

## **Understanding Postpartum Hemorrhage: Complications and Recent Developments**

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### **Introduction:**

Childbirth is a miraculous event, but it can also pose significant risks to both the mother and the newborn. Among the complications that can occur during childbirth, postpartum hemorrhage (PPH) stands out as a potentially life-threatening condition. PPH is defined as excessive bleeding, typically exceeding 500 ml after vaginal delivery or 1000 ml after cesarean section, within 24 hours of childbirth. Despite advances in medical care, PPH remains a leading cause of maternal mortality worldwide. In this article, we delve into the complexities of PPH, its complications, and recent developments in its management and prevention.

### **Understanding Postpartum Hemorrhage:**

Postpartum hemorrhage can be classified as primary or secondary. Primary PPH occurs within the first 24 hours after childbirth, while secondary PPH occurs between 24 hours and 6 weeks postpartum. The causes of PPH are multifactorial and may include uterine atony, genital tract trauma, retained placental tissue, coagulopathy, and uterine inversion.

Uterine atony, where the uterus fails to contract adequately after delivery, is the most common cause of PPH, accounting for approximately 70-80% of cases. Other causes such as genital tract trauma, including lacerations or uterine rupture, account for the remaining cases.

### **Complications of Postpartum Hemorrhage:**

PPH can lead to various complications, ranging from mild to life-threatening. Some of the common complications include:

1. **Hypovolemic Shock:** Excessive blood loss can lead to hypovolemic shock, a condition where the body's vital organs do not receive enough oxygen and nutrients due to insufficient blood volume. This can result in organ failure and even death if not promptly treated.

2. Anemia: Prolonged or severe bleeding can lead to anemia, characterized by a low red blood cell count. Anemia can cause fatigue, weakness, shortness of breath, and other symptoms that can significantly impact the mother's quality of life.
3. Disseminated Intravascular Coagulation (DIC): In severe cases of PPH, the body's normal blood clotting mechanisms may become dysregulated, leading to DIC. DIC is a serious condition characterized by widespread clotting within the blood vessels, leading to excessive bleeding and organ damage.
4. Infection: PPH can increase the risk of infection, particularly if there is retained placental tissue or genital tract trauma. Infections can lead to sepsis, a life-threatening condition characterized by systemic inflammation and organ dysfunction.

#### Recent Developments in the Management and Prevention of PPH:

Advances in medical science have led to significant improvements in the management and prevention of PPH. Some of the recent developments include:

1. Uterine Balloon Tamponade: Uterine balloon tamponade involves inserting a balloon catheter into the uterus and inflating it to apply pressure and control bleeding. This technique has been shown to be effective in managing PPH, particularly in cases of uterine atony.
2. Tranexamic Acid (TXA): TXA is an antifibrinolytic agent that helps prevent the breakdown of blood clots. Administering TXA during childbirth has been found to reduce blood loss and the need for additional interventions in women at risk of PPH.
3. Oxytocin Alternatives: Oxytocin is commonly used to induce uterine contractions and prevent PPH. However, recent research has explored alternative uterotonic agents, such as carbetocin and misoprostol, which may be more effective in certain settings or populations.
4. Risk Stratification Tools: Identifying women at high risk of PPH can help healthcare providers implement preventive measures and intervene promptly when necessary. Several risk stratification tools, including the Maternal Early Warning Criteria (MEWC), have been developed to aid in the early detection and management of PPH.

Conclusion:

Postpartum hemorrhage remains a significant concern in obstetric care, with the potential for serious complications and maternal mortality. Understanding the causes, complications, and recent developments in the management and prevention of PPH is crucial for improving outcomes for mothers and their newborns. By implementing evidence-based interventions and advancements in medical technology, healthcare providers can effectively manage PPH and reduce its impact on maternal health. Continued research and innovation in this field are essential to further enhance our ability to prevent and treat this life-threatening condition.

## Reference

1. Making pregnancy safer. Geneva: World Health Organization, 2007. ([https://www.who.int/maternal\\_child\\_adolescent/documents/newsletter/mps\\_newsletter\\_issue4.pdf](https://www.who.int/maternal_child_adolescent/documents/newsletter/mps_newsletter_issue4.pdf)).
2. Say L, Chou D, Gemmill A, et al. Global causes of maternal death: a WHO systematic analysis. *Lancet Glob Health* 2014;2(6):e323–e333
3. Centers for Disease Control and Prevention. Pregnancy Mortality Surveillance System. Trends in pregnancy-related mortality in the United States: 1987-2017 (graph) (<https://www.cdc.gov/reproductivehealth/maternal-mortality/pregnancy-mortality-surveillance-system.htm>).
4. Borovac-Pinheiro A, Pacagnella RC, Cecatti JG, et al. Postpartum hemorrhage: new insights for definition and diagnosis. *Am J Obstet Gynecol* 2018;219:162–8. [
5. Centers for Disease Control and Prevention. Postpartum hemorrhage, 1993-2014 (graph) (<https://www.cdc.gov/reproductivehealth/maternalinfanthealth/pregnancy-complications-data.htm#post>).
6. Meher S How should we diagnose and assess the severity of PPH in clinical trials? *Best Pract Res Clin Obstet Gynaecol* 2019;61:41–54.
7. Quantitative blood loss in obstetric hemorrhage: ACOG committee opinion, number 794. *Obstet Gynecol* 2019;134(6):e150–e156.
8. Dahlke JD, Mendez-Figueroa H, Maggio L, et al. Prevention and management of postpartum hemorrhage: a comparison of 4 national guidelines. *Am J Obstet Gynecol* 2015;213(1):76.e1–76.e10.

9. Dobiesz VA, Robinson DW. Trauma in pregnancy. In: Walls RM, Hockberger R, Gausche-Hill M, eds. Rosen's emergency medicine: concepts and clinical practice. 9th ed. Philadelphia: Elsevier, 2017:2314–22
10. Committee on Practice Bulletins-Obstetrics. Practice bulletin no. 183: postpartum hemorrhage. Obstet Gynecol 2017;130(4):e168–e186
11. Pacagnella RC, Souza JP, Durocher J, et al. A systematic review of the relationship between blood loss and clinical signs. PLoS One 2013;8(3):e57594
12. Prevention and management of postpartum haemorrhage: Green-top Guideline no. 52. BJOG 2017;124(5):e106–e149.
13. Cho HY, Na S, Kim MD, et al. Implementation of a multidisciplinary clinical pathway for the management of postpartum hemorrhage: a retrospective study. Int J Qual Health Care 2015;27:459–65
14. Bose P, Regan F, Paterson-Brown S. Improving the accuracy of estimated blood loss at obstetric haemorrhage using clinical reconstructions. BJOG 2006;113:919–24
15. Diaz V, Abalos E, Carroli G. Methods for blood loss estimation after vaginal birth. Cochrane Database Syst Rev 2018;9:CD010980.
16. Gerdessen L, Meybohm P, Choorapoikayil S, et al. Comparison of common perioperative blood loss estimation techniques: a systematic review and meta-analysis. J Clin Monit Comput 2020. August 19 (Epub ahead of print).
17. Alderson P, Schierhout G, Roberts I, Bunn F. Colloids versus crystalloids for fluid resuscitation in critically ill patients. Cochrane Database Syst Rev 2000;2:CD000567.
18. WHO guidelines for the management of postpartum haemorrhage and retained placenta. Geneva: World Health Organization, 2009.
19. Carlan SJ, Scott WT, Pollack R, Harris K. Appearance of the uterus by ultrasound immediately after placental delivery with pathologic correlation. J Clin Ultrasound 1997;25:301–8.
20. Porreco RP, Stettler RW. Surgical remedies for postpartum hemorrhage. Clin Obstet Gynecol 2010;53:182–95.