

# Prevention and Treatment of Atonic Primary Postpartum Hemorrhage

Clinical specialty: Obstetrics and Gynecology

Intended users: Physicians and students

Source of Evidence: The Cochrane Library and DARE

## JC Objective

To discuss the evidence for the management of Atonic postpartum hemorrhage

## Recommendations

The traditional WHO definition of primary PPH is the loss of 500 ml or more of blood from the genital tract within 24 hours of the birth of a baby. PPH can be minor (500–1000 ml) or major (more than 1000 ml).

Primary PPH is the most common form of major obstetric hemorrhage.

Most cases of Primary PPH have no identifiable risk factors. **Unpredictable**

Most common cause of primary PPH is uterine atony

- Risk factors for atonic PPH include placenta previa, multiple pregnancy, prolonged labor, macrosomia, previous PPH, elderly PG

## Prevention of primary atonic PPH

- Active management of the third stage of labor
  1. Active management of the third stage of labor involves giving a **prophylactic uterotonic**, early cord clamping and controlled cord traction to deliver the placenta.
  2. With expectant management, signs of placental separation are awaited and the placenta is delivered spontaneously.
  3. **Active management reduced the risk of**
    - a. primary PPH (**RR 0.34**, 95% CI 0.14 to 0.87)
    - b. hemoglobin <9 g/dl following birth (**RR 0.50**, 95% CI 0.30 to 0.83)
  4. Active management showed significant increases in
    - a. maternal diastolic blood pressure,
    - b. after-pains and use of analgesia.
- Timing of prophylactic uterotonic
  1. After delivery of the anterior shoulder
  2. Before delivery of the placenta
  3. After delivery of the placenta

- Type of prophylactic uterotonic
  1. Oxytocin
    - a. For women without risk factors for PPH delivering vaginally, oxytocin (5 to 10 IU by intramuscular injection) is the agent of choice for prophylaxis in the third stage of labor.
    - b. For women delivering by cesarean section, oxytocin 5 to 10 IU by slow intravenous injection (given over 1 to 2 minutes) is used to stimulate uterine contraction and to decrease blood loss.
    - c. IV infusion of oxytocin (20 to 40 IU in 1000 mL, 150 mL per hour) is an acceptable alternative
  2. Ergot
    - a. IM Ergonovine significantly decreased mean blood loss (MD -83.03 ml, 95% CI -99.39 to -66.66 ml) and postpartum hemorrhage (RR 0.38, 95% CI 0.21 to 0.69).
    - b. Ergot alkaloids increased the risk of **vomiting** (RR 11.81, 95% CI 1.78 to 78.28), **elevation of blood pressure** (RR 2.60, 95% CI 1.03 to 6.57) and **pain after birth requiring analgesia** (RR 2.53, 95% CI 1.34 to 4.78).
    - c. **oral ergometrine** versus placebo: **no significant benefit** of ergometrine over placebo.
    - d. Ergonovine is contraindicated in patients with hypertension.
  3. Carbetocin
    - a. The risk of PPH was similar in both oxytocin and carbetocin arms for participants who underwent caesarean delivery as well as participants, with risk factor(s) for PPH, who underwent vaginal delivery.
    - b. Carbetocin, 100 (µg) given as an IV bolus over 1 minute, should be used instead of continuous oxytocin infusion in elective Cesarean delivery for the prevention of PPH and to decrease the need for therapeutic uterotonics (RR 0.44, 95% CI 0.25 to 0.78) and the need for uterine massage (RR 0.38, 95% CI 0.18 to 0.80)
    - c. For women delivering vaginally with 1 risk factor for PPH, carbetocin 100 µg intramuscularly (IM) decreases the need for uterine massage to prevent PPH when compared with continuous infusion of oxytocin (RR 0.70, 95% CI 0.51 to 0.94)
  4. prostaglandins
    - a. Neither PGF<sub>2</sub>alpha nor misoprostol are preferable to conventional injectable uterotonics as part of the management of the third stage of labor especially for low-risk women.
    - b. Misoprostol (orally, sublingually, rectal) at a dose of 600 µg is effective when compared to placebo in reducing blood loss after delivery.
    - c. Misoprostol adverse events: shivering and a temperature of 38 °C.
- Uterine massage
- Placental cord drainage
  1. There is no evidence that this intervention prevents PPH.
  2. Is not recommended as a routine practice

### Diagnosis

- Vaginal bleeding after delivery of the placenta. Dark blood with clots. Sometimes bleeding is mild, yet prognosis is bad as in these cases blood accumulates inside an atonic uterus & this is diagnosed by abdominal examination.
- Assess the severity of bleeding (hemodynamic status)
- Abdominal: lax uterus with the fundus above the level of umbilicus. When pressing on the fundus gushing of huge amounts of blood clots occurs.
- Examination Under Anesthesia: to exclude traumatic PPH or retained parts of placenta
- Screen for coagulation failure

### Treatment

- requires a multidisciplinary approach that involves:
  1. Blood loss estimation and assessment of hemodynamic status.
  2. O.R.D.E.R.
- Level 1: medical interventions
  1. Uterine massage
  2. Bimanual compression for 20-30 min.
  3. Ensure bladder is empty (Foley catheter, leave in place).
  4. Syntocinon 5 units by slow intravenous injection (may have repeat dose).
  5. Ergometrine 0.5 mg by slow intravenous or intramuscular injection.
  6. Syntocinon infusion (40 units in 500ml Hartmann's solution at 125ml/hour).
  7. Carboprost (PGF2 $\alpha$ ) 0.25 mg IM repeated at intervals of not less than 15 minutes to a maximum of 8 doses (contraindicated in women with asthma).
  8. Misoprostol 1000 micrograms rectally.
  9. Recombinant activated factor VII: very few cases of massive PPH. Therefore this agent cannot be recommended as part of routine practice.
- Level 2: Uterine balloon tamponade can be an effective intervention to temporarily control atonic PPH that has not responded to medical therapy.
- Level 3: Intractable PPH.
  1. bilateral ligation of uterine arteries
  2. bilateral ligation of internal iliac (hypogastric) arteries
  3. brace (lynch) suturing (such as using procedures described by B-Lynch or modified compression sutures)
  4. Selective arterial embolization.
  5. Hysterectomy
- Consider ICU