BELIEVE MIDWIFERY SERVICES

TITLE: MANAGEMENT OF THIRD AND FOURTH STAGE OF LABOR, INCLUDING HEMORRHAGE AND RETAINED PLACENTA

EFFECTIVE DATE: November, 2012

POLICY STATEMENT:
“The reality is that postpartum hemorrhage requiring transport is extremely rare. The incident reported is 0.2 to 1 percent” (Varney, 2004, p 952). In research that examines out-of-hospital birth with a comparison low-risk group birthing in the hospital, there is a greater incidence of postpartum hemorrhage in the hospital group. With advanced planning, immediate PPH is a complication that can usually be well managed in the home. Evaluation and management of bleeding in the home is identical to hospital practice (e.g., digital compression and/or repair of lacerations, vaginal exploration, and assessment and treatment of atony). If there is inadequate response to therapy, emergency medical service is contacted for transport for hospital care. However, transport is not always indicated following stabilization.

BLOOD BORNE PATHOGEN EXPOSURE CATEGORY: I (Involves exposure to blood, body fluids, or tissues)

FUNCTION: Care of Clients

POINTS OF EMPHASIS:
Postpartum hemorrhage - The long-held and widely accepted definition of postpartum hemorrhage in obstetrics is a loss of 500 milliliters of blood or more. Note that the amount of blood loss specified in this definition of hemorrhage is the same as the average blood loss in vaginal delivery by an obstetrician; this is attributable to the fact that the clinical estimation of blood loss is underestimated by 30 to 50 percent. The 500-mL limit is arbitrary to a degree, and should, at the very least, be regarded as a potential warning sign, even though blood loss of up to 1,000 mL in healthy women may still be considered physiologic and non-life-threatening.

Risk factors for postpartum hemorrhage include: over distended uterus (multiples, polyhydramnios, macrosomia), oxytocin induction or augmentation, rapid/precipitous labor or delivery, prolonged first or second stage, grand multiparous, history of uterine atony or postpartum hemorrhage with previous births, and use of uterine relaxing agents such as MgSO4 and terbutaline.

Mousa & Alfirevic (2002) contradict the traditionally considered risk factor of multiparity. They quote, “high multiparity does not appear to be a factor, either in high or low income countries, even after control for maternal ages (Stones, 1993; TSu, 1993; Drive, 1997).” These authors also site additional risk factors not mentioned in Varney, first pregnancy (Gilbert, 1987 & Hall, 1985), maternal obesity (Aisaka, 1988), and antepartum hemorrhage.

Third Stage Hemorrhage - is due to partial separation of the placenta, most often caused by uterine massage prior to placental separation. Partial separation may occur naturally, which is quickly resolved with complete separation.

A surge of oxytocin is needed to separate the placenta and cause the empty uterus to contract. Uninterrupted skin-to-skin and suckling are known to promote this and it is plausible that maternal and infant eye-to-eye contact encourage maximum oxytocin release.

The cord should be left intact, or if the mother requests cutting of the cord (or the cord is too short to permit skin-to-skin contact), the maternal end should be left unclamped to increase compaction of the placenta and reduce possible retention. Free drainage of placenta blood enables compaction of the placenta and promotes effective uterine muscle contraction and retraction. Lucas (2006) further maintains that it also reduces retroplacental blood loss and reduces the risk of partial separation and iso-immunization (Fry, 2007).
Should there be a time limit on a physiological third stage? Physiology, particularly with respect to individuality, has no restraint to time. When questioning how long is too long, one needs to observe the woman and her baby as the only important elements of consideration. If, however, the time limit of one hour is exceeded, which is the usual limit of most hospital guidelines, this leads to the next frequently posed dilemma: What actions can be taken to remedy any exceeded limit? The first step is to confirm whether or not separation of the placenta has actually occurred. Emptying the bladder may assist in birthing the placenta or having mom blow into a bottle or closed fist to increase her intra-abdominal pressure. Midwives often will abandon physiological third stage support after an hour and proceed with active management (administering uterotonic drug and performing controlled cord traction), although studies have demonstrated an increase in postpartum hemorrhage with mixed management (Fry, 2007).

Immediate Fourth Stage Hemorrhage – uterine atony from any number of predisposing factors or from incomplete delivery of placenta. This stage poses greater blood loss and morbidity and is more common than late postpartum hemorrhage.

In addition to the above risks, cervical lacerations, extensive lacerations of the vagina and perineum, lacerations of the LUS or uterine rupture are also causes, as well as placenta previa, abruption, cesarean section, deep and prolonged inhalation of anesthesia, operative procedures, and prolonged retention of fetal demise.

Retained Placenta – When a retained placenta occurs, an alternative treatment to manual removal could be of great value to birth attendants. Several studies have explored the administration of oxytocin via the intraumbilical vein for placenta retained beyond 15 minutes and have demonstrated spontaneous expulsion after administration. This intervention may decrease the need to call the consultant and/or decrease the woman’s risk of infection associated with manual removal. It is important to note that none of the data found a decrease in postpartum hemorrhage or estimated blood loss with the use of intraumbilical uterotonins (Brucker, 2001).

Misoprostol use in low-resource settings, for Reducing Postpartum Hemorrhage – A RCT trial conducted in Indian demonstrated that women who took oral misoprostol after delivery were significantly less likely than those who took a placebo to develop acute or acute severe postpartum hemorrhage; in addition, their volume of postpartum blood loss was lower. Furthermore, those that took misoprostol were significantly less likely to require transfer to a higher-level facility (0.5% vs 1.5%), a blood transfusion (0.1% vs 0.9%) or surgical intervention (0.1% vs 1.0%). Transient shivering and fever were more common among women taking misoprostol than among those taking placebo, but there were no differences in the proportions experiencing nausea, vomiting or diarrhea. Overall, the researchers say, this trial “demonstrated that oral misoprostol is safe, effective, and inexpensive ($1.00 per 600 mcg dose) for women giving birth in low-resource settings” (Derman, 2006).

Authors Mathai, Gulmezoglu & Hill (2007) recommend misoprostol as well, stating, “Injectable oxytocin has been recommended for routine use in the active management of the third stage of labour; however, a safe injection requires skills and sterile equipment. Oxytocin may be inactivated if exposed to high ambient temperatures. In contrast, misoprostol, a prostaglandin analogue with uterotonic effects, is reportedly more stable than oxytocin and has been administered by oral, sublingual and rectal routes in several studies. Misoprostol use for prevention of PPH has been approved or including in national guidelines in some countries. Suggestions have been made to provide misoprostol tablets where oxytocin in not available to non-skilled providers and to women themselves to prevent PPH (p 322).”

Our practice points out this evidence simply due to stability of oxytocin at various temperatures sure to be faced in the Midwest as Nurse Midwives travel to client’s homes. Oxytocin is relatively stable at temperatures below 30 degrees C. Because our Nurse Midwives so infrequently administer oxytocin, our supply is frequently exposed to variances in environmental exposures (not readily used up). Of note, “There is currently insufficient evidence for the safe use of misoprostol by lay providers in non-facility settings.”

Fever and Chills following Misoprostol Use - The most commonly reported side effect of misoprostol is shivering, which is commonly followed by an increase in body temperature. These side effects are not severe, are transient (resolving within 12 hours of less), and have not been associated with any lasting effect on health. However, upon transfer it may prompt assessment for endometritis or fever of uncertain origin and unnecessary antibiotics for the mother or neonate.
The Elanti and Weeks (2012) study demonstrated the highest rate of side effects with sublingual route of administration (15%) followed by oral (11.4%) and the rectal route (4%). In this particular study, the rates of fever over 39 degrees Celsius in sublingual doses of 200, 400, and 600 micrograms were 8.3%, 8.3%, and 45.4%, respectively. These data all support the notion that there is both a dosage and route effect on the incidence of fever and this might be explained by differences in pharmacokinetics.

Sublingual routes achieve a higher peak concentration compared with the other routes of administration as a result of its rapid absorption through the sublingual mucosa and the avoidance of the first-pass metabolism through the liver. Misoprostol fever has a typical pattern: it is usually preceded by shivering, has an onset at less than 20 minutes postpartum, peaks at 102 hours, and spontaneously declines over 3 hours.

Late Postpartum Hemorrhage – after the first 24 hours postpartum. Subinvolution of the placental site, retained placental fragments or membranes, previously undiagnosed reproductive tract laceration, and hematoma are all common causes. Mild cases can be managed with oral administration of Methylergonovine 0.2 mg PO every 4 hours for 6 doses, increased frequency of breastfeeding, and rest. Education concerning fundal massage and assessment of the amount of bleeding should be offered.

Increased bleeding in association with a firm fundus suggests bleeding from a laceration or hematoma and requires close inspection of the perineum, vagina, and cervix. Risk factors for hematoma formation include instrument...
delivery and ineffective hemostasis with laceration or episiotomy repair. Occasionally bleeding can be secondary to inadvertent damage to a vessel during administration of local or pudendal anesthesia. The classic sign for hematoma is severe pain out of proportion to the expected level of pain following birth.

When the blood loss is associated with signs of shock, hematocrit less than 20%, or uterine atony not responsive to methlergonovine, immediate medical transfer is indicated. Hospitalization for intravenous hydration, blood replacement, and suction curettage may be necessary.

Postpartum hemorrhage 2 to 5 days after birth is often related to Von Willibrand’s disease.

*Hematocrit/Hemoglobin* - A hematocrit of less than 30 percent or a hemoglobin of less than 10g/dL may predispose a woman to anemia symptomatology, and antepartal transfer to hospital-based care may be considered.

If the hematocrit in the first day or two postpartum is lower by two or more percentage points than the hematocrit done upon entry into labor, there has been a significant blood loss. Two percentage points is roughly the equivalent of a unit (500 mL) of blood loss.

**Alternative or Complementary Therapies** – Herbal therapies must be considered drug therapies, and studies are needed to explore the efficacy of use of these agents. However, a long history exists of midwives using herbs for pregnancy and birth issues. The Nurse Midwife must administer with discretion to her understanding and experience of herbal therapy with respect to the resources available to her in each circumstance presented.

**EQUIPMENT:**
1. Syringe
2. Alcohol
3. Appropriate Rx

**PROCEDURE:**
*Active versus Expectant Management of Third Stage*

There are two contrasting approaches to the clinical management of the third stage of labor: active and expectant (sometimes referred to as physiological or passive) management.

1. Expectant management is a non-interventionist approach, which involves waiting for signs of placental separation, delaying cutting and clamping of the umbilical cord until the cord stops pulsating, and allowing the placenta to deliver spontaneously or aided by gravity, maternal effort, nipple stimulation, and/or encouragement of infant suckling. This strategy allows the physiologic changes within the uterus that occur at the time of birth to take their natural course with minimal intervention. If uterine contractions are sustained, maternal effort will usually bring about expulsion of the placenta. If the mother adopts a position aided by gravity, this can also assist expulsion of the placenta. Early attachment of the infant to the breast may enhance these physiologic changes by stimulating the reflex release of oxytocin from the pituitary gland.

2. In contrast, active management involves the clinical intervening in the process through three interrelated but independent processes:
   a. the administration of a prophylactic uterotonic (oxytocic) drug soon after birth of the baby;
   b. cutting and clamping the cord shortly after birth of the infant; and
   c. controlled traction of the umbilical cord, followed by uterine massage.

In an active management strategy, the umbilical cord is usually clamped shortly following birth of the infant. Once the placenta is assessed as having separated from the wall of the uterus, controlled cord traction is applied. It is believed to reduce blood loss, shorten the third stage of labor, and therefore minimize the time during which the mother is at risk from hemorrhage.

3. A review of the available published research was undertaken in the 1980s and the authors concluded that there was insufficient trial data of adequate methodologic quality to provide conclusive evidence about which management strategy was best. The Cochrane Database concluded in 2004, that active management was more effective in reducing the incidence of PPH and reducing the incidence of prolonged third stage of labor when compared to expectant management. It is however, associated with transient nausea, vomiting, and elevation of the blood pressure.
Bimanual uterine compression is performed by applying external pressure to the uterine fundus with one hand and internal lower uterine pressure with the other hand to compress the uterus. Its only requirements are gloves to protect the birth attendant and knowledge of how to perform the technique.

Bimanual compression is designed to be performed by a single clinician. Practice guidelines recommend that compression be maintained for 5 to 10 minutes, with some estimates suggesting that 30 to 60 minutes of sustained compression may be necessary to arrest bleeding. Simulators have recently revealed that while such technique is effective in managing postpartum hemorrhage, it is hard for a single clinician to maintain such maneuver as long as necessary without becoming fatigued. In fact, using the simulator, not one person was able to apply appropriate pressure individually (Andreatta, Perosky & Johnson, 2012), but all teams could apply appropriate pressure without fatiguing for a minimum of five minutes. Therefore, it is now suggested that the clinician use one hand to apply pressure internally, and an assistant use both hands to apply pressure externally.

4. The Nurse Midwife is highly encouraged, when considering which third stage management plan s/he feels is most appropriate, to consider the known benefit of delayed cord clamping, particularly in the homebirth scenario.

**Suggested Management of Fourth Stage Hemorrhage**

1. Check the consistency of the uterus. This step is first, since 80 to 90 percent of immediate postpartum hemorrhage is due to uterine atony.
2. If the uterus is atonic, massage it in order to stimulate contraction so that the bleeding vessels at the placental site will be ligated.
3. If the uterus fails to contract well *immediately* with massage:
   a. perform bimanual compression. In addition to stimulating contraction of the uterus, which ligates blood vessels at the placental site, bimanual compression places continuous pressure on the uterine veins and on the lower uterine segment, which may be another site of bleeding.
   b. Simultaneously order the administration of oxytocic drugs or additional oxytocic drugs.
   c. Place 18-gauge IV and reassure its patency.
4. Examine the placenta, or have it examined, to ascertain if any placental fragments or cotyledons were retained and to determine if a uterine exploration needs to be done.
5. If placental fragments of cotyledons are missing, do a uterine exploration.
   a. The uterus needs to be completely empty in order to contract effectively.
6. If the uterus is empty and well contracted but bleeding continues, examine the woman for cervical, vaginal, and perineal lacerations since these may be the cause of the hemorrhage. Tie off the bleeders that are the source of hemorrhage and repair any lacerations.
If the woman is developing shock, place her in Trendelenburg, cover with warm blankets, administer oxygen, and call 911 for transportation to the nearest hospital.

In extreme cases and thin women, the aortic can be compressed by compressing the abdomen against the spine.

The Nurse Midwife will determine best management for fourth stage hemorrhage whether she explores the uterus, offers bimanual compression, or expresses uterus for placenta or membrane fragments. The Nurse Midwife will then use her discretion to manage bleeding with herbal therapy or pharmaceutical agents based on her assessment, experience, and resources. Certified Nurse Midwives practicing in the state of Indiana require a signed collaboration with a physician for prescription privileges and/or administer per protocol or a signed prescription allowing for the use of emergency drugs.

Following hemorrhage and/or uterine exploration the Nurse Midwife may determine necessary the:
1. Administration of IM Pitocin 10 units
2. Initiation of an intravenous volume expander with added oxytocin 20 to 40 units/1000cc
3. Cytotec PO/PR 400mcg to 800mcg
4. Hemabate IM
5. Metherine 0.2 mg po every 4 hours x 2-3 days
6. Administration of Ampicillin 2 grams IV x 1 or Q 6 hours x 2 doses
7. Administration of Ampicillin 500 mg po TID x 10 days
8. Erythromycin 500 mg po QID x 10 days
9. Metherine 0.2 mg by mouth, every four hours for six doses - significant uterine atony after giving birth, to decrease the risk of delayed postpartum hemorrhage. It may also be prescribed based on multiparity, over distention of the uterus as with a macrosomic infant or polyhydramnios, persistent relaxation of the uterus in the early postpartum period, or a concern about retained membranes or placental fragments.

Transport in the case of moderate PPH is not always required. Sometimes, the midwife will summon emergency personnel but the hemorrhage will have responded to therapy before their arrival. In this case, the midwife and family will determine advisability of transport dependent on the current maternal status and prognosis. If the uterus is well contracted, the sources of bleeding have been addressed, the infant is nursing well, the vital signs are stable, and the mother is able to engage in self-care without syncope, she may remain on bed rest at home. To assure stability, the midwife usually remains in the home for several hours more than usual. Prophylactic infusion of one or two liters of intravenous fluid and/or a prescription for a postpartum oral oxytocic agent may be provided, especially in the context of homebirth and the absence of continuous nursing care.

Management of Postpartum Fever with Suspected Relationship to Misoprostol Administration
1. The midwife might consider the PR route of administration to prevent adverse effects of increased shivering and temperature.
2. When misoprostol is administered, an antipyretic should also be administered prophylactically.
3. Believe Midwifery Services recommends that fever after peripartum misoprostol administration only be monitored; investigations and treatment should only be started if the fever persists beyond three hours postpartum.

REFERENCES


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