

Postpartum haemorrhage: various method of management in arural tertiary care hospital

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Abstract

Introduction: Post-partum haemorrhage is defined as blood loss from the genital tract, exceeding 500ml within 24hours of vaginal delivery and 1000ml during caesarean section. It is also now a day defined as any blood loss that has a potential to produce or produces hemodynamic instability. Massive obstetric haemorrhage is a major cause of maternal mortality and morbidity worldwide. **Aims and Objectives:** Objective of the study is to evaluate the most common etiology and method of management of Postpartum Haemorrhage in a rural tertiary care hospital of SAH &RC. **Materials and Methods:** A prospective study was done from June 2017 to June 2018 in Department of Obstetrics and Gynaecology at Adichunchanagiri Institute of Medical sciences, Bellur, Karnataka, India. The study included all cases of normal vaginal deliveries, assisted vaginal deliveries and Caesarean section. **Result:** A total of 1877women were delivered. Out of which 923 (49.17%) women delivered vaginally and 954 (50.82%) women delivered through cesarean section. Out of 1877 delivered women, 69 (3.67%) developed PPH. out of 69(3.79%), 66(95.65%) had atonic PPH and 3(4.34%) had traumatic PPH. out of 66 atonic PPH cases 54(81.81%) managed medically. Other modalities were B lynch suture 7(10.6%), Hayman suture 2(3.03%), suction cannula 1(1.51%), internal iliac artery ligation 1(1.51%), peripartum hysterectomy 1(1.51%). Most of the cases have been managed medically. **Conclusion:** In an era with availability of excellent uterotonics and active management of third stage of labor even today PPH stands first as the cause of maternal mortality and morbidity. This study highlights the existing variable practices for management of PPH. Haemorrhage associated mortality can be prevented by critical judgment and early intervention.

Keywords: Post-partumhaemorrhage, Atonic PPH, Traumatic PPH.

Introduction

Post-partum haemorrhage is the leading cause of maternal morbidity and mortality and accounts for one quarter of cases of maternal mortality worldwide [1]. It is among the manageable causes of maternal mortality that if managed properly can prevent most of the cases of maternal deaths.

According to WHO, obstetric haemorrhage causes 127000 deaths annually worldwide and is the leading cause of maternal mortality [2]. Post-partum haemorrhage is defined as blood loss from the genital tract, exceeding 500ml within 24hrs of vaginal delivery and 1000ml during caesarean section [3].

It is also now a day defined as any blood loss that has a potential to produce or produces hemodynamic instability. Massive obstetric haemorrhage is a major cause of maternal mortality and morbidity worldwide. It is not only life-threatening situation but also an obstetrician's nightmares [4]. Many national and international studies show that uterine atony is the commonest cause of PPH followed by trauma to genital tract, adherent placenta, uterine angle extension and retained placenta [5]. Primary (immediate) PPH occurs within the first 24 hours after delivery. Approximately 70% of immediate PPH are due to uterine atony. Atony of the uterus is defined as the failure of the uterus to contract adequately after the child is born [6]. Uterine atony is the most common cause of PPH, in about 75-90% of cases.

Manuscript received: 28th March 2019

Reviewed: 07th April 2019

Author Corrected: 12th April 2019

Accepted for Publication: 18th April 2019

Other causes include placenta previa, accreta, lower genital tract laceration, coagulopathy, uterine inversion and ruptured uterus [7]. Secondary (late) PPH occurs between 24 hours after delivery of the infant and 6 weeks postpartum. Most late PPH is due to retained products of conception, infection, or both [6]. Generally, PPH requires early recognition of its cause, immediate control of the bleeding source by medical, mechanical, invasive-non-surgical and surgical procedures, rapid stabilization of the mother's condition, and a multidisciplinary approach [8]. PPH can be minor (500 -1000 ml) or major (more than 1000 ml), major can be divided into moderate (1000 -2000 ml) and severe (more than 2000 ml) [9].

Oxytocin, syntometrine, ergometrine, PGF2 alpha and misoprostol are different medical preparations used as uterotonics for prophylaxis and therapeutic management of PPH. The two main aspects of management of PPH are resuscitation and identification/management of underlying cause. Interventions like application of compression sutures, internal iliac artery ligation, uterine artery embolization and hysterectomy are other life saving measures.

Aims and Objective

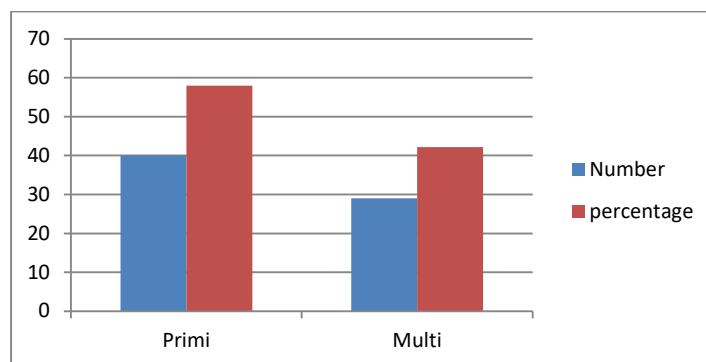
- 1) To find out the incidence of post postpartum haemorrhage.
- 2) To analyze various modalities used in the management of postpartum haemorrhage.
- 3) To study maternal outcome in PPH.

Results

During study period of one year, total of 1877 women were delivered. Out of which 923 (49.17%) women delivered vaginally and 954 (50.82%) women delivered through caesarean section. Out of 1877 delivered women, 69 (3.67%) developed PPH. Out of 69 PPH cases 3, were referred cases.

Total No of Deliveries	1877
Number of PPH Cases	69

Out of 69 who developed PPH, 40 (57.97%) were primipara and 29 (42.02%) were multipara.



Materials and Methods

Study type- Prospective study

Study period- June 2017 to June 2018 in Department of Obstetrics and Gynaecology at Adichunchanagiri Institute of Medical sciences.

Study area- Tertiary care hospital, Adichunchangiri Institute of Medical Sciences, B.G Nagara, Nagamangala Taluk, Mandya Distract, Karnataka

Inclusion criteria: This study included all patients admitted for delivery & ending up in PPH or presenting with PPH in casualty or referred from outside as PPH.

Exclusion criteria: Patients with history of coagulation disorder & patients who were taking heparin & warfarin.

Sample collection- The study included all cases of normal vaginal deliveries, assisted vaginal deliveries and Caesarean section over a study period of June 2017 to June 2018. For calculation of frequencies, the total number of deliveries in the setting during study period was used. Diagnosis of PPH was made clinically based on findings of pelvic examination, condition of uterus and amount of bleeding. Maternal condition was assessed and managed according to established hospital protocols which included both medical and surgical interventions. All maternal complications were noted and recorded in predesigned proforma. Ethical consideration & permission obtained from Institutional Ethical Committee

Table-1: Presence of high-risk factor

High risk factors	Numbers	Percentage
No any factor	49	71.01
Anemia	3	4.35
Preeclampsia/ eclampsia	8	11.59
Twins/ polyhydramnios	3	4.35
Gestational diabetes mellitus	6	8.69

In 71 % of PPH cases there was no identifiable risk factor

Table-2: Incidence of PPH in different mode of delivery

Title	Numbers	Percentage
PPH in vaginal delivery	45	4.87%
PPH in instrumental vaginal delivery	3	5.08%
PPH in caesarean section	21	2.20%

This study found that maximum incidence of PPH is associated with instrumental vaginal delivery (5.08%) followed by vaginal (4.87%), and caesarean section (2.20%)

Table-3: Cause of PPH

PPH cause	Number	Percentage
Uterine atony	66	95.65%
Traumatic	3	4.34%

Out of 69, 66(95.65%) had atonic PPH and 3(4.34%) had traumatic PPH. Main cause of PPH in this study is uterine atony i.e. 95.65 % and 2nd common cause is traumatic i.e. 4.34%.

Out of 66 atonic PPH cases 54(81.81%) managed medically, B lynch suture 7(10.6%), Hayman suture 2(3.03%), suction cannula 1(1.51%), internal iliac artery ligation 1(1.51%), peripartum hysterectomy 1(1.51%). Most of the cases have been managed medically. In this study, out of 69 who developed PPH there was 1 maternal mortality which was referred case.

In this study medical management was done by giving 1) oxytocin 10 IU IM or 20-40 IU in 1 liter of normal saline at 60 drops per minute, and continue oxytocin (20 IU in 1 litre of iv fluids at 40 drops per minute) until haemorrhage stops, 2) Ergometrine 0.2 mg im or can be given slowly iv may be repeated as required at interval of 2-4 hours, 3) PGF 2α or carboprost 0.25 mg dose can be repeated every 15 minutes for a total dose of 2 mg (maximum of 8 doses), 4) PGE1 or misoprostol dose vary from 400 μ g to maximum of 1200 μ g.

Table-4: Management protocol of PPH

Methods of management	Number	Percentage (%)
Medical management	54	81.81%
B Lynch suture	7	10.60%
Hayman suture	2	3.03%
Suction cannula	1	1.51%
Internal iliac artery ligation	1	1.51%
Peripartum hysterectomy	1	1.51%

Discussion

Postpartum hemorrhage is the leading cause of morbidity and mortality among pregnant ladies throughout the world causing 140,000 deaths each year globally, this corresponds to the one woman dying in every 4 minutes and it is the 5th most common cause of maternal mortality throughout the world [10,11-15]. Postpartum hemorrhage is a leading cause of

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maternal mortality. The place of delivery and severity of hemorrhage determine the outcome. Commonest mode of delivery which was found in present study was C-section followed by spontaneous vaginal delivery and instrumental vaginal delivery. If the woman has developed PPH following delivery in a health facility, the immediate medical and surgical interventions are possible. It is not so, when woman delivers at home or in a small hospital ill equipped with facilities to manage obstetric emergencies, Diagnosis of PPH and decision to transfer to hospital or tertiary care Centre is very crucial. Home deliveries and deliveries in small facilities have negative influence on the outcome. Most important and major finding in our study was that the most common cause of postpartum hemorrhage was uterine atony, which is loss of tone in the uterine musculature. Data support the routine use of active management of the third stage of labor (AMTSL) by all skilled birth attendants, regardless of where they practice; AMTSL reduces the incidence of PPH, the quantity of blood loss, and the need for blood transfusion, and thus should be included in any program of intervention aimed at reducing death from PPH [16]. The usual components of AMTSL include: 1) Administration of oxytocin (the preferred storage of oxytocin is refrigeration but it may be stored at temperatures up to 30 °C for up to 3 months without significant loss of potency) or another uterotonic drug within 1 minute after birth of the infant. 2) Controlled cord traction. 3) Uterine massage after delivery of the placenta. The Bristol [17] and Hinchingsbrooke [18] studies compared active versus expectant (physiologic) management of the third stage of labor. Both studies clearly demonstrated that, when active management was applied, the incidence of PPH was significantly lower (5.9% with AMTSL vs 17.9% with expectant management [17]; and 6.8% with AMTSL vs 16.5% without [18]). FIGO promotes the routine use of AMTSL as the best, evidence-based approach for the prevention of PPH and emphasizes that every effort should be made to ensure that AMTSL is used at every vaginal birth where there is a skilled birth attendant. However, FIGO recognizes that there may be circumstances where the accessibility or the supply of uterotonics may be sporadic owing to interruptions in the supply chain, or it may be nonexistent in a country because it is not part of the approved list of essential medicines or included in the national guidelines/protocols. It is in this context that the birth attendant must know how to provide safe care (physiologic management) to prevent PPH in the absence of uterotonic drugs [6]. Most maternal deaths due to PPH occur in low income countries in settings (both hospital and community) where there are no birth attendants or where birth attendants lack the necessary skills or equipment to prevent and manage PPH and shock. The Millennium Development Goal of reducing the maternal mortality ratio by 75% by 2015 will remain beyond our reach unless we prioritize the prevention and treatment of PPH in low-resource areas [19].

Table-5: Incidence of PPH in different study

Study	Incidence (%)
Present study	3.67%
Tasneem F et al [20]	3.55%
Edhi et al. [22]	1.7%

In this study, incidence of PPH was found to be 3.67%, this finding is similar when it is compared with the study conducted by Tasneem F et al [20], in which incidence of PPH was found to be 3.55%. A systematic re-view reported the highest rates of PPH in Africa (27.5%), and the lowest in Oceania (7.2%), with an overall rate globally of 10.8%. The rate in both Europe and North America was around 13% [22]. In this study we found bimodal distribution of incidence of PPH in relation to parity i.e. primipara 57.97% and multipara 42.03%. Reason being different predisposing factors in primigravida like teenage pregnancy, preeclampsia, eclampsia, abruption, anemia, dysfunctional labor, uterine over activity while high parity is the reason in multipara. In 71 % of PPH there is no identifiable risk factor but PPH is not major in this group. We found major PPH in maximum patients with one or more risk factors like anemia, preeclampsia, eclampsia, antepartum haemorrhage and twins.

Table-6: Incidence of PPH association with different mode of delivery in different study

Mode of delivery	Vaginal	Instrumental vaginal	Caesarean section
Present study	4.87%	5.08%	2.20%
Solanke et al [21]	1.32%	5.26%	1.80%

This study observed that incidence of PPH was maximum with instrumental vaginal delivery (5.08%), followed by vaginal delivery (4.87) and caesarean section (2.20%), this finding is similar to the study conducted by Solanke et al [21], in which they observed that maximum incidence of PPH is with instrumental vaginal delivery that is 5.36%, followed by caesarean section (1.80%) and vaginal delivery (1.32%)

Table-7: Incidence of different causes of PPH in different study

Causes	Uterine atony	Traumatic
Present study	95.65%	4.34%
Tasneem et al [19]	86%	9.9%
Solanke et al [20]	79.17%	16.67%

In this study major cause of PPH was found to be the uterine atony that is 95.65%, this finding is similar when it is compared with the study conducted by Tasneem et al [19], in which they also found that uterine atony is the major cause of PPH (86%), whereas study conducted by Solanke et al [20], they found 79.17% of PPH is due to uterine atony. In international studies uterine atony was the most common cause of PPH, ranging from 50% to 76% of cases [23,24].

Conclusion

In an era with availability of excellent uterotonics and active management of third stage of labor even today PPH stands first as the cause of maternal mortality and morbidity. This study highlights the existing variable practices for management of PPH. The frequency and impact of severe hemorrhage can be effectively reduced by reducing avoidable risk factors, especially those related to obstetric interventions as increased CS rate and induction and augmentation of labour with injudicious use of uterotonics. Other risk factors not amenable to change such as age, ethnic origin, and preexisting medical diseases or bleeding disorders can be minimized by extra vigilance and planned conjoined management. Uterine atony is the most common cause of postpartum haemorrhage, so its incidence can be lowered by universal adoption of AMTSL. Institutional deliveries, timely intervention, judicious approach anaesthesia, ICU back up and availability of blood and blood component facilities will improve clinical outcome. Avoidance of delays in identification and transfer, high risk pregnancy identification and timely referral, capacity building of peripheral health workers in use of medication and uterine massage therapy will go a long way in reducing the maternal mortality related to atonic postpartum hemorrhage. Every pregnancy should culminate in healthy mother and healthy baby and for that we need to ensure that all women have access to high quality essential and emergency obstetric service at first referral unit (FRU) level to reduce maternal mortality.

Authors' Contributions

Dr. Mahendra.G, Dr Ramesh Babu, Dr Anshu kumari and Dr. Ravindra S Pukale carried out the study. Dr. Anshu Kumari developed the theory and performed the computations. Dr. Mahendra. G verified the analytical methods. Dr. Mahendra. G encouraged Dr. Anshu Kumari to investigate more on incidence and various methods of management of PPH in rural setup and supervised the findings of this work.

All authors discussed the results and contributed to the final manuscript.

Funding: Nil, **Conflict of interest:** Nil

Permission from IRB: Yes

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How to cite this article?

Mahendra G., Ramesh Babu, Anshu Kumari, Pukale R.S. Postpartum haemorrhage: various method of management in arural tertiary care hospital. *Obs Rev: J Obstet Gynecol* 2019;5(2):93-98. doi:10.17511/joog.2019.i02.02.

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