

Title: Chloroprocaine Antagonism of Epidural Narcotic Analgesia: A Receptor Specific Phenomenon?
Authors: WR Camann M.D., PM Hartigan M.D., LI Gilbertson M.D., MD Johnson M.D., S Datta M.D.
Affiliation: Brigham and Women's Hospital, Harvard Medical School, Boston, MA

Introduction: Several investigators have observed a phenomenon where 2-chloroprocaine (CP) antagonized the analgesic efficacy of both subsequently administered epidural fentanyl(1-3) and morphine(4). However the effects with morphine remain controversial(5). The mechanism of this interaction is unclear. This study was undertaken to determine if this antagonism also extended to butorphanol, a kappa-receptor narcotic agonist.

Methods: Fifty-nine healthy parturients for elective cesarean delivery under epidural anesthesia were studied after written, informed consent to an institutionally approved protocol was obtained. Four groups of patients were randomly allocated to receive either lidocaine 2% with 1:200,000 epinephrine, (LF (n=15), LB (n=15)) or 3% 2-CP (CF (n=14), CB (n=15)) epidurally for cesarean delivery. Epidural catheters were left in place after operation. Upon first complaint of pain in the recovery room, groups LF and CF received fentanyl 50 mcg, and groups LB and CB received butorphanol 2mg, (each diluted in 9cc of saline) via the epidural catheter. Visual analogue pain scores (VAS) (0=no pain, 10=worst pain imaginable) were assessed at 0, 30, 60, 90 minutes after epidural narcotic injection, and time until first request for supplemental narcotic was noted. All postoperative pain assessments were made by a blinded observer. Data were analyzed using Kruskal-Wallis ANOVA, Mann-Whitney U-test and Chi-square, as appropriate.

P values less than 0.05 were considered to indicate statistical significance.

Results: Demographic parameters did not differ between groups, nor did VAS scores at time of epidural narcotic administration. Duration of analgesia (time to request for first additional narcotic) did not differ between groups LF, LB, or CB (149 ± 17, 126 ± 19, 159 ± 35 minutes respectively), yet was significantly shorter in group CF (39 ± 4 minutes, p < 0.001). The number of patients who achieved a VAS of 1 or less anytime after epidural narcotic injection did not differ between groups LF, LB, and CB (12, 10, 8 respectively) yet was significantly less in group CF (4, p < 0.05). Twenty-four hour total narcotic usage did not differ between any of the groups. Somnolence was more common in patients receiving butorphanol (36% vs 6%, p < 0.02); pruritis was more common in those who received fentanyl (23% vs. 0%, p < 0.01). No patient had respiratory rate less than 10/minute during the period of analgesia.

Discussion: Our results suggest that the interaction between CP and fentanyl (and possibly morphine as well) may be a mu-receptor specific phenomenon. Further work with butorphanol and/or other kappa-receptor agonists is warranted.

References:

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3. Grice et al. Anesthesiology 69:A668, 1988.
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Title: Epidural Anesthesia with Butorphanol and Lidocaine for Cesarean Section: Maternal Effects and Neonatal Outcome

Authors: T.K. Abboud, M.D., J. Zhu, M.D., A. Reyes, M.D., Z. Steffens, M.D., A. Afrasiabi, M.D., R. Vera Cruz, M.D., H. Miller, M.D.

Affiliation: Department of Anesthesiology, Los Angeles County-University of Southern California Medical Center, Los Angeles, California 90033

Epidural lidocaine is frequently used for anesthesia for cesarean section. Some patients, however, experience discomfort during surgery despite high thoracic levels of sensory block. The present study was undertaken to evaluate the effects of butorphanol when added to epidural lidocaine on the mother and the neonate.

After approval by the Institutional Review Board and informed consents, forty-five healthy women undergoing cesarean section anesthesia (2% lidocaine with 1:200,000 epinephrine) were randomized to receive in a double-blind manner either 1 mg butorphanol, 2 mg butorphanol or an equivalent volume of saline. Each group consisted of 15 patients. A T₄ sensory level was obtained. Pain was measured using a 4 category rank scale (no, mild, moderate or severe) at skin incision, bladder retraction, delivery, uterine repair and peritoneal closure. Neonates were evaluated by Apgar Scores at 1 and 5 min, cord acid base status and the Neurologic and Adaptive Capacity Scores at 15 min, 2 and 24 hours of age. Data were analyzed for statistical significance using analyses of variance and chi-square when appropriate. A P value of less than 0.05 was considered statistically significant.

Superior analgesia (figure) obtained when either 1 or 2 mg butorphanol was added to lidocaine; 33%

and 27% in the 1 mg and 2 mg butorphanol groups vs 93% in the placebo group required intraoperative narcotic supplementation (P<0.05 placebo vs 1 or 2 mg butorphanol group). Neonatal outcome was equally good in the 3 groups of patients and did not differ significantly. Side effects of nausea, vomiting and hypotension occurred equally in the three groups.

Addition of butorphanol to lidocaine improved the quality of analgesia without adversely affecting the mother or the neonate. These findings are consistent with a previous study where butorphanol potentiated epidural analgesia during labor using bupivacaine (1).

Reference:

1. Abboud TK, Afrasiabi A, Zhu J, et al. Epidural morphine or butorphanol augments bupivacaine analgesia during labor. Reg Anesth 1989, 14: 115-120.

