

23. ADRENALINE DOES NOT IMPROVE EPIDURAL ANALGESIA PRODUCED BY A LOW-DOSE INFUSION OF BUPIVACAINE AND FENTANYL AFTER MAJOR PEDIATRIC SURGERY. A RANDOMIZED CONTROLLED SIMPLE-BLIND STUDY WITH AND WITHOUT ADRENALINE.

Ingelmo, P.M.¹; Lopez, V.²; Gelsumino, C.²; Betiol, J.³; Acosta, A.P.⁴ 1. Pain treatment and palliative care, Hospital Alemán, Buenos Aires, Argentina; 2. Anesthesia service, Hospital Nacional de Pediatría "Prof. Dr. Juan P. Garrahan" (HNP), Buenos Aires, Argentina; 3. Anesthesia service, SanHospital Municipal San Pedro, San Pedro, Argentina; 4. Anesthesia service, Hospital Provincial del Centenario, Rosario, Argentina

Introduction: Alpha-adrenergic agonists have been demonstrated to have synergistic effects with opioids and local anesthetics in animal research and in adults mayor surgery.¹ The risk/benefit ratio of adding adrenaline to epidural local anesthetic opioids solution for improving postoperative analgesia is controversial. 2-4 The present study was performed to determine whether the addition of adrenaline improves the analgesic effects and adverse effects profile of an epidural infusion of fentanyl and bupivacaine after major pediatric surgery.

Methods: A simple blind, prospective, randomized study was done at NPHG after institutional approval and informed consent. Patients (n100) ASA I-III less than 16 years old, scheduled for general and orthopedic elective major surgery were divided in two groups according to the epidural solution use for postoperative analgesia. Group I (n50) fentanyl 2.5 mcgr/ml bupivacaine 1 mg/ml, Group II (n50) fentanyl 2.5 mcgr/ml, bupivacaine 1 mg/ml plus adrenaline 5mcgr/ml. All patients received combined anesthesia (Sevoflurane/epidural bupivacaine 0.25% plus fentanyl 1 mg/kg). The postoperative analgesia started at the recovery room with an infusion rate of 0.1-0.4 ml/kg/hr. Patients were excluded because of ineffective intraoperative block (sevoflurane more than 1.5 MAC or fentanil IV more than 2 mcgr/kg), epidural analgesia less than 24 hours, use of other postoperative analgesic and patient/parental or surgeon choice. Outcome measures were pain at movement; initial, maximum, and final infusion dose (ml/kg); pain problem calls to the anesthesiologist on call and adverse effects. Data were recorded separately by nursing and anesthesiology staff and plotted in a day scale. Using SPSS 9.0 (SPSS Inc. Chicago 1999) data were analyzed using Student-T test and Chi square adjusted with small size Monterarlo test. Significance was assumed if $p \leq 0.05$ for two tails.

Results: Two patients in group I and 8 patient's in group II were excluded. There was not any significative differences in age, weight, incision level, epidural catheter insertion level, analgesia time or days in intensive care. Group II doses an pain scores were slightly higher and had lower pain calls and adverse effects incidence but without statistical significance. (Table 1)

Discussion: The results of the present study could not demonstrate that the addition of adrenaline to a combination of fentanyl and bupivacaine have significant clinical advantages, improves the quality of epidural analgesia or better adverse effects profile for pediatric postoperative analgesia.

(1) Breivik H et al. *Bailliére's Clinical Anesthesiology*. 1995; 9: 493-512.

(2) Sakaguchi Y. *Anaesth Intensive Care* 2000; 28(5): 522-6.

(3) Niemi G. *Acta Anaesthesiol Scand* 1998; 42(8): 897-909.

(4) Baron CM. *Anesth Analg* 1996; 82(4): 760-5.

TABLE I

	GROUP I (n48)	GROUP II (n42)	p value
Age (years)	9.67 sd 4.74	8.75 sd 4.16	0.33
Weight (kg)	35.23 sd 17.53	31.95 sd 16.66	0.37
Analgesia time	65.35 sd 27.18	69.83 sd 25.69	0.42
Thoracic, Upper abdominal incision	30 (62.5%)	28 (66.7%)	NS
Lower abdominal, Inferior limb incision	18 (37.5%)	14 (33.3%)	NS
Lumbar catheter	19 (39.6%)	17 (40.5%)	NS
Thoracic Catheter	29 (60.4%)	25 (59.5%)	NS
Initial dose (ml/kg/hr)	0.16 sd 0.7	0.20 sd 0.15	0.80
Maximal dose (ml/kg/hr)	0.18 sd 0.8	0.23 sd 0.16	0.63
Final dose (ml/kg/hr)	0.16 sd 0.8	0.20 sd 0.16	0.18
Pain	3.92 sd 2.38	4.52 sd 2.93	0.43
Pain calls	1.88 sd 1.18	1.74 sd 0.73	0.59
Nausea and vomiting	19 (39.6%)	12 (28.6%)	NS
Pruritus	8 (16.7%)	5 (11.9%)	NS
Urinary retention	11 (22.9%)	9 (21.4)	NS
Sedation	4 (8.3%)	2 (4.8%)	NS
Motor block	9 (18.8%)	3 (7.1%)	NS

Values are expressed like median, standard deviation (sd) and percentage (%)