CODEN [USA]: IAJPBB ISSN : 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES
SJIF Impact Factor: 7.187

Available online at: http://www.iajps.com *Research Article*

OVERVIEW OF THE MANAGEMENT OF POSTPARTUM HEMORRHAGE

Rawan Saleh Husain[1], Nadia Abdullatif Aldossary[2], Talal Mohammed ALShammari[2], Hamidah Rudhi Alluwaif[1], ABEER MOHAMMED AL MUSLAB[1], Nesreen Mohammad Hassan ALOsaief[1], Fatimah Abdullah Alzouri[1], Zainab Ibraheem Al Fadhel[1], Zahra Ali AL Obaid[1], Naeemah Hussain Al Qanbar[1], Razan abdulaziz alsumait[1], Maram Nasser Al Therwi[1], Aateka Hassan Alaali[1], Zainab Qassim Alhassan[1], Montaha Neama AL Dawoud[3]

[1] Immam Abdulrahman Bin Faisel Hospital - National Guard – Dammam – Saudi Arabia
[2] Primary health care National Guard – Dammam – Saudi Arabia
[3] King Abdulaziz National Guard Hospital - Al Ahsa – Saudi Arabia

Article Received: August 2022 **Accepted:** August 2022 **Published: September** 2022

Abstract:

Background: *Postpartum hemorrhage (PPH) is a significant cause of maternal morbidity and mortality worldwide, necessitating a range of treatment options to manage this obstetric emergency effectively. Current treatment strategies for PPH include pharmacological interventions, mechanical and surgical techniques, and interventional radiology. Each approach has its own benefits and potential complications, which are crucial for healthcare providers to consider when managing PPH.*

Methods: *a comprehensive review of postpartum hemorrhage. The PUBMED and Google Scholar search engines were the main databases used for the search process, with articles collected up to 2021. This thorough review ensures that the information presented is reliable and up-to-date.*

Conclusion: *PPH represents a critical contributor to maternal morbidity and mortality globally, with various intrapartum risk factors influencing its incidence. A comprehensive understanding of these risk factors, alongside socio-economic determinants, is imperative for formulating effective prevention and management strategies, particularly in resource-limited settings. Furthermore, integrating precise monitoring techniques and evidence-based treatment modalities is essential for improving PPH outcomes, necessitating a multidisciplinary approach within clinical environments.*

Keywords: *Postpartum Hemorrhage – Pharmacological Management – Surgical Interventions*

Corresponding author:
Rawan Saleh Husain,
Immam Abdulrahman Bin Faisel Hospital
- National Guard – Dammam – Saudi Arabia

QR code

Please cite this article in *Rawan Saleh Husain* ***et al,*** **Overview Of The Management Of Postpartum Hemorrhage ,** ***Indo Am. J. P. Sci, 2022; 09(9).***

INTRODUCTION:

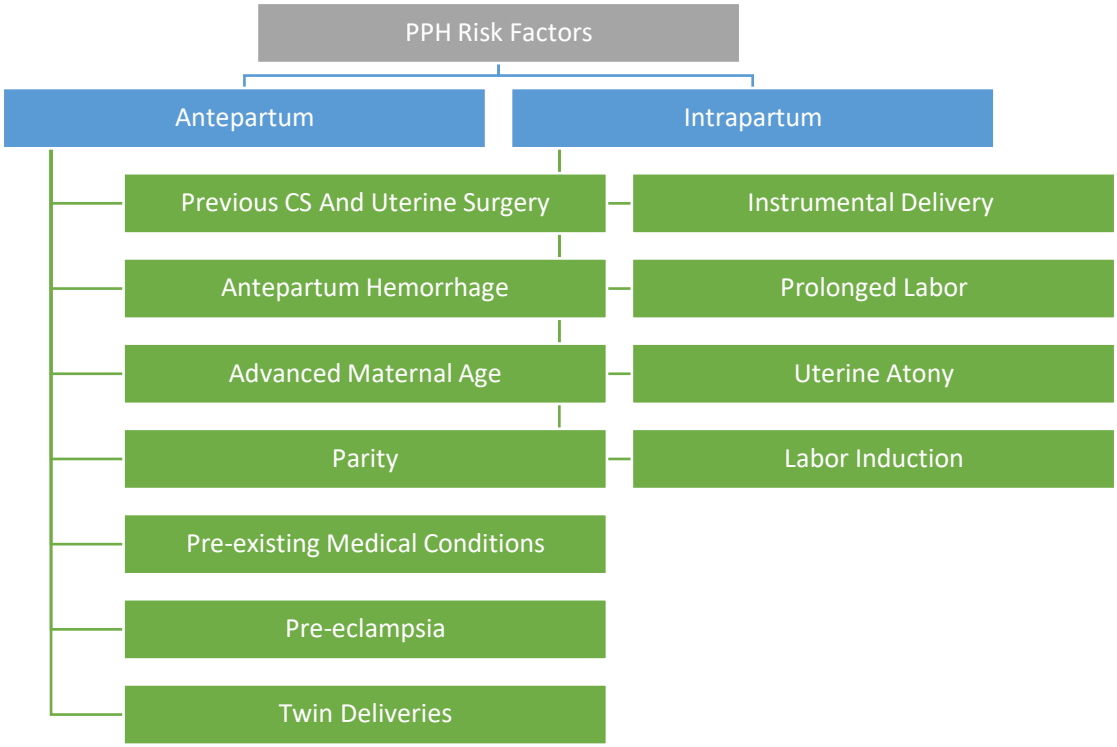
Postpartum hemorrhage (PPH) is a critical obstetric emergency and a leading cause of maternal mortality worldwide. Effective management of PPH involves a combination of early detection, pharmacological interventions, mechanical methods, and surgical procedures. The treatment options vary depending on the severity and underlying cause of the hemorrhage, and each comes with its own set of potential complications. This response will explore PPH's current treatment options and associated complications, drawing insights from the provided research papers. (1) Physiologically, PPH can be indicated by blood loss exceeding 500 mL after vaginal delivery or 1000 mL after cesarean section. Clinical signs such as cardiovascular changes and the shock index (heart rate divided by systolic blood pressure) are recommended for more accurate diagnosis. (2) While the identification of risk factors is crucial for managing PPH, it is important to note that a significant proportion of PPH cases occur without known risk factors. Placental complications, including placenta previa, placental abruption, and placenta accreta spectrum, are significant risk factors for severe PPH. These conditions can lead to abnormal placental attachment and separation, increasing the risk of excessive bleeding. (3)

PPH Risk Factors:

Postpartum hemorrhage (PPH) is a significant cause of maternal morbidity and mortality worldwide, with various antepartum and intrapartum risk factors contributing to its occurrence. Understanding these risk factors is crucial for effective prevention and management strategies. Women with a history of cesarean section or uterine surgery are at increased risk for PPH. This is due to potential uterine scarring, which can affect uterine contractility and placental attachment. (4) Advanced maternal age can be linked to higher incidences of placental complications, and primiparity is associated with longer labor durations, which can increase bleeding risk. (5) Pre-existing medical conditions such as hypertension, diabetes, and anemia during pregnancy are associated with higher odds of PPH due to the inability of the body to manage blood loss effectively. (6) Furthermore, pre-eclampsia, with an OR of 2.75, is another risk factor that can lead to adverse outcomes during and after delivery. The presence of twins during delivery is another risk factor, with an OR of 3.25, which can complicate the delivery process and increase the risk of PPH. (7)

One of the most critical intrapartum risk factors is prolonged active labor, particularly when it exceeds 10 hours, which has an odds ratio (OR) of 46.92, indicating a very high risk for developing PPH. Additionally, the use of instrumental delivery methods, such as forceps or vacuum extraction, is associated with an OR of 8.62, marking it as a notable risk factor. Similarly, cesarean sections also present a significant risk, with an OR of 9.74. These delivery methods can contribute to complications that may lead to excessive bleeding postpartum. (7) Another important factor is uterine atony, which is identified as a major risk factor for PPH, with a relative risk of 13.30. (8) Uterine atony occurs when the uterus fails to contract effectively after delivery, leading to increased blood loss. This condition is often exacerbated by other factors, such as grand multiparity, which has an OR of 3.4, indicating that women with multiple previous pregnancies are at a higher risk of experiencing PPH. (7) The use of labor induction and augmentation techniques, such as oxytocin infusions, has been linked to increased PPH risk. These interventions can lead to uterine hyperstimulation and subsequent uterine atony, a leading cause of PPH. (9) One of the primary causes of secondary PPH is retained placental tissue. When fragments of the placenta remain in the uterus, they can hinder effective uterine contractions, leading to uterine atony and subsequent bleeding. Prolonged labor, which can increase the likelihood of retained tissues, often exacerbates this condition. (10)

Figure (1): Risk factors for postpartum hemorrhage



Clinical Presentation and Diagnosis

The clinical presentation of PPH can be categorized into primary and secondary types. Primary PPH is defined as the loss of 500 ml or more of blood from the genital tract within the first 24 hours after delivery. This definition, however, has limitations, as it often underestimates actual blood loss due to variability in clinical practice and the subjective nature of visual estimations. (11, 12) The most common causes of PPH include uterine atony, retained placenta, and lower genital tract lacerations. Uterine atony accounts for over 90% of PPH cases, making its recognition essential for timely intervention. (11) When the uterus is firm, lower genital tract lacerations and retained placental products become the primary concerns. Effective management of PPH requires prompt recognition of ongoing bleeding, which can be facilitated by careful monitoring of the mother's vital signs and laboratory tests, particularly coagulation assessments. (12) Accurate estimation of blood loss is crucial for diagnosing PPH. Traditional methods, such as visual estimation, are notoriously inaccurate and often lead to significant underreporting of blood loss. In contrast, the use of calibrated bags for blood loss estimation has been shown to provide a more reliable measurement, allowing for timely diagnosis and intervention. This is particularly important as definitions based on symptoms of hemodynamic instability are problematic, as they often represent late signs of significant blood volume depletion.

Secondary postpartum hemorrhage (PPH) is excessive bleeding occurring after childbirth, typically within the first six weeks postpartum. A notable case involved a 33-year-old woman who experienced secondary PPH due to the rupture of a uterine artery pseudoaneurysm, highlighting the importance of identifying underlying causes in cases of unexplained bleeding. The diagnosis of uterine artery pseudoaneurysm was confirmed through color Doppler ultrasonography, which revealed an anechoic mass with turbulent flow in the lower uterine segment. This imaging technique is crucial for diagnosing vascular complications that may lead to secondary PPH. In this case, the patient's bleeding was further complicated by an underlying bleeding disorder, specifically von Willebrand disease, as indicated by decreased levels of von Willebrand factor and factor VIII. This underscores the necessity of a high index of suspicion for bleeding disorders in patients presenting with secondary PPH, particularly when the cause is not immediately apparent. Management strategies for secondary PPH can vary based on the severity and

underlying causes. In the reported case, the patient was successfully treated with selective uterine arterial embolization, a minimally invasive procedure that effectively controls bleeding. (13) Other management options for severe secondary PPH include the use of uterotonic agents to stimulate uterine contractions, surgical evacuation of the uterus to remove retained products of conception, and the insertion of an intra-uterine balloon catheter to control bleeding. (14) These interventions aim to stabilize the patient and prevent the need for more invasive surgical procedures, such as total abdominal hysterectomy, which may be necessary in more severe cases.

Management of Postpartum Hemorrhage

Effective management of PPH is critical to prevent maternal morbidity and mortality, and it involves a multifaceted approach that includes rapid correction of hypovolemia, pharmacological interventions, and surgical options when necessary. (15, 16) One of the first-line treatments for PPH is the administration of uterotonics, such as oxytocin, which promotes uterine contractions to control bleeding. The prompt recognition of ongoing bleeding, combined with uterine massage and oxytocin administration, is essential for effective management. In cases where uterotonics are insufficient, additional medications like Tranexamic Acid (TXA) can be utilized. TXA is an antifibrinolytic agent that has been shown to significantly reduce bleeding-related deaths when administered within three hours of delivery. (17, 18) Its ease of use and low cost make it a valuable addition to PPH management protocols. Fluid resuscitation is another critical component of PPH treatment, aimed at restoring blood volume in patients experiencing significant blood loss. This often involves the use of crystalloid solutions, such as normal saline or Lactated Ringer's solution, to manage hypovolemic shock effectively. (19, 20) The rapid correction of hypovolemia is vital, as it addresses the immediate loss of blood volume and helps stabilize the patient. In addition to these interventions, the diagnosis and treatment of defective coagulation are crucial, as underlying coagulation disorders can exacerbate bleeding. Identifying and managing these disorders ensures that the treatment of PPH is comprehensive and effective.(21) Despite these treatment options, complications can arise. For instance, if PPH is not managed promptly, it can lead to severe hypovolemic shock, which is life-threatening and requires immediate medical intervention. Furthermore, if conservative measures fail, surgical interventions, including hysterectomy, may be necessary, although this is considered a last resort due to the associated risks and complications. (22)

CONCLUSION:

PPH represents a critical contributor to maternal morbidity and mortality globally, with various intrapartum risk factors influencing its incidence. A comprehensive understanding of these risk factors, alongside socio-economic determinants, is imperative for formulating effective prevention and management strategies, particularly in resource-limited settings. Furthermore, integrating precise monitoring techniques and evidence-based treatment modalities is essential for improving PPH outcomes, necessitating a multidisciplinary approach within clinical environments.

REFERENCES:

1. Kumar S, Gaiwal AS. Management of postpartum hemorrhage–Current strategies. Medknow; 2022. p. 263-7.
2. Borovac-Pinheiro A, Pacagnella R, Cecatti J, Miller S, El Ayadi A, Souza J, et al. Postpartum hemorrhage: new insights for definition and diagnosis. American journal of obstetrics and gynecology. 2018;219(2):162-8.
3. Liu C-n, Yu F-b, Xu Y-z, Li J-s, Guan Z-h, Sun M-n, et al. Prevalence and risk factors of severe postpartum hemorrhage: a retrospective cohort study. BMC pregnancy and childbirth. 2021;21(1):332.
4. Khalf DM, Mohmed HAE-A, Abdelwahab AH. Early Identification of Risk Factors for Primary Postpartum Hemorrhage at Admission. Minia Scientific Nursing Journal. 2020;8(1):90-5.
5. Durmaz A, Komurcu N. Relationship between maternal characteristics and postpartum hemorrhage: a meta-analysis study. LWW; 2018. p. 362-72.
6. Ruppel H, Liu VX, Gupta NR, Soltesz L, Escobar GJ. Validation of postpartum hemorrhage admission risk factor stratification in a large obstetrics population. American journal of perinatology. 2021;38(11):1192-200.
7. Shaheen B, Hassan L. Postpartum haemorrhage: a preventable cause of maternal mortality. Journal of the College of Physicians and Surgeons--pakistan: JCPSP. 2007;17(10):607-10.
8. Xiong Q, Zhang G, Chen H. Analysis of risk factors of postpartum hemorrhage in rural women. Zhonghua fu Chan ke za zhi. 1994;29(10):582-5, 635.

9. Davey MA, Flood M, Pollock W, Cullinane F, McDonald S. Risk factors for severe postpartum haemorrhage: A population-based retrospective cohort study. Australian and New Zealand Journal of Obstetrics and Gynaecology. 2020;60(4):522-32.
10. Bibi S, Danish N, Fawad A, Jamil M. An audit of primary post partum haemorrhage. Journal of Ayub Medical College Abbottabad. 2007;19(4):102-6.
11. Csorba R. Management of post partum haemorrhage. Orvosi hetilap. 2012;153(17):643-8.
12. Rath WH. Postpartum hemorrhage–update on problems of definitions and diagnosis. Acta obstetricia et gynecologica Scandinavica. 2011;90(5):421-8.
13. Shimizu M, Kondoh E, Ueda M, Kakui K, Tatsumi K, Konishi I. Secondary postpartum hemorrhage due to uterine artery pseudoaneurysm rupture in von Willebrand disease. Journal of Obstetrics and Gynaecology Research. 2011;37(12):1887-90.
14. Agrawal R, Legge F, Pollard K, Al-Inizi S. Massive secondary postpartum haemorrhage managed with insertion of a Bakri balloon catheter after surgical evacuation of the uterus. South African Journal of Obstetrics and Gynaecology. 2011;17(2):36-7.
15. Norris TC. Management of postpartum hemorrhage. American Family Physician. 1997;55(2):635-40.
16. Bischofberger A, Savoldelli GL, Irion O. Multidisciplinary management of post-partum hemorrhage: new strategies. Revue Medicale Suisse. 2011;7(281):334-9.
17. Alam A, Choi S. Prophylactic use of tranexamic acid for postpartum bleeding outcomes: a systematic review and meta-analysis of randomized controlled trials. Transfusion medicine reviews. 2015;29(4):231-41.
18. Sentilhes L, Daniel V, Darsonval A, Deruelle P, Vardon D, Perrotin F, et al. Study protocol. TRAAP-TRAnexamic Acid for Preventing postpartum hemorrhage after vaginal delivery: a multicenter randomized, double-blind, placebo-controlled trial. BMC pregnancy and childbirth. 2015;15:1-13.
19. Craig RL, Poole GV. Resuscitation in uncontrolled hemorrhage. The American surgeon. 1994;60(1):59-62.
20. Baxter CR, Canizaro PC, Carrico C, Shires GT. Fluid resuscitation of hemorrhagic shock. Postgraduate Medicine. 1970;48(3):95-9.
21. Ferrazzani S, Guariglia L, Draisci G, Sorrentino L, Stefano VD, D'Onofrio G, et al. Postpartum hemorrhage. Minerva Ginecologica. 2005;6:111-29.
22. Hackethal A, Tcharchian G, Ionesi-Pasacica J, Muenstedt K, Tinneberg H, Oehmke F. Uterine surgery in postpartum hemorrhage. Minerva ginecologica. 2009;61(3):201-13.