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ANESTHESIOLOGIST INTERVENTION RATE AND EFFICACY OF PARTURIENT-CONTROLLED EPIDURAL ANALGESIA (PCEA) – EFFECT OF INCREASING CONCENTRATION OF BOLUS SOLUTION USING 0.0625% BUPIVACAINE + 0.0002% FENTANYL BACKGROUND INFUSION *Esler, M.D.¹ Kliffer, P.¹ Money, P.^{1,2} Douglas, J.¹*

1. Department of Anesthesia, University of British Columbia, BC Women's Hospital, Vancouver, BC, Canada; 2. Surrey Memorial Hospital, Vancouver, BC, Canada We hypothesise that using a PCEA regimen with high rate background infusion of dilute solution plus parturient-administered boluses (PAB) of equal mass but double concentration would reduce the need for anesthesiologist-administered boluses (AAB) and provide superior analgesia in late labor. PCEA may reduce but not eliminate the need for AAB compared to continuous infusion epidural analgesia.^{1,2} Adding a background infusion may reduce PAB and AAB.^{3,4} Minimum local anesthetic concentration studies suggest that increased mass and/or concentration of bupivacaine is required with advancing labor.⁵ Identical doses of bupivacaine (by mass) have different effects in the epidural space depending on the volume (and hence concentration) administered.⁶ Recruitment of Aδ nerve fibers may contribute to pain in late labor. Effective disruption of neuronal transmission in such fibers requires higher concentration bupivacaine than for unmyelinated C fiber blockade.⁷ In this prospective randomised IRB approved triple blind trial parturients receive a background infusion of 0.0625% bupivacaine + 0.0002% fentanyl at 14ml/h with either: 9ml boluses of same solution (control) or 4.5ml boluses of 0.125% bupivacaine + 0.0004% fentanyl (study) with 10 min lockout, 2 boluses/h maximum. Drug mass in control and study boluses is the same. Primary outcome is percentage of parturients requiring AAB. Using χ^2 analysis, $\alpha = 0.05$ and 80% power, 72 parturients per group are required to detect a change in AAB rate from 30% to 10% (a significant clinical effect). Intention-to-treat and protocol-compliant (PC) analyses can be justified, and enrolling 180 subjects will maintain power for PC analysis. In an initial uncontrolled pilot series, 4 (8%) of 50 study group parturients required AAB, and retrospective case review of PCEA subjects suggests a control group AAB rate of up to 50%. No PCEA regimens have previously been published using high dilute background infusion and more concentrated solution for maternal boluses. Such a regimen may minimise the need for AAB in late labor and provide more consistent analgesia. In addition, in early labor, dependence on PAB may be reduced without compromising motor function. 1. Purdie et al. *Br J Anaesth* 1992;68:580-4. 2. Schultz et al. *Anesthesiology* 2000;92:A82. 3. Ferrante et al. *Anesth Analg* 1994;79:80-4. 4. Davin et al. *Anesthesiology* 1994;81:A1161. 5. Capogna et al. *Br J Anaesth* 1998;80:11-13. 6. Christiaens et al. *Reg Anesth Pain Med* 1998;23:134-41. 7. Lyons *Proceedings of 16th Postgraduate Course in Critical Care Medicine, Trieste 2001; Springer*

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HOW MOBILE DO MOBILE EPIDURALS NEED TO BE? *Bharmal, S.³*

1. University of Birmingham, Birmingham, United Kingdom; 2. Kings College, London, London, United Kingdom; 3. Leicester Royal Infirmary, Leicester, United Kingdom Introduction We have previously shown that combined spinal epidural (CSE) and low dose infusion (LDI) result in a significantly higher incidence of spontaneous vaginal delivery (SVD) when compared with traditional epidural analgesia. We performed a subgroup analysis of data from this study to investigate the hypothesis that preservation of motor power is associated with an increased likelihood of SVD. Method Primiparous women requesting epidural analgesia were randomised to receive boluses of 0.25% bupivacaine (Traditional), combined spinal epidural with top-ups (CSE) or low-dose infusion (LDI). The latter two utilised 0.1% bupivacaine with fentanyl, 2mcg/ml. Hourly assessments of power were made using Breen's modification of the Bromage Score. Those women achieving a vaginal delivery were analysed. We compared women scoring 1-4 with those scoring 5-6 in the two "mobile" groups at full dilatation. We also compared those who walked with those who did not. Results Power scores were recorded on 67% of the mobile epidural groups. Of these women, 71.8% (117/163) of women in the CSE group and 50.9% (82/161) in the LDI group achieved a score of 5 or 6 at full dilatation. Preservation of motor power at full dilatation did not appear to affect the incidence of SVD in this group. Proportion of vaginal deliveries that were spontaneous according to power score Conclusion Increased

	CSE	LDI
Power 1-4	43%	48%
Power 5-6	51%	52%
Chi-square	0.8	0.3
P value	ns	ns

incidence of SVD with "mobile" epidural techniques may not be explained by differences in motor power. COMET Study Group UK. Effect of low-dose mobile versus traditional epidural techniques on mode of delivery: a randomised controlled trial. *Lancet* 2001 358: 19-23