A49 (Poster 8)

Inadequate Thromboprophylaxis For Caesarean Sections: Which Parturients Are At Higher Risk?

S Rutter, R Orme, J Burry, C Grange, R Russell, *Nuffield Department of Anaesthetics, Oxford Radcliffe Hospitals NHS Trust, Oxford, UK*

Introduction: Thromboembolism (TE) remains the leading cause of death in pregnant women in the UK(1). Caesarean section (CS) substantially increases the risk of thromboembolism (2). Despite awareness amongst clinicians and the publication of guidelines by Royal College of Obstetricians and Gynaecologists (RCOG) (3), the CEMD report found that inadequate thromboprophylaxis was a common cause of substandard care(1). The aim of this prospective study was to assess adequacy of TE prophylaxis, as recommended by the RCOG, in our obstetric unit.

Methods: Thromboembolic risk was assessed in 108 consecutive women undergoing CS. Women were divided into low (LR), moderate (MR) or high risk (HR) groups. Thromboprophylaxis measures were recorded and adequacy assessed according to RCOG standards.

Results: Of 101 women, 14 (14%) belonged to LR group, 65 (64%) to MR and 22 (22%) to HR . Postoperative mobilisation was delayed for more than 12 h in 36 (36%) parturients.Thromboprophylaxis was inadequate in 55 women: 54% overall (n=101) and 62.5% in moderate and high risk groups (n=88).

Table: Inadequate thromboprophylaxis for CS

	Moderate Risk	High Risk	Total
Elective	11/25 (44%)	1/3(33%)	12/28(43%)
Emergency	31/41(76%)	12/19(63%)	43/60(72%)

Discussion: The majority (62.5%) of moderate and high risk women undergoing CS received inadequate thromboprophylaxis, parturients undergoing emergency CS being at higher risk. Women in MR group were at higher risk of inadequate thromboprophylaxis than those in the HR group. Impact of local guidelines is currently under review.

1. Why mothers die. Report on Confidential Enquiries into Maternal Deaths in the UK 1994-6. London: HMSO,1998
2. Bailliere's Clinical Obstetrics and Gynaecology 1997; 11:403-30
3. Report of the RCOG Working Party on Prophylaxis against Thromboembolism in Gynaecology and Obstetrics. London:1995

A50 (Poster 9)

Intrapartum Analgesia for Severe Preeclamptics

G.H. Shih, MD; R.D. Vincent, MD; D.H. Chestnut, MD; B. Hogg, MD; J. Owen, MD, J.C. Hauth, MD. Depts. of Anes. and OB/Gyn. Univ. of Alabama at Birmingham

The role of intrapartum epidural analgesia in women with severe preeclampsia has been controversial. The resulting sympathectomy may cause hypotension and fetal distress. The large volumes of intravenous fluids given to prevent or treat this may lead to postpartum pulmonary edema. This study was designed to determine whether differences exist in the cesarean section rate, efficacy and complications in women who received continuous epidural analgesia versus intravenous opioid analgesia.

After IRB approval and patient consent were obtained, parturients with severe preeclampsia and a gestational age > 24 weeks were randomized to receive either epidural analgesia (n=53) or IV PCA with meperidine (n=52). The primary outcome was the cesarean section rate, and our sample size was calculated using an estimated baseline rate of 50% in parturients with severe preeclampsia. Data were analyzed based on intent to treat. Of the 105 parturients enrolled, eight did not receive the allocated treatment due to rapid progression of labor. Two women assigned to PCA also received epidural analgesia. The two groups were demographically similar.

As seen in the following table, the cesarean section rate was similar in both groups. Analgesia was superior in the epidural group. The incidence of cesarean section delivery with general anesthesia was similar.

Outcome	Epidural (n=53)	PCA (n=52)	p
Cesarean, N (%)	9 (17)	6 (12)	NS
General anesthesia for C/S, N	2	3	
Maternal ephedrine, N (%)	5 (10)	0 (0)	.03
Neonatal naloxone, N (%)	5 (10)	28 (54)	.001
Average pain score *	4.2 ± 3.6	6.8 ± 2.7	.0001
Satisfactions score **	2.8 ± 1	2.2 ± 1	.01

* 0 + none to 10 = worst possible: ** 1 = poor to 4 = excellent

Birthweight, umbilical cord arterial pH, NICU admissions and neonatal death were also similar between the two groups.

Intrapartum epidural analgesia was safe and efficacious for women with severe preeclampsia. It did not increase the incidence of cesarean sections compared to intravenous opioid analgesia. In addition, epidural analgesia provided better pain relief.

A51 (Poster 10)

Interventions During Epidural And Combined Spinal Epidural Labor Analgesia

B.D. Macaulay, MD, M.D. Barton, DO, M.C. Norris, MD
Department of Anesthesiology, Washington University, St. Louis, MO

Introduction: A recent nonrandomized report suggested that patients receiving combined spinal epidural (CSE) analgesia needed fewer provider interventions than those receiving epidural analgesia.[1] Here, we attempted to corroborate these results in a group of patients randomly assigned to receive either epidural or CSE labor analgesia.

Methods: These results are a secondary analysis of data gathered during a randomized, prospective comparison of CSE and epidural labor analgesia.[2] Five hundred and ninety five patients received either CSE or epidural analgesia as dictated by a standardized protocol.[1] Anesthetic charts were reviewed for documentation of supplemental epidural injections.

Results: Of the 595 patients, 51% (n=302) received CSE while 49% (n=293) received epidural analgesia. We eliminated patients in advanced labor (n=23 CSE, n=25 epidural). There were no differences in patient height, weight, gestational age, or cervical dilation at induction between the groups. More CSE patients received rescue boluses than epidural patients, 59% vs. 47% ($p<0.0031$)(Table). The primary source of this difference appeared to be an increased number of patients receiving rescue between 50 and 150 minutes after the induction of analgesia.

Technique	N	Cm dilation at induction (± SD)	# Interventions			
			0	1	2	>2
CSE	279	4.4 ± 1.4	114	118	26	21
Epidural	268	4.3 ± 1.3	141	72	31	23

Discussion: This study sought to determine if patients receiving intrathecal sufentanil + a dilute LA/opioid infusion required fewer provider rescues than those receiving epidural bupivacaine/sufentanil + a dilute LA/opioid infusion. Contrary to our expectations, CSE patients received significantly more interventions than epidural patients. We suggest two possible explanations for these results. Not enough time may have elapsed for the LA/opioid infusion to provide adequate analgesia before IT opioid analgesia waned. Alternatively, patients may request additional medication because they perceive a qualitative change in the degree of pain relief during the transition from IT opioid-mediated analgesia to epidural local anesthetic-mediated analgesia.

1. Fogel ST, et al. Reg Anesth Pain Med 1999;24:S75. 2. Landau R, et al Anesthesiology 1999:A18

A52 (Poster 11)

Thromboelastography in Parturients receiving Magnesium

M.J.P. Harnett, FFARCSI; K. Bhavani-Shanakar, MD; S. Datta MD. Department of Anesthesiology, Brigham and Women's Hospital, Harvard Medical School, Boston, MA

Though there is evidence to suggest that magnesium has anticoagulant effects via calcium antagonism, clinical evidence is less conclusive. The effect of magnesium on coagulation was measured in 18 parturients using thromboelastography (TEG). TEG studies overall coagulation (CI) as well as three important properties of clot formation - time to initiation (R); rate of strengthening (K, alpha angle) and maximum strength (MA).[1]

Following IRB approval and informed consent we studied 18 parturients receiving magnesium for either pregnancy induced hypertension (PIH) or preterm labor (PTL). All parturients received a 6g magnesium over 30 minutes, followed by an infusion of 2g/hour of magnesium. TEG was preformed using celite activated blood on three occasions from each patient in a Haemoscope® dual channel TEG analyzer; (1) pre magnesium bolus, (2) 30 minutes post bolus and (3) 2 hours post bolus. In addition, the second channel was used to study the effect of magnesium on platelet function ($MA_{total} - MA_{reopro}$) by adding Reopro® to the native blood of each of the samples. A magnesium level was analyzed at 30 minutes following bolus.

Results:

Mean,SD	R	K	angle	MA	MA_{plt}	CI
Pre Mg(PIH)	8, **2.5**	2.5, **0.4**	75, **1.7**	69.6, **4.8**	36.**6, 9**	3.4, **0.7**
30 min post	6.2, **2***	2.8, **1.6**	74, **6**	67, **8.9**	36, **5**	3.5, **1.7**
2 hr post	7.5, **3.6**	2.1, **0.7**	70.3, **18**	68, **8.3**	37, **3**	3.8, **1.5**
Pre Mg(PTL)	8.9, **2.1**	2.6, **0.8**	74, **5**	69, **8**	35, **9**	2.8, **2**
30 min post	9, **2.7**	2.2, **0.6**	75, **3.7**	71, **7***	40, **13**	3.2, **1.6**
2 hr post	8.9, **3.3**	2.7, **1**	73, **4**	69,**6**	36, **5**	2.2, **1.8**

* Significant change

The R value was found to be significantly lower in the PIH group and the MA significantly increased in PTL group at 30 minutes after the magnesium bolus. However, there was no effect of magnesium on overall coagulation as evidenced by lack of change in clotting index (C.I) both in the PIH group and in the PTL group.

Reference: 1. Anesth Analg 1997; 85: 94-8.