TITLE: EPIDURAL BUTORPHANOL FOR POSTOPERATIVE ANALGESIA

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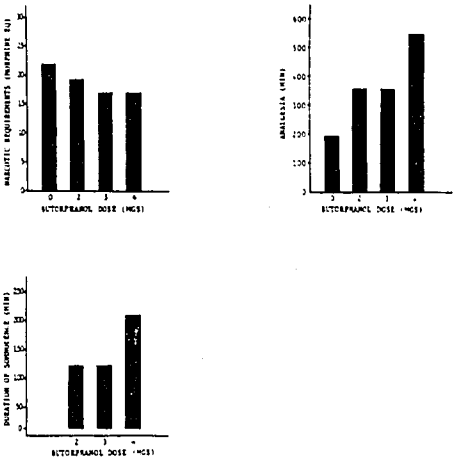
Introduction. Butorphanol (BT) a morphinan congener with five times the potency of morphine, has been utilized to provide postoperative analgesia by the epidural route[1,2]. Being a κ (kappa) and σ (sigma) agonist, it produces spinal analgesia when given epidurally, with less side effects than those from μ (mu) agonist morphine. The reports thus far on epidural BT for postoperative analgesia had varying duration of action with similar doses. The aim of this study was to define the duration of analgesia and the time for onset of somnolence produced by epidural BT.

Methods and Materials. The protocol was approved by the hospital committee on human experimentation and informed consents were obtained from all the patients. Thirty-six ASA Class I patients, scheduled for Cesarean Section were enrolled on a double-blind randomized dose-response study. An epidural catheter was inserted at the third lumbar interspace and sensory anesthesia was obtained with 2% lidocaine with 1:200,000 epinephrine. After delivery of the infant, baseline pain scores were assessed using a 10 cm visual linear analog scale. Baseline arterial pressure, heart rate, respiratory rate, and degree of drowsiness were noted. The patients were randomly assigned into four equal groups (0 mg, 2 mg, 3 mg, and 4 mgs, n=9 each). The BT was dissolved in preservative free normal saline to a total volume of 10 ml and injected through the peridural catheter. The patients were evaluated for pain score, sensory and motor block, nausea, vomiting, pruritis, blood pressure, heart rate, somnolence and respiratory depression every 15 minutes for the first hour, 30 minutes for the next five hours and then 4 hours subsequently. For postoperative analgesia, morphine equivalents were given when the patient requested.

Results. The patients were similar in age, height, weight, dosage of epidural 2% lidocaine with 1:200,000 epinephrine, baseline blood pressure, heart rate and respiratory rate. The duration of sensory and motor blockade were similar among the four groups. The mean duration of analgesia was 3.64±0.63 hours for the placebo group, 7.63±2.88 hours for 2 mgs, 5.22±2.99 hours for 3 mgs, and 9.15±7.78 hours for 4 mgs. Large interindividual variations in duration of analgesia were noticed in all study groups. Analysis of the data using the two tailed t-test indicated no statistical significance in duration of analgesia within the various groups (p 0.05). Somnolence was a significant side effect in all the BT treated groups, regardless of the dosage received. The onset of somnolence was at 15±8.15 mins., lasting from 2 hours in the 2 mg and 3 mg groups and 3 hours and 30 minutes for the 4 mg group. All the patients were easily arousable. Supplemental narcotic requirements over the first 24 hour period, were similar among the groups (19.7±2.85 mgs). None of the patients experienced nausea, vomiting, pruritis or respiratory depression.

Discussion. Our data indicates that epidural BT did not show any statistically significant duration of analgesia among the group treated with different dosages. The 4 mg group had a mean duration of analgesia for 9.15 hours which is similar to that observed by Abboud, et al. Extreme variations were seen in two patients in the 4 mg group with analgesia extending to 24 hours. The lack of statistical significance among the group may be due to the ceiling effect produced by BT, which is a phenomena that may be further explored. The onset of somnolence at 15 minutes corresponds to the onset of analgesia reported by Mok, et al. The similar narcotic requirements among the groups may be due to the short duration of analgesia produced by BT. Epidural BT appears to produce analgesia with extreme variations. Because of its lack of side effects, close monitoring may not be required during the postoperative period which is a cost benefit to both the patient and the institution.



References. 1. Abboud, T.K., Moore, M., et al: Epidural butorphanol for the relief of postoperative pain after Cesarean Section. Anesthesiology. 65:397, No. 3A, 1986.
2. Mok, M.S., Tsai, Y.J.: Efficacy of epidural butorphanol compared to morphine for the relief of postoperative pain. Anesthesiology. 65:175, No. 3A, 1986.