Preventing PPH: Evidence-based management of third stage of labor

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My name is....
Learning objectives

- Define active management of third stage of labor (AMTSL)
- Develop an evidence-based approach for the third stage of labor
  - Cord traction and clamping
  - Role of uterine massage
  - Prophylactic uterotonics
  - Timing of prophylactic uterotonics
Outline

Overviews of the following:

- Cochrane reviews
- Meta-analyses
No financial disclosures
Background

• Most significant cause of maternal death worldwide
• 140k women/year
• 5-15% of all births, 2-3% in USA
• 4/1000 births with severe blood loss
• Rise in postpartum hemorrhage in US
Definitions

• vaginal birth:
  • Mild: >500 mL
  • Severe: >1000 mL

• Primary vs secondary
  • Primary: 1st 24 hrs
  • Secondary: after 24 hrs
Case

- 34yo G3P2 at 38+5, with uncomplicated pregnancy, history of 2 term vaginal deliveries, presents in active labor, 8cm dilated, and progresses to complete
Case

IS THIS THE BEST PRACTICE?
Third Stage of labor: the shorter the better?
AMTSL

Active Management of Third Stage of Labor

Why the rush?
Active vs passive management

- Early cord clamping and cutting
Active vs passive management

- Controlled cord traction
Active vs passive management

- Prophylactic uterotonic
Placenta: cord clamping

- Early versus delayed/late
- Focus: maternal outcomes
Placenta: cord clamping

- Cochrane Review 2013, Mcdonald et al.
- 15 trials
- 3911 women/infant pairs
Placenta: cord clamping

OUTCOMES:
- Mild PPH
- Severe PPH
- mean blood loss
- pre and post delivery HgB
Take home point:

- clamp now or later?
- we can wait another minute
Placenta: cord drainage
Placenta: cord drainage

- Cochrane Review, Soltani et al 2011
- 3 trials
- 1257 women
Placenta: cord drainage

- blood loss
- length of third stage of labour
Take home point:

- to drain or not to drain?
- provider preference
Placenta: cord traction

- Controlled cord traction versus spontaneous expulsion
Placenta: cord traction

- RCT, 4355 women, half control
- Outcomes:
  - Mild PPH > 500 mL
  - Severe PPH > 1000mL
  - Duration
  - Manual removal of placenta
  - Women’s experience of third stage
Placenta: cord traction

- Postpartum hemorrhage
- Duration of third stage of labor
- Uterine inversion
- Cord rupture
- Manual removal of placenta
- Patient experience
Take home point:

- to pull or not to pull?
- no harm, some benefit
Uterine massage
Uterine Massage

- Cochrane review, Hofmeyr et al, 2013, with 2 trials
  - Massage between infant and placental delivery:
    - No benefit
  - Massage after delivery of placenta:
    - Improved blood loss
    - Decreased need for additional uterotonics
Take home point:

- Should I massage?
- Maybe.
Prophylactic uterotonic

Oxytocin
Uterotonics

- oxytocin
- misoprostol
- ergonovine (i.e. methergine)
Uterotonic: oxytocin

- 10 IU IM
- 10-40 IU per 500-1000 mL solution
Oxytocin: timing

- Cochrane Review, Soltani et al, 2010
- 3 RCTs with 1671 participants
Oxytocin: Timing

- Timing: before or after placenta removal
- End points: mild and severe PPH, retained placenta, length of third stage of labour, changes in HgB, incidence of maternal hypotension
- 3 RCTs, 1671 women, IV oxytocin
- No significant difference
Take home point:

- Before or after placenta?
- Whenever you or your RN can start it.
Big take home points
Take home point:

- clamp now or later?
- we can wait another minute
Take home point:

- to drain or not to drain?
- provider preference
Take home point:

- to pull or not to pull?
- no harm, some benefit
Take home point:

- Should I massage?
- depends on when
Take home point

- Which uterotonic?
  - Oxytocin

- Timing of uterotonic?
  - Whenever you or your RN can start it.
Case

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Citations

- Frolova, Antonina I. MD, PhD; Stout, Molly J. MD, MSCI; Tuuli, Methodius G. MD, MPH; López, Julia D. MPH, LCSW; Macones, George A. MD, MSCE; Cahill, Alison G. MD, MSCI. Obstetrics & Gynecology: May 2016 - Volume 127 - Issue 5 - p 951-956 doi: 10.1097/AOG.0000000000001399


Citations

- **Postpartum misoprostol for preventing maternal mortality and morbidity (1),** 15, July 2013. Editorial Group: Cochrane Pregnancy and Childbirth group. Mofmeyr, GJ; Gulmezoglu, AM; Novikova, N; Lawrie, Theresa A


- **Effect of routine controlled cord traction as part of active management of third stage of labour on PPH: multicenter randomized controlled trial (TRACOR).** Deneux-Tharaux C., Sentilnes L., Maillard F., et al. _BMJ_ 2013;346:f1541 doi: 10.1136/bmj.f1541

- **Cord clamping: Effect of timing of umbilical cord clamping of term infants on maternal and neonatal outcomes.** McDonald SJ, Middleton P, DOwswell T., Morris PS. July 11 2013. Cochrane Library

Clip art and photo links:

- Blood dripping: https://clipartfest.com/categories/view/bbaf3691a46333bac4162059166ff3ff9062e08a/blood-dripping-clipart.html
- Bottle: www.afsfood.co.uk%2Fimages%2Fproduct_images%2Faqua-twist-sport-and-flat-cap-500ml-water.jpg
- IV bag: https://www.surgo.com/catalogpc.htm?CATEGORY=C-IV%20BAGS
- 30 min timer: https://rfclipart.com/30-minutes-blue-chronometer-icon-7337-vector-clipart.html
- Oxytocin: http://www.paasp.net/attachments/image/Oxytocin_big.png?template=generic
- 60 min stopwatch: https://www.shutterstock.com/search/60+seconds
- Uterine massage: http://cdn2.hubspot.net/hubfs/317140/massage_abdomen_2.jpg
THANK YOU FOR LISTENING!