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(Poster 56)

**MAGNESIUM SULFATE AND ANALGESIC REQUIREMENTS FOLLOWING CESAREAN SECTION** *Habib, A.S.; Muir, H.A.; Bell, E.A.; Phillips-Bute, B.G.; Reynolds, J.D. Anesthesiology, Duke University Medical Center, Durham, NC* **Introduction:** In addition to its role in seizure prophylaxis, magnesium ion (Mg) is a putative anti-nociceptive agent. Parturients with pre-eclampsia often receive Mg-sulfate (MgSO<sub>4</sub>) during and after cesarean section (CS) delivery. Combining these two points, the purpose of the present study was to test the hypothesis that MgSO<sub>4</sub> reduced post-CS analgesic use in pre-eclamptic patients. **Methods:** After obtaining IRB approval, we reviewed the medical records of pre-eclamptic patients who underwent a CS with spinal or epidural anesthesia at our institution between January of 1997 and May of 1998. The records were divided based on MgSO<sub>4</sub> exposure: patients in the control group had received no MgSO<sub>4</sub> while those in the experimental group were on MgSO<sub>4</sub> at the time of CS and continued to receive MgSO<sub>4</sub> post-partum. We compared pain scores, intravenous patient-controlled analgesia (IVPCA) morphine use, and oral consumption of NSAIDs and oxycodone between the two groups using analysis of variance; statistical significance was assumed at  $p < 0.05$ . **Results:** A total of 79 records were examined, with 42 in the control group and 37 in the experimental Mg group. Parturients in the two groups were similar demographically and had comparable levels of intra-operative fentanyl supplementation. Pre-eclamptic patients who received MgSO<sub>4</sub> during and after CS, self-administered significantly-less morphine compared to the control patients. These Mg patients also consumed less oral pain medications. Despite this reduction in analgesic consumption, pain scores did not differ between the two groups. **Discussion:** This retrospective analysis indicates that MgSO<sub>4</sub> was associated with a reduction in post-CS analgesic use by pre-eclamptic patients. By extension, these results suggest that peri-partum MgSO<sub>4</sub> administration may warrant consideration and further study as an adjunct to the standard methods of obstetrical post-operative pain relief.

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**LOW DOSE INTRATHECAL MORPHINE IS NOT USEFUL FOR ANALGESIA AFTER POSTPARTUM TUBAL LIGATION** *Goodman, S.R.; Drachenberg, A.M.; Johnson, S.A.; Kim-Lo, S.H.; Smiley, R.M. Anesthesiology, Columbia Presbyterian, New York, NY* **Introduction:** Post-partum tubal ligation (PPTL) results in significant pain. Intrathecal (IT) morphine (MS) provides effective analgesia after cesarean section (1) and PPTL (2). The purpose of this ongoing study is to determine if low dose IT MS can provide effective postoperative analgesia for PPTL. **Methods:** After IRB approval, informed consent was obtained from 40 ASA 1 or 2 patients undergoing PPTL. Patients were randomized (double-blind) to receive IT MS 100mcg, 50mcg, or saline, with spinal anesthesia (65mg 5% lidocaine + 25mcg fentanyl). Data collection included demographics, surgical duration, oral analgesic use, and side effects. Pain scores (100mm VAS at rest and with movement) were obtained at 0, 1, 2, 6, 12, 18, and 24 hours, and 7 days. Data were analyzed using ANOVA, Kruskal-Wallis, Chi-squared, and Fisher's exact test at  $p < 0.05$ . **Results:** There was no difference between groups for demographics, oral analgesic use or pain scores. Of 26 patients who received IT MS, 2 needed treatment for nausea and 3 for pruritus. One control patient needed pruritus treatment. **Conclusion:** The preliminary results of this study suggest that a single dose of IT MS administered during spinal anesthesia for PPTL does not affect the use of postoperative oral analgesics and is associated with pruritus. **Reference:** 1. Anesthesiology 1999; 90:437-44. 2. SOAP 1997;59.

Group	100mcg MS	50mcg MS	Saline	p value
Number of patients (n)	14	12	14	
Mean oral analgesics (n)	2.6	3.9	3.3	NS
Nausea VAS > 20mm (n)	2	3	0	NS
Pruritus VAS > 20mm (n)	8	8	0	0.0001
Urinary retention (n)	7	0	1	NS

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**INTRAVENOUS CANNULA SIZE FOR OBSTETRIC HEMORRHAGE** *Stoebr, K.; Burkle, C.; Vasdev, G. Anes. Dept., Mayo Clinic, Rochester, MN* For obstetric hemorrhage (OH) one large bore intravenous (IV) cannula is recommended. As uterine blood flow is >700 ml/min at term, high infusion rates are needed during OH. To determine IV cannula size and arrangement for fluid infusion in severe OH, we developed a model of fluid administration, using a constant flow device. A Rapid Infusion System™ (Haemonetics Corp) roller pump was filled with 3L of 0.9% saline. Distal to the system pressure transducer, 1m of IV tubing ending in a bifurcation was attached. This allowed IV cannulae (18g, 16g, 14g) either single or in parallel (X2) to be tested. Flow rates of 250, 500, 1000 mL/min were tested for each IV either as single or parallel. At supply pressures >300-mmHg constant flow was stopped. When this occurred a maximum flow rate was recorded. For each flow rate and IV size (single and parallel) pressure was measured for 5 runs. Figure 1 depicts the results of the mean pressure (n=5) versus the constant flow rate. Graphically, a non-linear relationship of flow to pressure indicated turbulent flow. Parallel IV cannulae had better flow than the single IV cannulae, and smaller gauge, larger radius had higher flows. Only IV cannulae 14g single or 14g and 16g in parallel can achieve flow rates of >500 mL/min. Smaller single 18g IV catheters are able to maintain flow rates of 100 ml/min. Turbulent flow is proportional to the radius<sup>2</sup> and to the square root of pressure. It is generally under appreciated that two cannulae in parallel will have decreased resistance for the same flow. For severe OH a single 14g IV cannula or two 16g IV cannulae in parallel is necessary to cope with blood loss.

