sample t-test and Fisher's Exact Test.

Results: The epidural and control groups did not differ with respect to age, associated preoperative medical conditions or type of incision. There were no deaths in either group. The complication rate was significantly decreased in the epidural group (11.7% vs 45%, p<.002). There was no statistical difference among groups in the recovery of bowel or bladder function. The results of the analysis of economic impact are presented in the table.

Discussion: Clinical observations have indicated that postoperative respiratory complications occur more often in pediatric patients undergoing upper intaabdominal or intrathoracic procedures[2]. Postoperative epidural analgesia using morphine can reduce the incidence of postoperative complications and decrease overall hospital costs.

VARIABLE	EPIDURAL (20pts)	OPIOIDS (20pts)
Age (years)	6.75±3.45	6.29±3.20
Type of incision	mid transv 6 14	mid transv 7 13
Duration of EA (hours)	65.4	
Mortality	0	0
Morbidity (total # in each group)		
Pneumonia	0	0
Apnea	1	1
Arrest	0	0
PCO2>50	1	2
Sa02<85	1	7
Fever	1	2
Sepsis	0	1
Complication rate (# of pts with one or more complications)	2	9
% of pt group	11.7	45.0*
Days to enteral feeds	4.00	4.25
Days with foley	2.25	1.79
Days of O2	1.53	3.00*
Days inhouse postop	6.45	8.79
Hospital costs	12,580.60	17,658.52*
Nursing intervention (hours spent with pt/day)	9.8	9.54

*=statistically significant

References: 1. Anesthesiology 66: 729-36, 1987.
2. Anesthesiology 70: 873, 1989.

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TITLE: BILATERAL INFRAORBITAL BLOCK WITH 0.05% BUPIVACAINE IN CHILDREN

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Various studies have shown that nerve blocks with bupivacaine provide prolonged analgesia for many kinds of surgical procedures. With IRBs approval and informed consent we studied in a double blind prospective manner, the efficacy of infraorbital nerve block with bupivacaine as postoperative analgesia in children undergoing cleft lip repair. After i.m. ketamine 2-4mg/kg, sixty patients, aged 2-13 years, ASA I and II were equally divided at random. Group A received 1-1.5ml bupivacine .05% with 1:200,000 epinephrine while Group B received 1-1.5 ml saline injected into the area of the infraorbital foramena. For those older than 12 years, i.v. midazolam was titrated in to keep them immobile during the operation. In all patients, the surgeon infiltrated the lip with 4-7 mls of 1% lidocaine with 1:100,000 epinephrine both for anesthesia and hemostasis. Within 24 hours postoperatively, an anesthetist evaluated the quality of analgesia using a visual analogue scale for pain(1). Similarly, the nurses and the parents with the use of specific criteria evaluated postoperative discomfort. All the observers were blinded to the solutions used for the block.

RESULTS: Group A were pain free for a mean duration of 19.4+/- 5.06(SD) hours in contrast to 11.7+/- 6.19 hours for Group B. The difference in the duration of postoperative analgesia is statistically significant, (p<.001). The bupivacaine treated group required no other analgesic whereas 17 of those given saline required analgesic medication starting as early as four hours of the observation period, (p<.001). Both the nurses and the parents confirmed that those who were blocked with bupivacine were more comfortable than those who were not. One-way analysis of variance indicated Group A had significantly lower scores than those of Group B at all levels of comparison, (p<0.001). We concluded that while lidocaine infiltration in the operative site provides intraoperative analgesia, the duration of pain relief begins to wane at four hours. Thus, infraorbital nerve block with 0.5% bupivacaine proved to be a simple procedure which provides adequate postoperative pain relief in children following chieloplasty.

1. Maunuksela EL, Olkkola KT and Korpela R:. Measurement of pain in children with self-reporting and behavioral assessment. Clin Pharmacol Ther 1987; 42:137-41