

ACTIVE MANAGEMENT OF THIRD STAGE LABOR

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EXECUTIVE SUMMARY

- We previously recommended a package of interventions including oxytocin infusion, cord clamping and cutting, controlled cord traction, and vigorous fundal massage, commonly referred to as active management of the third stage of labor (AMTSL).
- New data and recent systematic reviews have identified significant risk of bias in previous studies and called the efficacy of various components of AMTSL into question.
- Evidence based analysis has established that AMTSL can reduce maternal hemorrhage, but studies evaluating the individual components have confirmed only oxytocin administration as effective, particularly in high resource settings and in low risk women.
- Delayed cord clamping does not increase the risk for hemorrhage, and any components of AMTSL that may be used should not interfere with the practice of delayed cord clamping for newborn benefit.

BACKGROUND AND LITERATURE REVIEW

A 2011 Cochrane review of active management of the third stage of labor (AMTSL) was designed to consider the benefits versus potential harms of the components of AMTSL, and specifically to tease out differences in effect based on low- versus high-resource settings.¹ The review included 8247 women enrolled in seven studies conducted in six high-income countries and one low-income country. Four of the studies compared active management with expectant management of the third stage. Three studies compared active management with a “mixture of managements.” The primary outcomes for the review were postpartum hemorrhage > 1000 mL, postpartum hemorrhage > 2500 mL, and maternal death. The authors concluded that active management reduced the risk of bleeding, but that this reduction in risk may be due to oxytocin alone. They also found increased risk of hypertension, return to hospital for bleeding, and a possible decrease in average newborn blood volume in the active management group. There was no difference in the rate of severe bleeding (defined as ≥ 1000 mL blood loss) between groups in low-risk women. The authors noted that the sample sizes for all included studies were below those needed for optimal information, and the GRADE scores for primary outcomes were low.

Sheldon, et al. conducted a secondary analysis of data from 2 clinical trials that were conducted in Egypt, Ecuador, Turkey, Vietnam, and Burkina Faso.² This analysis included 39,202 women and evaluated the probability of blood loss > 700 mL under various combinations of the component interventions used in AMTSL. They found that when oxytocin prophylaxis was administered intramuscularly, controlled cord traction significantly reduced the risk of bleeding, but cord traction was not beneficial in the setting of intravenous oxytocin prophylaxis. Uterine massage increased the risk of bleeding, and the combination of controlled cord traction and uterine massage doubled the predicted probability of blood loss over 700 mL in the setting of intravenous oxytocin prophylaxis. The authors conclude that there is no benefit to uterine massage, and other decisions about AMTSL protocols need to take the availability and route of oxytocin administration into account. In hospital settings using IV oxytocin prophylaxis, controlled cord traction may not be necessary. Other studies support the focus on oxytocin as the main ingredient contributing the effect of AMTSL.³

Deneux-Tharoux, et al. conducted a randomized controlled trial five high-resource maternity units in France comparing the incidence of hemorrhage with controlled cord traction without awaiting placental separation versus “standard placenta expulsion.”⁴ Standard expulsion was described as spontaneous separation and expulsion through maternal efforts, assisted if needed by fundal pressure and “soft tension” on the cord. Length of third stage was shorter and manual removal of the placenta was less frequent in the controlled traction arm. However, there was no difference in mean blood loss between groups at either > 500 mL or > 1000 mL in the immediate period of birth and initial recovery, nor in mean peripartum change in hematocrit. The authors conclude that controlled cord traction had no effect on postpartum blood loss in the high-resource context. They note that it is difficult to evaluate the impact on manual removal of the placenta because the policy in France is to intervene to remove the placenta if it is not expelled within 30 minutes, and that controlled cord traction is incompatible with delayed cord clamping.

In a Cochrane collaboration systematic review of delayed cord clamping that included 15 trials and 3911 women, there was no difference in hemorrhage risk between the early and delayed cord clamping groups.⁵

RECOMMENDATIONS

Evidence based analysis has established a clear benefit of oxytocin prophylaxis in the third stage of labor for reducing maternal hemorrhage, but studies evaluating the individual components have not clearly demonstrated benefit of non-oxytocin components of AMTSL including uterine massage, immediate cord clamping, and cord traction in low risk women. The benefit of this technique appears to be the combination of oxytocin, careful attention to possible hemorrhage and prompt intervention. Therefore management protocols should continue to support variations of AMTSL in all women but not allow the

various components to interfere with the labor processes outside of the use of oxytocin. The World Health Organization recommends prophylactic oxytocin for all women, against sustained uterine massage for hemorrhage prevention when prophylactic oxytocin has been used, and delayed cord clamping for all births unless there is an immediate need for neonatal resuscitation.⁶ Further research, with larger numbers of patients in various subgroups and more vigorous methods of determining blood loss, would be helpful to clarify which patients would benefit from other measures. Finally, it is important to make distinctions between management for *prevention* of hemorrhage (AMTSL components) versus *treatment* of hemorrhage which will initially entail similar measures.

1. Prophylactic oxytocin is the prevention strategy of choice in high-resource settings.
2. Other aspects of active management of the third stage of labor are less well supported in the literature and some may increase risk of bleeding.
3. The benefits of delayed cord clamping for the newborn are believed to outweigh any benefit that might be obtained from other components of AMTSL.
4. Similarly, skin-skin care after birth is of known benefit to the newborn and any components of AMTSL that are used should not delay skin-skin care.

EVIDENCE GRADING

Level of Evidence: I A Evidence obtained from at least one properly designed randomized control trial. Recommendations based on high quality and consistent evidence.

Level of Evidence: I B. Evidence obtained from at least one properly designed randomized control trial. Recommendations based on limited or inconsistent evidence.

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