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INITIATION OF LABOR ANALGESIA WITH EPIDURAL BUPIVACAINE: EFFECT OF PARITY *Breen, T.W. Muir, H.A.; Dwane, P.; Olufolabi, A.; Schultz, J.; Habib, A.; Millar, S.; Drysdale, S.; Spahn, T. Anesthesiology, Duke University Hospital, Durham, NC* The purpose of this study was to determine the dose of epidural bupivacaine initially required to provide effective analgesia in > 90% of laboring multiparous and nulliparous parturients. This prospective, stepwise, open label study was IRB approved and participants gave written consent. Laboring women provided a pre-analgesia labor pain score. Multiorifice epidural catheters were placed ~5 cm into the L2,3 or L3,4 epidural space. Starting with 0.15% bupivacaine, 5 ml of study solution was injected followed 2 minutes later by another 10 ml. Twenty minutes after the initial dose a pain score was obtained. Subjects also rated their analgesia as satisfactory (analgesic success) or not. Subjects with inadequate analgesia received epidural lidocaine 160 mg plus fentanyl 100 mcg. Twenty minutes later subjects with satisfactory anaglesia were termed initial analgesic failures. Subjects failing to achieve labor pain relief were deemed technical failures and their epidural catheters were replaced. When the sum of analgesic successes and failures reached 20 subjects the study drug concentration was increased by 0.033%. We found that 15 ml of bupivacaine 0.183% - 0.25% provides effective labor analgesia to >= 90% of laboring nulliparous women. In contrast, the concentration of 15 ml of bupivacaine required to provide effective labor analgesia in >= 90% of multiparous women exceeds 0.283%. This study shows the effect of parity on initial epidural labor analgesic efficacy with bupivacaine. With the slower progress of labor in nulliparas, it is probably possible to define an analgesic dose that consistently provides effective labor analgesia. We have not yet determined the dose of epidural bupivacaine required to provide labor analgesia to multiparous women, at least in part because they progress along different labor curves than nulliparous women. Studies of analgesic efficacy , such as studies of minimum local analgesic concentration (MLAC), should compare nulliparas and multiparas separately. Conclusions from initiation of labor analgesia studies that do not separate patients by parity should be viewed cautiously.1,2 *1. Br J Anaesth 1999; 82: 371-3 2. Anesthesiology 1999; 90: 944-50*

	Multips		Nullips	
Bupiv Conc	N	Analgesic efficacy	N	Anagesic efficacy
0.15%	20	0.80	21	0.81
0.183%	20	0.45	18	0.94
0.217%	20	0.80	19	0.89
0.25%	19	0.84	17	1.00
0.283%	20	0.65		

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COMPARISON OF THE MINIMUM LOCAL ANALGESIC CONCENTRATIONS OF BUPIVACAINE FOR NULLIPAROUS AND MULTIPAROUS WOMEN IN LABOR *Polley, L.S.[1] Columb, M.O.[2] Naughton, N.N.[1] Wagner, D.S.[1]* 1. Anesthesiology, University of Michigan Health System, Ann Arbor, MI; 2. Anaesthesia and Intensive Medicine, South Manchester University Hospital, Withington, United Kingdom Nulliparous women have reported significantly higher pain scores during labor than women who have previously given birth.1 It has been suggested that greater pain associated with nulliparous labor may influence analgesic requirements. In order to evaluate the pharmacodynamic contributions of epidural analgesics, a clinical model was devised to determine the relative potencies of local anesthetics in the first stage of labor.2 The minimum local analgesic concentration (MLAC) has been defined as the median effective local analgesic concentration (EC50) in the first stage of labor. The aim of this study was to compare the MLAC of epidural bupivacaine for nulliparous and multiparous parturients. After institutional ethical approval, women who requested epidural analgesia at ≤7 cm cervical dilation and who had not received opioid were enrolled. Patients were allocated to either of two groups in this prospective, unblinded study. After lumbar epidural catheter placement, 20 ml of bupivacaine was administered to parturients in the nulliparous (n=36) and multiparous (n=22) groups. The test dose was omitted for the purposes of the study. The concentration of local anesthetic was determined by the response of the previous patient to a higher or lower concentration using up-down sequential allocation. Analgesic efficacy was assessed using 100 mm visual analog pain scores with ≤10 mm within 30 min defined as effective. An effective result directed a 0.01% wt/vol decrement for the next patient in that group. An ineffective result directed a 0.01% wt/vol increment. There were no significant demographic differences between the groups. Women in both groups reported similar initial visual analog pain scores. Cervical dilation was significantly greater in the multiparous group (P=0.027). Of 77 women enrolled, 19 were rejected leaving 58 for analysis. MLAC (95% *CI*) was estimated using the up-down formula of Dixon and Massey. The results are shown in the Table. There was significantly greater variability in the multiparous group than in the nulliparous group (P=0.037). The MLAC of bupivacaine was similar for the nulliparous and multiparous parturients studied. Local analgesic requirements do not appear to be greater for women experiencing labor for the first time. *1. Melzack R. Can Med Assoc J 1981;125:357-363. 2. Columb MO. Anesth Analg 1995;81: 833-837.*

Group Allocation	MLAC Bupivacaine % wt/vol (;95% CI;)
Nulliparous (n=36)	0.081 (0.059-0.103)
Multiparous (n=22)	0.086 (0.041-0.131)