



ROLE OF VARIOUS MODALITIES IN MANAGEMENT OF POSTPARTUM HAEMORRHAGE(MEDICAL+SURGICAL)

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ABSTRACT

Background: PPH is responsible for 25% of all maternal deaths. In India, PPH incidence in India is 2%-4% following vaginal delivery and 6% following cesarean section. PPH as the important cause of 19.9% of maternal mortality in India. Objectives: The objectives of the study were to study the incidence, risk factors, cause, complications and management of PPH. **Materials and Methods:** This prospective observational study was conducted in the Department of OBGY, SVPIMSR, Ahmedabad, India. A total number of 50 cases of postpartum hemorrhage that fulfilled the selection criteria were included. **Results:** The records were analyzed with respect to maternal age, parity & etiological profile and maternal consequences in cases of PPH at our tertiary care center. Main cause of PPH in this study was uterine atony i.e. 56.38%. Second common cause was traumatic i.e. 21.27%. 20% of cases were given blood transfusions. However, maternal death due to hemorrhage in our study was negligible. **Conclusions:** Active management of the third stage of labor is crucial. Availability of blood and blood products is very crucial. Prediction and assessment of blood loss and timely identification of uterine atony are remaining the cornerstone for prompt and effective management of PPH. 60% cases were managed by medical methods while the rest of the cases required surgical management. Among the medical management uterotonic drugs and bimanual uterine compression was used while among the surgical methods repair of cervical and vaginal laceration was mostly required.

KEYWORDS : Atonic PPH, Postpartum Hemorrhage, Traumatic PPH, Uterine Atony

INTRODUCTION:

Postpartum haemorrhage is defined as the loss of more than 500 mL of blood from the genital tract at vaginal delivery, 1000 mL at caesarean section or 1500 mL at caesarean hysterectomy. Alternate definitions include a 10% drop in hematocrit, or the need for blood transfusions in the first 24 hours after delivery. Overall, postpartum haemorrhage (PPH) affects 1–5% of all deliveries^{1,2}, and approximately 30% of maternal deaths are due to haemorrhage, mainly in the postpartum period. Most maternal deaths due to PPH occur in developing countries in settings where there are no birth attendants or lack necessary skills or equipment to prevent and manage PPH³. Incidence of PPH is reported as 2% - 4% after vaginal delivery and 6% after caesarean section; with uterine atony being the cause in about 80% cases. Every year about 14 million women around the world suffer from PPH. Estimates of maternal mortality ratio in India done by Indian Council of Medical Research also reported PPH as the leading cause of maternal mortality in the study population. PPH has shown an increasing trend over the last few years to an incidence of 3-8% in the developed world, and is the most common cause of maternal morbidity. Therefore, research in prevention and treatment of PPH including recovery measures for women developing life threatening haemorrhage is needed more than ever^{4,5}. The objectives of this study are to study incidence of postpartum haemorrhage in tertiary care hospitals, identify the risk factors and aetiology leading to postpartum haemorrhage, to compare different methods of management of postpartum haemorrhage.

Depending upon timing of its occurrence in relation to delivery, PPH can be:

1. PRIMARY PPH : Haemorrhage occurs within 24 hours following the birth of the baby.
2. SECONDARY PPH: Haemorrhage occurs beyond 24 hours and within puerperium, also called delayed or late puerperal haemorrhage.

The aetiologies of PPH are classically divided into four different categories, known as the four T's – Tone, Trauma, Tissue, and Thrombin

TREATMENT OF POSTPARTUM HAEMORRHAGE GOLDEN HOUR

The term "golden hour in obstetrics" has been introduced in this context, referring to a strategy for controlling the haemorrhage site within the first hour after its diagnosis.¹⁶

OWRS

The obstetric warning and response system in an orderly work system aimed at organising and coordinating actions to reduce the risk and morbidity and mortality of PPH.¹⁷

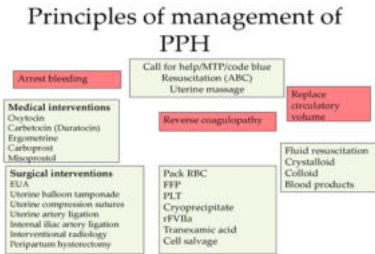
MANAGEMENT OF POSTPARTUM HAEMORRHAGE: WHO 2012 RECOMMENDATION - Active management of the third stage of Labour (AMTSL) is still a best practice, with the use of uterotonics. Oxytocin remains the uterotonic of choice for AMTSL. Administering oxytocin immediately after childbirth is the single most important intervention used to prevent PPH.^{20,21}

Other elements of AMTSL—controlled cord traction and immediate fundal massage—are optional for PPH prevention. Oxytocin (10 U IV or IM) is a recommended uterotonic drug for prevention of PPH.

Active management using standard uterotonic drugs can reduce both PPH incidence & maternal mortality by 40%^{18,19}

RECENT 2020 RECOMMENDATIONS ON PPH INCLUDE

- Routes of oxytocin administration for prevention of PPH after vaginal birth
- Advance misoprostol distribution to pregnant women for prevention of PPH
- Umbilical vein injection of oxytocin for treatment of retained placenta
- UBT for treatment of refractory PPH



NEWER ADVANCES

CARBETOCIN

TRANEXAMIC ACID -A systematic review of randomised controlled trials of antifibrinolytic agents in elective surgery showed that tranexamic acid reduced the risk of blood transfusion by 39%³⁹

RECOMBINANT FACTOR VIII THERAPY

INCIDENCE

GLOBAL

PPH is one of the major causes of maternal mortality around the world with a reported incidence of 2–11%^{42,43}

INDIAN

CENSUS 2016-18

MATERNAL MORTALITY RATE

The maternal mortality ratio (MMR) in India between 2017 and 2019 was 103, which is away from the Sustainable Development Goal 5 target for India: India accounted for 19% of global burden of maternal deaths in 2010, though it has only 16% of global population. PPH is a frequent complication of delivery and its reported incidence in India is 2% – 4% after vaginal delivery and 6% after caesarean section with uterine atony being the common cause (80%)⁴⁶

PPH is the contributory cause of 19.9% of maternal mortality, that is anywhere from 78,00035 to 117,00011 maternal deaths in India. As reported by Registrar, General, India and Centre for Global Health Research 2001–2003, the five most common direct causes of pregnancy-related mortality in India were hemorrhage (38%), sepsis (11%), unsafe abortion (8%), hypertensive disorders (5%) and obstructed labor (5%).⁴⁷

MATERIALS AND METHODS

- **Study type:** Prospective Study of Clinical management of postpartum haemorrhage in cases with complications of 3rd stage of Labour carried out by our institute,
- A Tertiary Care centre, SVPIMSR, AHMEDABAD, GUJARAT

Period: Sept 2020 to March 2022.

- Detailed history and examination findings were noted in order to find out the possible cause of Postpartum Haemorrhage.
- Blood loss was assessed on the basis of measurement from the basins, linens, mops and sponges.
- The results were obtained using MS Excel.

Inclusion criteria- Post Partum/Intra Partum patients who develop postpartum haemorrhage due to atonicity, trauma, retained placenta including all cases of morbidly adherent placenta, patients developing coagulopathy, patients with uterine inversion, patients developing secondary PPH.

Exclusion criteria- Patients with Bleeding in Ante-Natal Period (Ante-Partum Haemorrhage) & patients with bleeding due to any other cause or before 3rd stage of Labour

RESULTS

This is a prospective observational study of cases of postpartum haemorrhage in our hospital during the period extending from September 2020 to March 2022. During this time period total 100 cases of postpartum haemorrhage were reported.

TABLE 1 INCIDENCE OF POSTPARTUM HAEMORRHAGE

PERIOD	Sept 2020 to March 2022
TOTAL NO. OF DELIVERIES	2500
TOTAL NO. OF REPORTED PPH	100
INCIDENCE	4%

Total incidence of postpartum haemorrhage at our institute is 4 %. As this is a tertiary care hospital out of deliveries, 100 patients have developed postpartum haemorrhage.

TABLE 2 POSTPARTUM HAEMORRHAGE IN RELATION TO AGE & PARITY

AGE IN YEARS	NO. OF CASES	PERCENTAGE(%)
19-24 (1ST & 2ND GRAVIDA)	20	20%
19-24(MULTIGRAVIDA)	10	10%
25-29(1ST & 2ND GRAVIDA)	20	20%
25-29(MULTIGRAVIDA)	15	15%
AGE ABOVE 30(1ST & 2ND GRAVIDA)	20	20%
AGE ABOVE 30(MULTIGRAVIDA)	15	15%
TOTAL	100	100%

Present study shows that the incidence of postpartum haemorrhage is maximum between the age group of 25 to 30 years which are years of maximum fertility and productivity.

In present study, the occurrence of PPH is higher in primiparas than multipara. The occurrence may be higher due to uterine inertia, teenage pregnancy, pre eclampsia, eclampsia, abruption, prolonged labour and increased operative interference.

In the recent study, there is high incidence of PPH in Grand Multiparas. In grand multipara size of the baby increases, incidence of Malpresentation is high; both uterine and abdominal wall lack a good muscular tone, incidence of antepartum haemorrhage is high. Moreover as a result of repeated child birth, poverty, malnutrition, overwork and chronic iron deficiency anaemia these women are in poor condition to withstand even a slight amount of blood loss.

TABLE 3 FACTORS PREDISPOSING TO PPH

	PRESENT STUDY	PERCENTAGE(N=100)
PREVIOUS C SECTION	25	25%
PLACENTA PREVIA	10	10%
PLACENTAL ABRUPTION	5	5%
PREECLAMPSIA	14	14%
TWINS	5	5%
POLYHYDRAMNIOS	7	7%
ANAEMIA	9	9%
MULTIGRAVIDA	13	13%
PLACENTA ACCRETA SPECTRUM DISORDERS(PAS)	12	12%

In the present study, 25 cases were previous caesarean section, 10 cases were of placenta praevia, 13 cases of multigravida, 14 cases preeclampsia, 9 cases of anaemia, 5 cases of twins, 7 case of polyhydramnios and 12 cases were of PAS disorders.

In the present study cases of primary PPH in our institute are higher as compared to secondary PPH.

**TABLE 4
TYPES OF PPH AND AETIOLOGY OF PRIMARY POSTPARTUMHAEMORRHAGE**

TYPE OF PPH	NO OF CASES	PERCENTAGE
PRIMARY	94	94%
SECONDARY	6	6%
AETIOLOGY	NO. OF CASES	PERCENTAGE IN PRESENT STUDY(N=94)
ATONIC PPH	53	56.38%
TRAUMATIC PPH	20	21.27%
RETAINED PLACENTA	5	5.31%
UTERINE INVERSION	0	0
COAGULOPATHY & DIC	10	10.6%
MIXED	6	6.38%

In the present study , the most common cause leading to postpartum haemorrhage is uterine atony(56.38%) followed by the traumatic cause (21.27%) which includes cervical tear ,vaginal tear and uterine rupture,peri urethral tear. Retained placenta amounts to 5.31% of cases. Coagulation disorders & DIC amounts to 10.6% of cases.Mixed causes include 6.38% of cases.

In the present study cases of primary PPH in our institute are higher as compared to secondary PPH.

TABLE 5 MODE OF DELIVERY AND PPH

		NO OF CASES	PERCENTAGE
VAGINAL DELIVERY	VAGINAL DELIVERY	42	42%
	VAGINAL BIRTH AFTER CS	1	1%
C-SECTION		57	57%

In the present 42% had vaginal delivery while 1% were VBAC (vaginal birth after caesarean) whereas 57% had caesarean section for one or other indication .

TABLE 6 MODE OF MANAGEMENT OF POSTPARTUM HAEMORRHAGE MEDICAL MANAGEMENT

TOTAL NO OF CASES WITH MEDICAL MANAGEMENT	65
OXYTOCIN ALONE	25
OXYTOCIN+MISOPROSTOL+METH ERGINE	40

In the present study 65 cases of postpartum haemorrhage are managed medically. Among them 25 cases were managed by oxytocin alone and the remaining 40 cases were managed by the combination of Oxytocin with Misoprostol.

TABLE 7 SURGICAL MANAGEMENT OF POSTPARTUM HAEMORRHAGE

TOTAL NO OF CASES WITH SURGICAL MANAGEMENT(N=35)	NO. OF CASES	PERCENTAGE (%)
CERVICAL/VAGINAL TEAR REPAIR ,PERI -URETHRAL TEAR REPAIR	8	22.8%
UTERINE ARTERY LIGATION	15	42.8%
PACKING (UTERINE/VAGINAL/ CERVICAL)	4	11.4%
MANUAL REMOVAL OF PLACENTA	3	8.5%
COMPRESSION SUTURES(COMOG)	2	5.7%

OBSTETRIC HYSTERECTOMY	3	8.5%
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Out of 35 cases which required surgical intervention 15 cases have uterine artery ligation ,6 cases required bilateral uterine artery ligation,9 cases with unilateral uterine artery ligation.

Packing gives a tamponade effect.4 cases were managed with packing. Obstetric Hysterectomy was performed in 3 cases Cervical tear pair/Vaginal tear repair/ periurethral tear repair was done in 8 cases.

TABLE 8 SECONDARY PPH

TOTAL NO OF CASES	TYPE OF SECONDARY PPH	MANAGEMENT	NO OF CASES	PERCENTAGE
6		MEDICAL MANAGEMENT	2	33.33%
	RETAINED TISSUE	DILATION AND EVACUATION	4	66.3%
		OBSTETRIC HYSTERECTOMY	0	
			6	

6 cases of secondary PPH were noted. All cases were due to retained placenta 2 cases were managed medically by Oxytocin Misoprostol, 4 cases required dilation and evacuation,.

In present study 33% cases were managed conservatively while 66% cases required surgical intervention

TABLE 9 MANAGEMENT OF PPH ACCORDING TO CAUSE OF PPH

TYPES OF INTERVENTION	ATONIC(N=53)	TRAUMATIC(N=20)
UTEROTONICS +<2 PCV TRANSFUSION	24	0
UTEROTONICS +>2 PCV TRANSFUSION	14	0
PERINEAL TEAR REPAIR	0	14
SURGICAL INTERVENTION	15	6

The number of patients with Atonic PPH requiring blood transfusion were 38 cases & requiring surgical intervention were 15 cases.

All the cases of traumatic PPH were managed by surgical intervention which includes perineal tear repair,descending cervical artery ligation.

TABLE 10 MATERNAL MORBIDITY AND MORTALITY ASSOCIATED WITH PPH

MATERNAL MORBIDITY	NO OF CASES	PERCENTAGE
FEVER	4	4%
ANAEMIA	10	10%
HYPOVOLEMIC SHOCK	15	15%
NEED OF BLOOD TRANSFUSION	20	20%
CCF/ SEPSIS/DIC	5	5%
NEED OF ICU VENTILATION	5	5%
DEATH	0	0
NO MORBIDITY	41	41%
TOTAL	100	100%

In the present study,the risk of occurrence of complications are as follows:20% requires blood transfusion,15% developed hypovolemic shock,10% developed anemia,41% had no complications,& there was no associated mortality.

DISCUSSION:

-Kaul et al(2006)⁴⁹ study showed that incidence of PPH is more in primiparas L. Gilbert⁵⁰ study shows comparison between parity and postpartum haemorrhage .It shows occurrence of postpartum

haemorrhage is higher in the comparison groups that are primiparas than in other comparison groups. Incidence of PPH in the multipara is low due to the number of multipara itself has decreased improvement in healthcare facilities , larger portion of women pursuing small family norms having parity no more than two children.

- Kaul et al(2006)⁴⁹ study shows most common cause of postpartum haemorrhage being uterine atony(47.7%) of the cases followed by the traumatic cause (38.8%)

-Bibi Shamshad et al⁵¹(2006) shows that 70.5% cases were of atonic PPH while 29.5% cases of traumatic PPH.

-Jacob Marcovici et al⁵²(2005) shows that 70 % cases were of atonic PPH while 20% cases were of Traumatic PPH.

-Iqbal Al Zirqi⁵³(2009) states that in mothers with previous caesarean delivery the risk of PPH is 28% higher for pre labour caesarean section delivery. They also stated that spontaneous vaginal delivery had 57% lower risk of severe PPH and emergency caesarean section had 55% higher risk as compared with pre labour caesarean section.

-Iqbal Al Zirqi⁵³(2009) states that in mothers with previous caesarean delivery the risk of PPH is 28% higher for pre labour caesarean section delivery. They also stated that spontaneous vaginal delivery had 57% lower risk of severe PPH and emergency caesarean section had 55% higher risk as compared with pre labour caesarean section.

- The Thangappah study³⁴(2004) showed 35.49% cases managed conservatively while 64.51% required surgical intervention.

CONCLUSION

PPH is the leading cause of maternal mortality & morbidity .Identification of high risk factors & active management of labour is very crucial for prevention of PPH.Availability of blood & blood products is very crucial.Prediction & assessment of blood loss & timely identification of uterine atony are cornerstone for prompt & effective management of PPH

LIMITATIONS:

As this study is conducted in a tertiary care hospital ,the more actual incidence of PPH in a community can't be evaluated,as there is more evidence of PPH occurring in periphery & so the referral of the patients to tertiary centre occurs at a much later stage leading to increased morbidity in the form of anaemia,DIC, & other complications requiring blood transfusion & ICU admission.This ultimately leads to increased mortality.

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