



## Primary postpartum hemorrhage: Incidence, risk factors, and outcomes in Al Sader teaching hospital

Kawakeb N Abdulla<sup>1</sup>, Anwar Ahmed Mohammed<sup>2</sup>, Hayder Adnan Fawzi<sup>3</sup>✉

<sup>1</sup>Iraqi National Cancer Research Center, University of Baghdad, Baghdad, Iraq

<sup>2</sup>Head of obstetrics and gynecology department, Fatima Al-Zahra hospital, Misan, Iraq

<sup>3</sup>Clinical Pharmacy department, Al-Esraa University College, Baghdad, Iraq

### ✉ Corresponding author

Clinical Pharmacy department, Al-Esraa University College, Baghdad, Iraq

Email: Hayder.adnan2010@gmail.com

### Article History

Received: 29 September 2019

Reviewed: 01/October/2019 to 13/November/2019

Accepted: 15 November 2019

Prepared: 17 November 2019

Published: January - February 2020

### Citation

Kawakeb N Abdulla, Anwar Ahmed Mohammed, Hayder Adnan Fawzi. Primary postpartum hemorrhage: Incidence, risk factors, and outcomes in Al Sader teaching hospital. *Medical Science*, 2020, 24(101), 360-364

### Publication License



This work is licensed under a Creative Commons Attribution 4.0 International License.

### General Note



Article is recommended to print as color digital version in recycled paper.

### ABSTRACT

*Objective:* evaluate the incidence, risk factors, causes and outcomes of primary postpartum hemorrhage (PPH). *Methods:* A prospective study carried out at Al Sader teaching hospital/maternity department. Data were obtained for women diagnosed with primary PPH during the period from September 2018 to April 2019. The demographic, clinical, and outcome data were registered.

**Results:** The study showed that the incidence of primary PPH was 1.2%. The main cause for this condition was uterine atony with rate of 57%. The main risk factor was a multiparous woman with rate of 86%. The main method of treatment was medical not surgical (80% vs 20%). **Conclusions:** Primary PPH incidence in Al Sader teaching hospital was low; the most identifiable risk factor for primary PPH was multiparity, history of previous PPH and presence of a medical disease. The most common cause of primary PPH was uterine atony.

**Keywords:** Primary postpartum hemorrhage, Cesarean section, Uterine atony

## 1. INTRODUCTION

Postpartum hemorrhage (PPH) is an excessive bleeding after childbirth. It is the leading cause of maternal mortality worldwide, but most of the deaths occur in low-income countries. Specifically, PPH is defined as blood loss of more than 500 ml after vaginal delivery or more than 1,000 ml after cesarean delivery. "Early or primary" PPH occurs within 24 hours after delivery, and "late or secondary" PPH occurs between 24 hours and 6 weeks after delivery. In most parts of the world, PPH accounts for 35–55% of maternal deaths. In rural regions and low-income countries, where access to quick medical attendance is limited, it is a major health concern. Even in industrialized countries, what may be considered a low-risk birth can rapidly deteriorate into hypovolemic shock and death through PPH, therefore, although it is considered a treatable obstetrical emergency, delayed treatment results in significant morbidity and mortality (Mathai *et al.*, 2007; Piro *et al.* 2018; Khan *et al.* 2019).

Clinically recognizing PPH is critical and requires skill and experience. It is usually agreed that objective evaluation and estimation of the amount of blood loss after labor is difficult, especially when bleeding is slow and continuous, or in the presence of concomitant intra-abdominal bleeding or concealed bleeding, as in the case of a hematoma in the retroperitoneum. The clinical signs of blood loss (decreased blood pressure, and increased heart rate) tend to appear late, when the quantity of blood loss reaches 1,500 ml, mainly due to the high blood volume of the pregnant state. Hence, practitioners generally underestimate the amount of blood loss surrounding labor and delivery. Therefore, a decreased hematocrit is considered a more precise description; a drop of 10% of the blood volume and the need for blood transfusion are considered signs of PPH (Hancock *et al.*, 2015).

It is known that any woman can experience PPH at any point without obvious risk factors. Several etiologies have been recognized. The leading cause of PPH is uterine atony which is the inability of the uterus to contract and this will lead to continuous bleeding. Retained placental tissue and infection may contribute to uterine atony (Lockhart, 2015). Trauma or injury to the birth canal which includes the uterus, cervix, vagina and the perineum which can happen even if the delivery is monitored properly. The bleeding is substantial as all these organs become more vascular during pregnancy. Retention of tissue from the placenta or fetus as well as placental abnormalities such as placenta accreta and percreta may lead to bleeding. The last cause of PPH is due to bleeding disorder. Other risk factors include obesity, fever during pregnancy, bleeding before delivery, and heart disease (Sheiner *et al.*, 2005).

In uterine atony, upon palpation, the uterus is "boggy" and lacks its original musculature. Although idiopathic atony can occur, there are several predisposing factors: lack of uterine perfusion; a large, distended uterus as might be present with a multifetal gestation, polyhydramnios, or fetal macrosomia; prolonged labor; rapid forceful labor; uterine inversion; chorioamnionitis. An overstimulated uterus due to induction of labor and prolonged use of oxytocin are also risk factors for PPH (Combs *et al.*, 1991). This study aims to document the incidence, risk factors, and causes of PPH and to document maternal outcome.

## 2. PATIENTS AND METHODS

A prospective study was carried out in Al Sader teaching hospital. Data were obtained from 100 labor ward patients who had a diagnosis of primary PPH after vaginal or cesarean delivery during the period from September 2018 to April 2019. The demographic data regarding (age, residency, and education), clinical and outcome data were registered which includes: parity, past obstetrical history of primary postpartum hemorrhage, medical disease, mode of delivery, the cause of PPH, management whether (medical or surgical), number of blood transfusion pints needed, status of the baby and gender, all were recorded. Simple statistical tests were used on absolute numbers to calculate percentages.

### Ethical approval

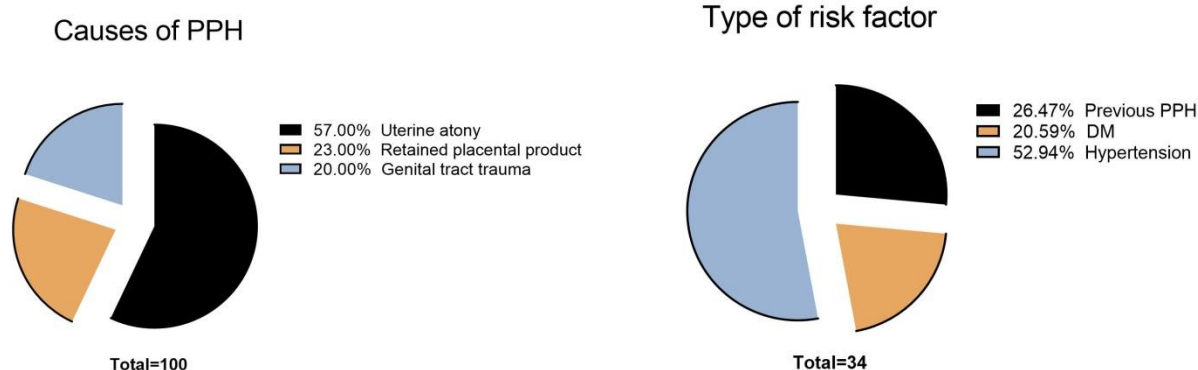
All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional research committee (Code: 2018/G0046) and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

### 3. RESULTS

The total numbers of deliveries during the study period were 8,240 cases, 6,400 women delivered vaginally and 1,840 women delivered by CS. The registered cases during the period of the study was 100 patient developed PPH. 74 (74%) women delivered vaginally and 26 (26%) women delivered by cesarean section, the incidence of PPH is 1.2%. The most common cause of PPH was uterine atony which was found in 57% of the patients, then retained placental product in 23% of patients and genital tract trauma in 20% patients. Risk factors were found in 34% of the studied group, while 66% have no risk factors, as illustrated in table 1 and figure 1.

**Table 1** assessment of outcome of PPH patients

| Variable                       | Value    |
|--------------------------------|----------|
| Number                         | 100      |
| Mode of delivery, n (%)        |          |
| CS                             | 26 (26%) |
| Vaginal                        | 74 (74%) |
| Causes of PPH, n (%)           |          |
| Uterine atony                  | 57 (57%) |
| Retained placental product     | 23 (23%) |
| Genital tract trauma           | 20 (20%) |
| Presence of risk factor, n (%) |          |
| Risk factor                    | 34 (34%) |
| No risk factors                | 66 (66%) |
| Parity                         |          |
| Primigravida                   | 14 (14%) |
| Multigravida                   | 86 (86%) |
| Type of risk factor            |          |
| Previous PPH                   | 9 (9%)   |
| DM                             | 7 (7%)   |
| Hypertension                   | 18 (18%) |



**Figure 1** pie chart of causes of PPH and type of risk factor

### 4. DISCUSSION

PPH is one of the leading causes of maternal mortality worldwide, accounting for nearly a quarter of maternal death (Say *et al.*, 2014). In this study the incidence of PPH is 1.2% which is almost consistent with a study conducted by Al-Turiah A. *et al* in 2015 at Al-Zahraa teaching hospital in Al-Najaf where the incidence was 1.64% (Al-Turiah *et al.*, 2016).

This study showed that causes of primary PPH are in the following sequence: uterine atony 57%, retained placental piece 23% and genital tract trauma is 20%. These results are in agreement with a study done at Al-Zahraa teaching hospital results were atony incidence was 55.5%, retained placental piece 17.1% and trauma 22.6% (Al-Turiah *et al.*, 2016). Knowing that the majority of cases are due to uterine atony means that health personnel should always be well prepared to act in the right way to decrease or prevent this cause to prevent maternal death.

The study showed that risk factors of primary PPH are as follows: Parity was the most important risk factors with an incidence of 86% multiparous women suffered from primary PPH, and 14%. The study also showed that presence of medical disease (hypertension and DM) in 25% of cases and a previous primary PPH in 9% were both a risk factors. These results were not in agreement with a study done in Lybia (Badr *et al.*, 2015) where the most important risk factors were presence of previous cesarean, anemia, pregnancy induced hypertension. Most of our families in Iraq want to have big families and this is in most of the times is without proper preparation for the pregnancy or delivery, without antenatal care so the mother will face the increase incidence of morbidity and mortality from PPH. 74% of women who delivered vaginally suffered from primary PPH as compared to 26% who delivered via CS, from those who suffered, 80% were managed medically by oxytocin, misoprostol, methergin and uterine massage (transabdominal, bimanual), while 20% were managed surgically (repair of a tear) and this result was in disagreement with a study done by Muhammad *et al.* at the Liaquat National Hospital Pakistan in which surgical management came first place while medical was the second in management modality (Edhi *et al.*, 2013).

This study showed that 98% of the women with primary PPH needed <4 pints of blood transfusion and this was in disagreement with Al Hamadani *et al.* (Al-Hamadani *et al.*, 2012), in their study group the patients needed more than 4 pints of blood. May be this low incidence in this study is due to early recognition and rapid action to manage this condition. Regarding macrosomia 6% of the babies were macrosomic and their mothers suffered from primary PPH. This result is similar to a study done in Nigeria were 8.3% of the mothers who had PPH delivered a macrosomic baby (Olorok *et al.*, 2015).

## 5. CONCLUSION

Primary PPH incidence in Al Sader teaching hospital was low; the most identifiable risk factor for primary PPH was multiparity, history of previous PPH and presence of a medical disease. The most common cause of primary PPH was uterine atony.

### Author contribution

Kawakeb N Abdulla: Conception and design of the work, the acquisition, analysis, and interpretation of data for the work, and Drafting the work.

Anwar Ahmed Mohammed: Conception and design of the work, interpretation of data for the work, and revising it critically for important intellectual content.

Hayder Adnan Fawzi: Conception and design of the work, and Drafting the work and finally revising it critically for important intellectual content.

**Funding:** This research received no external funding.

**Conflicts of Interest:** The authors declare no conflict of interest.

## REFERENCE

1. Al-Hamadani, I. T. A., Ahmed, A. T. & Mohammed, S. R. Emergency Obstetric Hysterectomy in Elywia Maternity Teaching Hospital Baghdad. *Iraqi Academic Scientific Journal* 2012; 11: 712-7
2. Al-Turiah, A. M., Sadiqa, A. M. & Abbas, E. A. The incidence of postpartum hemorrhage after spontaneous and induced vaginal delivery versus elective and emergency caesarian section. *American Journal of BioMedicine* 2016; 4: 81-90.
3. Badr, S., Bilkasem, A. & Elkhwsy, F. Factors for Primary Postpartum Hemorrhage in Benghazi, Libya: A Case Control Study. *Scholars journal of applied medical science* 2015; 3: 198-205
4. Combs, C. A., Murphy, E. L. & Laros, R. K., JR. Factors associated with postpartum hemorrhage with vaginal birth. *Obstet Gynecol* 1991; 77: 69-76
5. Edhi, M. M., Aslam, H. M., Naqvi, Z., et al. "Post partum hemorrhage: causes and management". *BMC Research Notes* 2013; 6: 236.
6. Hancock, A., Weeks, A. D. & Lavender, D. T. Is accurate and reliable blood loss estimation the 'crucial step' in early

- detection of postpartum haemorrhage: an integrative review of the literature. *BMC Pregnancy Childbirth* 2015; 15: 230.
7. Khan SI, Khan A, Mostarin SZ, Shuvra MB, Tanvin T, Mozahid FA, Md Rasel-Ud-Jaman. Health problems and violence faced by adolescent girls due to child marriage at rural areas in Bangladesh. *Discovery*, 2019, 55(279), 114-119
  8. Lockhart, E. Postpartum hemorrhage: a continuing challenge. *Hematology Am Soc Hematol Educ Program* 2015; 2015: 132-7.
  9. Mathai, M., Gulmezoglu, A. M. & Hill, S. Saving womens lives: evidence-based recommendations for the prevention of postpartum haemorrhage. *Bull World Health Organ* 2007; 85: 322-3.
  10. Olorok, O. E., Onakewhor, J. U. & Aderoba, A. K. Determinants and outcome of fetal macrosomia in a Nigerian tertiary hospital. *Niger Med J* 2015; 56: 411-5.
  11. Piro TJ, Safari K, Ahmad HM. Women's Expectations regarding midwifery care during labor in Hawler Maternity Hospital. *Medical Science*, 2018, 22(91), 312-318
  12. Say, L., Chou, D., Gemmill, A., et al. Global causes of maternal death: a WHO systematic analysis. *Lancet Glob Health* 2014; 2: e323-33.
  13. Sheiner, E., Sarid, L., Levy, A., et al. Obstetric risk factors and outcome of pregnancies complicated with early postpartum hemorrhage: a population-based study. *J Matern Fetal Neonatal Med* 2005; 18: 149-54.