Title: Efficacy of Intravenous Caffeine for Post Dural Puncture Headache

Authors: T.K. Abboud, M.D., J. Zhu, M.D., A. Reyes, M.D., Z. Steffens, M.D., A. Afrasiabi, M.D., D. Gendein, M.D.

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

Caffeine Sodium Benzoate (CSB) has been shown to be effective 70-75% of the time for the treatment of dural puncture (PDP) headache in a controlled, double-blind study (1). This compares favorably with the 90-95% effectiveness reported for epidural blood patch but there is reluctance of the medical community to embrace CSB as a first line therapy for PDP headache. We describe our experience with CSB for PDP headache in 25 obstetrical patients.

The current study was conducted as an open label investigation as it represents our initial evaluation of CSB in our institution. The protocol was approved by the Institutional Review Board and informed consents were obtained from all patients. Patients with a clinical diagnosis of PDP headache were given 500 mg of CSB in 2 ml volume slowly intravenously (exclusion criteria included hypertension, pre-eclampsia or seizure disorder). Severity of headache was assessed using a 4 category rank scale (no, mild, moderate, severe). Assessments were obtained before administration of caffeine and at .5, 1 hr, 1.5 hr, 2 hr, then hourly up to 24 hours if patient remained in the study. Patients were followed until the time of discharge from the hospital.

Twenty-five patients were treated for PDP headache using CSB. All were post-partum and had received either spinal (26G needle n=3, 25G n=5, 22G n=8) or epidural (18G needle n=9) anesthesia for vaginal (28%) or cesarean (72%) delivery. Twenty-three (92%) of the patients had pain relief after administration of CSB, the mean onset time was 24 ± 4 min and the mean duration was 1078 ± 118 min. Thirteen (57%) of these patients had recurrence of their headache and 5 (39%) were given analgesics, five (39%) had epidural blood patch and 3 (23%) were given a second IV injection of CSB with immediate relief in 2 patients and no relief in 1 patient who was given an epidural blood patch. No side effects were noted in any of the patients.

The present study demonstrates that a single IV dose of CSB provided relief to 92% of patients with PDP headache with a rapid onset and in approximately 50% of the patients the symptoms did not recur. Intracranial vascular distention has been proposed to contribute to the etiology of PDP headache, thus, vasoconstrictor agents, such as caffeine, may be therapeutic. The noninvasive regimen used in this study may prove to be a useful alternative to epidural blood patch in patients who refuse this line of treatment or in outpatient set up. Further work is necessary to determine if multiple doses given orally after the initial IV injection may provide long lasting analgesia.

Reference:

1. Sechzer PH, Abel L. Post spinal anesthesia headache treated with caffeine. 1. Evaluation with demand method. Curr Ther Res 1978, 24: 307-12.

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Title: Effect of Intrathecal Morphine on the Incidence of Spinal Headache

Authors: T.K. Abboud, M.D., A. Reyes, M.D., J. Zhu, M.D., Z. Steffens, M.D., K. Afrasiabi, M.D., H. Miller, M.D., A. Afrasiabi, M.D., G. Sherman

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

The addition of fentanyl to hyperbaric local anesthetics has been shown to reduce the incidence of spinal headache (SH) in the obstetric patient (1). The present study was undertaken to evaluate the effects of intrathecal morphine on the incidence of SH.

Eighty-two healthy patients undergoing cesarean section with spinal anesthesia were studied after approval by the Institutional Review Board and informed consents. All patients were hydrated with 1500 ml Ringer's lactate. Patients were randomly assigned to receive in a double-blind fashion either morphine 0.2 mg (group I, n=40) or saline (group II, n=42) in 0.2 ml volume mixed with 0.75% bupivacaine in 8.25% dextrose plus 0.2 ml of 1:1,000 epinephrine. Spinal anesthesia was induced using 25G spinal needle at L3-4 interspace with the bevel, in most cases, parallel to the dural fibres. Patients were followed for 3 days to evaluate the incidence and the severity of spinal headache using a 4 category rank scale (no, mild, moderate, severe). Data were analyzed for statistical significance using Student's t-test or chi-square test when appropriate. A P value of less than 0.05 was considered statistically significant.

Results are summarized in the table. The incidence of SH did not differ significantly between the two groups. When a headache developed, the use of blood patch or IV caffeine Na Benzoate did not differ significantly between the groups.

TABLE

	Bupivacaine n=42	Bup + Morphine n=40
Incidence of SH	8 (19%)	9 (22%)
Blood Patch	0	3
Caffeine Na Benzoate	1	3

No Significant Differences Between Groups

This study demonstrates that intrathecal morphine did not decrease the incidence of SH in the obstetrical patient. The high incidence of SH reported in the present study is in agreement with earlier reports in which a 25% incidence of SH was noted with 26G needle (2), and a 33% incidence was noted in patients less than 30 years of age given spinal anesthesia with a 25G needle (3). These high incidences are possibly due to the close and lengthy follow-up of the patients and also might be due to the younger age groups of patients compared to studies with more elderly patients.

References:

1. Johnson MD, Hertwig L, Vehring PH, Datta S. Intrathecal fentanyl may reduce the incidence of spinal headache. Anesthesiology 71: A911, 1989.
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