



Low-dose Oxytocin Protocol Made No Difference in Quantitative Blood Loss in Elective Caesarean Sections; Single-Center, Retrospective Cohort Study

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Introduction

The use of oxytocin after vaginal and cesarean deliveries is considered standard of care and reduces blood loss by 40-50%.¹ However, no definitive data exists on the optimal intraoperative dosing strategy for patients undergoing cesarean delivery (CD) to optimize blood loss and reduce unwanted side effects. This study aimed at comparing quantitative blood loss (QBL) after elective CD between patients receiving a high dose, non-protocolized oxytocin strategy (Group H) versus patients receiving a newly implemented, low-dose oxytocin protocol (Group L) over a seven-month period at a single academic institution.

Methods

Electronic medical record data was reviewed on gravid patients undergoing elective CD for a single intrauterine pregnancy with neuraxial anesthesia. Exclusion criteria: emergency CD, general anesthesia, placental abnormalities, bleeding disorders, multiple gestation, and failed oxytocin induction prior to CD. Group H patients received 40 units of oxytocin in a 1L bag of crystalloid, infused over an unspecified time at the discretion of the anesthesia provider, and variable boluses as needed based on Obstetrician feedback about uterine tone. Group L patients received a 3-unit bolus of oxytocin followed by an infusion of 18 units per hour. An a priori power analysis was performed to an alpha of 0.05 and power of 0.8. Out of the 221 cesarean deliveries performed over the seven-month retrospective study period, 122 were excluded for the previously mentioned criteria. Of the remaining subjects, 62 received Group H treatment, and 37 received Group L treatment.

Results

While there were no statistically significant differences between the two groups with respect to patient age, gestational age at time of delivery, cesarean section indication, and hemorrhagic medications given, these factors had a positive effect size on QBL and were therefore controlled for in a multivariate linear regression model. The overall regression was not statistically significant ($R^2 = 0.08$, $F(8, 90) = 0.95$, $p 0.48$).²

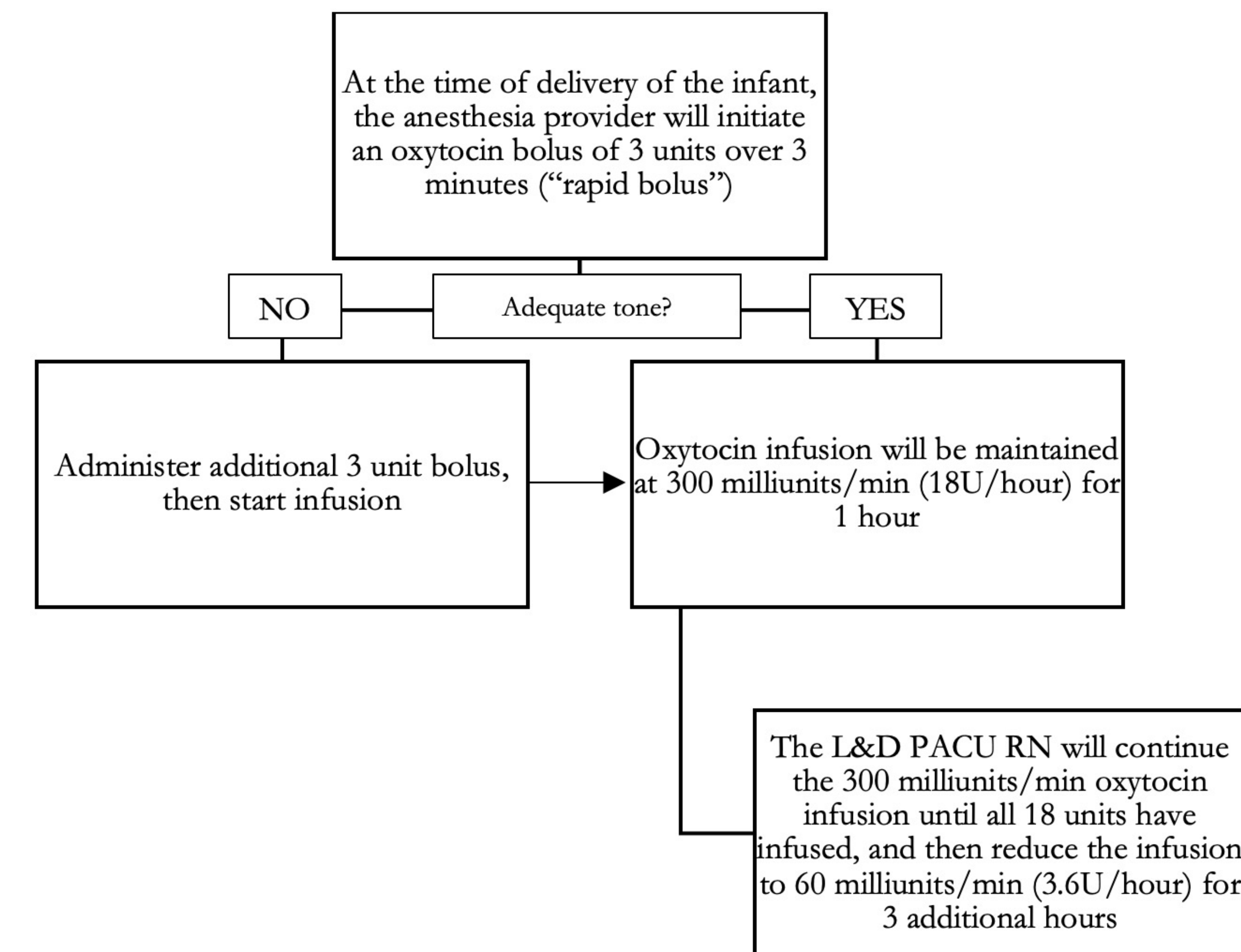


Figure 1: Oxytocin infusion protocol after cesarean delivery

Conclusion

This small, single-center, retrospective study showed oxytocin dosing only had an 8 percent influence on the variability of quantitative blood loss during elective, low-risk cesarean deliveries. Therefore, smaller oxytocin dosing strategies incur no additional risk of bleeding, and larger oxytocin doses could result in a greater side effect profile with no added benefit to hemostasis. Limitations include the retrospective nature of the study, high-risk pregnancies were excluded, and side effects in the high-dose group were not reliably captured in our EMR system and therefore not reported.

References

- McDonald S, Abbott JM, Higgins SP. Prophylactic ergometrine-oxytocin versus oxytocin for the third stage of labour. *Cochrane Database Syst Rev.* 2004;(1):CD000201.
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