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Title: NALBUPHINE IS BETTER THAN NALOXONE FOR TREATMENT OF SIDE EFFECTS AFTER EPIDURAL MORPHINE

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Introduction: Prophylactic administration of nalbuphine and naloxone have been advocated to prevent the side effects accompanying epidural morphine analgesia[1,2] However, as only about fifty percent of patients require treatment, many would receive therapy unnecessarily. This study was designed to compare the efficacy of naloxone and nalbuphine given therapeutically to patients when they requested treatment for symptoms.

Methods: After approval of the study by the Human Subjects Committee, informed consent was obtained from patients undergoing non-emergency cesarean section with epidural anesthesia. All subjects received epidural morphine, 5 mg, immediately after delivery. If treatment was subsequently requested for nausea, vomiting, or pruritus, subjects received in a randomized, double-blind manner either naloxone, 0.2 mg iv (group 1, n = 20) or nalbuphine 5 mg iv (group 2, n = 20). Up to two additional doses of the same drug were offered for persistent symptoms at no less than 30 min intervals. Before, and 30 min after, study drug administration the following assessments were made: incidence of vomiting; severity of nausea and pruritus (rated as none, mild, moderate, or severe and assigned scores of 0-3); and degree of sedation and pain (verbal scores of 0-10). Overall pain relief and efficacy of treatment were evaluated the following day. Data were analyzed using Student's t test, Mann Whitney U test, Wilcoxon Signed Rank and Chi square tests as appropriate. $P \leq 0.05$ was considered significant.

Results: The groups were similar with respect to age, weight, height, time of first study drug administration, severity of symptoms, and scores for sedation and pain before treatment. More patients had vomited in group 2. Dose 1 of nalbuphine decreased the incidence of vomiting ($p < 0.005$) and the severity of nausea and pruritus ($p < 0.01$), whereas naloxone caused no significant changes. Sedation scores increased after nalbuphine ($p < 0.05$) and remained unchanged after naloxone, whereas pain scores increased after naloxone ($p < 0.01$) and were unchanged after nalbuphine. Eighteen patients in group 1 and 12 in group 2 received a second dose, and 8 and 4, respectively, a third dose. Pruritus improved significantly following Dose 2 of both drugs ($p < 0.05$), and nausea tended to improve after nalbuphine ($p = 0.1$). The third dose of study drug resulted in statistically insignificant changes in symptoms in both groups. Sedation and pain scores did not change markedly after the second or third dose of either drug. Overall pain relief scores were high in both groups, but, as with ratings for relief of side effects during the entire study period, did not differ between the groups.

Discussion: Nalbuphine was clearly superior to naloxone for the initial treatment of side effects following epidural morphine. However, supplemental therapy may be needed for persistent symptoms, as repeated doses appear less effective than the initial dose.

References
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A846

Title: MATERNAL AND FETAL CATECHOLAMINE LEVELS FOLLOWING EPIDURAL ANESTHESIA WITH BUPIVACAINE-EPINEPHRINE MIXTURE

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Introduction: Epinephrine (E) is added to local anesthetics used for obstetrical lumbar epidural anesthesia (LEA). This study reports maternal (M) plasma, fetal (F) Epi and norepinephrine levels (NE) in healthy patients undergoing elective cesarean section under LEA.

Methods: The study was approved by the Institutional Review Board and patients gave informed consent. After prehydration with 1200 ml of Ringers lactate, 26 patients were given LEA to T6-T4 level. Left uterine displacement was maintained. Patients were randomly assigned to two equal groups. Group 1 received 0.5% bupivacaine and Group II 0.5% bupivacaine with E 5μg/ml. Maternal venous (MV) and neonatal umbilical venous (UV) and arterial (UA) blood samples were collected. A Waters high performance liquid chromatograph with an electro-chemical detector was used for catecholamine measurement. Three patients were excluded from each group because they needed ephedrine for hypotension. The results were expressed as mean ± 1 SE and analyzed using Student's t test at $p < 0.05$.

Results: No significant differences were noted in Apgar scores, birth weight and UV and UA blood gas tensions. Plasma E levels were significantly greater in MV, UV and UA in Group II than in Group I with no significant differences in the NE levels (see figures).

Figure 1.

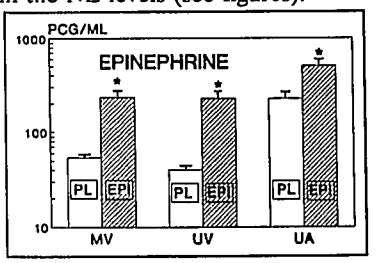
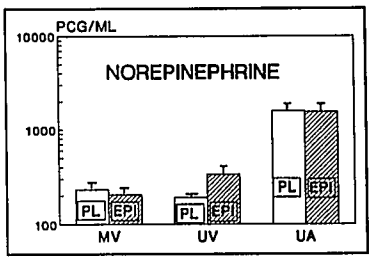


Figure 2.



Legend: Pl=plain bupivacaine; Epi=bupivacaine-epinephrine. *=p<0.05

Discussion: Our data showed that following epidural administration of E, both M and F levels of E are increased. Catecholamine surge at the time of delivery is believed to play a role in neonatal adaptation.[1] Further work is needed to see if the increased neonatal E levels in the E group will facilitate neonatal adaptation.

References: 1. Acta Paediatr Scand 73:602-609, 1984