

ROPIVACAINE VERSUS BUPIVACAINE AS A LOCAL ANESTHETIC FOR SKIN INFILTRATION IN PREPARATION FOR LABOR EPIDURAL ANESTHESIA

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Introduction: Ropivacaine may have advantages over bupivacaine in obstetric epidural analgesia; intravenous ropivacaine have been shown to yield less cardiac and central nervous system side effects than bupivacaine (1), and ropivacaine for epidural analgesia for labor is found to produce less motor block than bupivacaine (2, 3). Furthermore, the pain associated with intramuscular injection of ropivacaine was found to be significantly less painful than bupivacaine despite similar pH of the solutions (4). The aim of this study is to compare ropivacaine with bupivacaine for local infiltration in preparation for labor epidural analgesia.

Methods: A total of 150 healthy nulliparous laboring women who requested epidural analgesia were studied. Before the initiation of epidural analgesia, patients graded their labor pain by a 10-point verbal analog pain scale (VAPS; 0=no pain, 10=worst pain). A total of 3ml of a study solution (0.25% bupivacaine or 0.2% ropivacaine) was injected for intradermal and subcutaneous local infiltration using a 27-gauge hypodermic needle (1-1/4 inches). Patients also graded the pain associated with intradermal, subcutaneous injections, and insertion of the epidural needle (17-gauge Tuohy) using VAPS. When the placement of the epidural needle was painful, more local anesthetic solution (same analgesic agent as the first) was injected. The mean pain scores and requirement of the second analgesic injection for the placement of the epidural needle were compared between the two groups using Student t-test and Chi-squared test.

Results: Seventy-five patients received bupivacaine and 75 patients received ropivacaine. Patient age, gestation week, and body mass index were very similar between the two groups (Table 1). The mean VAPS for labor pain, intradermal pain, and subcutaneous pain were not significantly different between the two groups. There was a trend for more patients experiencing any pain (VAPS=1 or greater) in the ropivacaine group during epidural needle insertion compared with the bupivacaine group (26% vs. 40%, $p=0.07$). Additional skin analgesic injections (2-6ml) were required in 29 of 75 patients (39%) in the ropivacaine group compared with 15 of 75 patients (20%, $p=0.01$) (Table 1). **Conclusions:** Our data showed that the use of 0.2% ropivacaine at 3 ml for skin infiltration in preparation for labor epidural analgesia required more often additional local injections for epidural needle insertion compared with 0.25% bupivacaine. However, pain scores associated with local infiltration were similar between the two local anesthetics.

References: 1. Santos AC, et. al. *Anesthesiology* 1995; 82: 734-40. 2. Polly LS, et. al. *Anesth Analg* 1998; 86: S384. 3. Fisher C, et. al. *Anesthesiology* 2000; 92: 1588-93. 4. Krishnan SK, et. al. *Reg Anesth Pain Med* 2000; 25: 615-619.

	Bupivacaine	Ropivacaine	p-value
Age (mean +/-SD)	31.0+/-5.1	30.8+/-4.8	0.8
Mean gestational age (mean +/-SD, weeks)	39.4+/-1.2	39.6+/-1.3	0.3
Body mass index (mean +/-SD)	29.1+/-3.8	29.1+/-4.8	1
Labor pain (mean +/-SD, VAPS)	8.1+/-1.8	8+/-1.4	0.7
Intradermal pain (mean+/-SD, VAPS)	4.1+/-2.5	3.5+/-2.5	0.2
Subcutaneous pain (mean+/-SD VAPS)	3.8+/-2.5	2.9+/-2.3	0.06
Epidural needle insertion pain			
Number of patients: VAPS= >1	20 (26.7%)	30 (40%)	0.07
Number of patients: VAPS=0	55	45	
Second injection			
Number of patients requested	15 (20%)	29 (38.7%)	0.01
Number of patients not requested	60	46	