

# Prophylactic oxytocin: Before or after placental delivery?

## Evidence-based answer

Either is fine.

Timing alone doesn't influence the drug's efficacy in preventing postpartum

bleeding (strength of recommendation: **B**, randomized controlled trial [RCT] and prospective cohort studies).

## Evidence summary

The prophylactic use of oxytocic drugs reduces the risk of postpartum hemorrhage (PPH) by about 40% and has been widely adopted as a routine policy in the active management of the third stage of labor.<sup>1</sup> A number of studies have evaluated the timing of oxytocin after delivery (**TABLE**).

### Which timing is best?

#### It depends on the study

**A well-constructed double-blinded RCT** found no significant difference in the incidence of PPH when oxytocin was given after delivery of the anterior shoulder or the placenta.<sup>2</sup> The study included 1486 patients; 745 received 20 units of oxytocin on delivery of the anterior shoulder, and 741 received an identical dose of oxytocin on delivery of the placenta. The incidence of PPH was 5.4% for the anterior shoulder group and 5.8% for the placenta group ( $P=.72$ ). Likewise, no significant difference between the groups was noted in the proportion of women with estimated blood loss (EBL)  $\geq 500$  mL (7.5% vs 9.7%;  $P=.15$ ).

**A much smaller double-blinded RCT** found that PPH occurred significantly less often when oxytocin was delayed until after delivery of the placenta.<sup>3</sup> The

study comprised 51 patients; 27 received 10 units of oxytocin on delivery of the anterior shoulder and 24 received an identical dose after delivery of the placenta. The incidence of PPH  $\geq 500$  mL was 0% when oxytocin was given after delivery of the placenta vs 14.8% when it was given on delivery of the anterior shoulder ( $P=.049$ ). However, the study was limited by its size and potential inaccuracies in estimating blood loss.

**A prospective cohort study** noted a significant reduction in the risk of PPH when oxytocin was given after delivery of the anterior shoulder, compared with the placenta.<sup>4</sup> In this study, 82 patients received 5 units of oxytocin on delivery of the anterior shoulder, and 52 received an identical dose after delivery of the placenta. The incidence of PPH  $\geq 500$  mL was 7.3% in the anterior shoulder group and 19.2% in the placenta group. However, the study was not blinded and was limited by its small sample size.

**Two earlier studies**, an RCT and a prospective cohort study, concluded that oxytocin is more effective in reducing PPH when given before placental delivery (after delivery of the anterior shoulder and head, respectively).<sup>5,6</sup> Neither of these studies was blinded nor

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## FAST TRACK

**Oxytocin may be given either before or after the placenta is delivered**

TABLE

## What studies say about the timing of oxytocin and PPH risk

STUDY TYPE (YEAR)	OXYTOCIN GIVEN AFTER		OUTCOMES (RISK OF PPH)
	DELIVERY OF ANTERIOR SHOULDER (N)	DELIVERY OF PLACENTA (N)	
DBRCT (2001) <sup>2</sup>	745	741	No difference (OR=0.92; 95% CI, 0.59-1.43)
DBRCT (2004) <sup>3</sup>	27	24	Incidence lower when given after delivery of placenta (P=.049)
Cohort (2006) <sup>4</sup>	82	52	Incidence lower when given after delivery of anterior shoulder (OR=0.33; 95% CI, 0.11-0.98)
RCT (1997) <sup>5</sup>	827	821	Incidence lower when given after delivery of anterior shoulder (OR=0.50; 95% CI, 0.34-0.73)
Cohort (1996) <sup>6</sup>	524 (given after delivery of head)	478	Incidence lower when given after delivery of head (OR=0.60; 95% CI, 0.41-0.87)

CI, confidence interval; DBRCT, double-blinded randomized controlled trial; OR, odds ratio; PPH, postpartum hemorrhage; RCT, randomized controlled trial.

controlled for nonpharmacologic interventions, however.

### Recommendations

The American College of Obstetricians and Gynecologists (ACOG) states that ongoing blood loss accompanied by decreased uterine tone requires uterotonic agents as first-line treatment for PPH.<sup>7</sup> ACOG doesn't make specific recommendations regarding the timing of oxytocin administration.

The American Academy of Family Physicians (AAFP) recommends oxytocin as the uterotonic agent of choice for preventing PPH.<sup>8</sup> The AAFP further advocates active management of the third stage of labor to decrease PPH by administering oxytocin as soon as possible after delivery of the anterior shoulder and before delivery of the placenta.

The World Health Organization (WHO) also recommends oxytocin as the uterotonic of choice.<sup>9</sup> WHO advocates administration within 1 minute of delivery of the baby. ■

### References

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### FAST TRACK

## Prophylactic use of oxytocic drugs reduces the risk of postpartum hemorrhage by about 40%