OXYTOCIN REQUIREMENTS AT C-SECTION FOR FAILURE TO PROGRESS IN LABOR

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INTRODUCTION: Oxytocin is administered at C-section (CS) to reduce blood loss. Serious side effects have been documented with large doses or rapid boluses. The purpose of this study was to estimate the minimum dose of oxytocin required to produce effective uterine contraction (ED₉₀) at CS following failure to progress in labor.

METHODS: With REB approval and informed consent, a randomized, single-blinded study was conducted in 30 parturients undergoing CS for failure to progress in labor, under epidural anesthesia. Oxytocin was administered as bolus after fetal delivery (initial dose), according to a biased coin up-down sequential allocation scheme with increments/decrements of 0.5 IU (starting dose 0.5 IU). Additional boluses of 0.5 IU were administered if required (total dose). Uterine contraction and intra-operative complications were recorded. Blood loss was estimated (EBL) based on hematocrit changes.

RESULTS: All patients received oxytocin during labor (maximum dose 10.3 ± 8.1 mIU/min and duration of infusion 9.7 ± 6.4 hours). The ED₉₀ of oxytocin at CS was 2.99 IU (SE=0.34, 95% CI=2.32-3.67). The EBL was 1178 ± 716 ml. There was no significant association between the initial dose of oxytocin at CS and EBL ($p=0.11$). There were no significant correlations between the time required for effective uterine contraction or the total dose of oxytocin at CS and the duration of oxytocin infusion during labor ($p=0.98$ and 0.49) or the maximum oxytocin dose used for augmentation of labor ($p=0.80$ and 0.67). Post-delivery complications included hypotension 30%, tachycardia 30%, nausea 60%, vomiting 40% and flushing 40%. In all cases the uterus was exteriorized for repair.

DISCUSSION: The effective bolus dose of oxytocin at CS for failure to progress in labor can be lower than those currently recommended. However, this dose is much larger than that required at elective CS (ED₉₀=0.35 IU)¹, likely secondary to oxytocin receptor desensitization due to prolonged oxytocin exposure during labor². Patients not responding to such doses should be considered for other uterotonic agents, not only to avoid oxytocin side effects, but mainly to provide effective control of blood loss and prevent post-partum hemorrhage.

REFERENCES: 1. Obstet Gynecol. 104:1005-1010; 2. Am J Obstet Gynecol. 188:497-502