Higher-Dose Oxytocin and Hemorrhage After Vaginal Delivery: A Randomized Controlled Trial

Alan T. N. Tita, MD, PhD, Jeff M. Szychowski, PhD, Dwight J. Rouse, MD, MSPH, Cynthia M. Bean, MD, Victoria Chapman, MPH, Allison Nothern, MSN, RN, Dana Figueroa, MD, Rebecca Quinn, PharmD, William W. Andrews, PhD, MD, and John C. Hauth, MD

OBJECTIVE: To evaluate whether higher dose oxytocin regimens (80 units or 40 units) are more effective than 10 units in preventing postpartum hemorrhage among women who deliver vaginally.

METHODS: In a double-masked randomized trial, oxytocin (80 units, 40 units, or 10 units) was administered in 500 mL over 1 hour after placental delivery. The primary outcome was a composite of any treatment of uterine atony or hemorrhage. Prespecified secondary outcomes included outcomes in the primary composite and a decline of 6% or more in hematocrit. A sample size of 600 per group (N=1,800) was planned to compare each of the 80-unit and 40-unit groups to the 10-unit group. At planned interim review (n=1,201), enrollment in the 40-unit group was stopped for futility and enrollment continued in the other groups.

RESULTS: From November 2008 through June 2010, 2,869 women were screened and 1,798 were randomized as follows: 658 to 80 units; 481 to 40 units; and 659 to 10 units. Most characteristics were similar across groups. The risk of the primary outcome in the 80-unit group (6%; relative risk [RR] 0.93, 95% confidence interval [CI] 0.62–1.40) or the 40-unit group (6%; RR 0.94, 95% CI 0.61–1.47) was not different compared with the 10-unit group (7%). Treatment with additional oxytocin after the first hour was less frequent with 80 units compared with 10 units (RR 0.41, 95% CI 0.19–0.88), as was a 6% or more decline in hematocrit (RR 0.83, 95% CI 0.69–0.99); both outcomes declined with increasing oxytocin dose. Outcomes were similar between the 40-unit and 10-unit groups.

CONCLUSION: Compared with 10 units, 80 units or 40 units of prophylactic oxytocin did not reduce overall postpartum hemorrhage treatment when administered in 500 mL over 1 hour for vaginal delivery. Eighty units decreased the need for additional oxytocin and the risk of a decline in hematocrit of 6% or more.


(Modified from Obstet Gynecol 2012;119:293–300)