The effect of post-partum oxytocin regimen on hemoglobin decline – a randomized controlled trial


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Objective
To compare the effect of different regimens of postpartum oxytocin administration on hemoglobin (HB) and hematocrit (Hct) decline.

Methods
A randomized controlled trial, 3-arm study of women who delivered vaginally at term in a single medical center (2014-5). Immediately following the delivery of the fetus women randomly received one of 3 oxytocin regimens: 1) intramuscular 10 units (IM group), 2) intravenous 10 units in 100ml 0.9%NaCl solution over 10 minutes (IV group), or 3) combined IV+IM regimens (IV+IM group) (Figure 1). The primary outcome was defined as the level of HB and Hct decline between pre-partum (admission to delivery ward) and postpartum (24-48 hours post-partum) measurements. Considering reduction of 40% in the IV+IM treatment regimen, in order to ensure an 80% power of detecting a difference of OR of 0.6, a sample size of at least 44 women in each group was estimated. Exclusion criteria included: multiple gestations, cesarean deliveries, immediate post-partum hemorrhage (PPH), maternal bleeding disorders, use of anticoagulants or refusal for blood count.

Results
Overall, 210 women (70 in each group) were randomized, with 171 included in final analysis (IM group-61, IV group-57, IV+IM group-53). There was no significant difference between the groups regarding maternal age, parity, operative vaginal deliveries rate, the rate of perineal tears, the need for uterine revision or neonatal birthweight. Mean prepartum HB and Hct levels were 12.3±1.1g/dl and 36.9±2.7%, respectively, with no significant difference between the groups. Mean Postpartum HB and Hct decline was 1.3±0.8g/dl and 3.7±2.3%, respectively, with no different between the groups. In multivariable analysis after adjusting for potential confounders (parity, BMI, perineal tears and neonatal birthweight) oxytocin regimen was not associated with any difference in hematological measurements.

Conclusion
Postpartum Hb and Hct decline was usually minor following vaginal deliveries without clinical PPH, and was not affected by oxytocin regimen.