

Retrospective Study Of Post-Partum Hemorrhage Cases In Tertiary Care Centre

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Abstract:

Objective: Maternal Haemorrhage is the commonest cause of maternal mortality in India. Identification of risk factors, early diagnosis and intervention can help in reducing significant maternal morbidity and mortality associated with post-partum haemorrhage. The present study was conducted in Dr. SN Medical College, Jodhpur to determine the incidence, associated risk factors, causes and modes of management in tertiary care center in western Rajasthan.

Material and Methods: The study was performed in obstetrics and gynecology department of Dr. SN Medical College, Jodhpur, Rajasthan from October, 2022 to April, 2023 (7 months) where files of the patients admitted with diagnosis of postpartum haemorrhage were retrieved and detailed analysis was done regarding patients' socio-demographic characteristics, various risk factors, causes and management.

Results: It was a record based retrospective study. In present study incidence of PPH came out to be 2.12%. It was found that majority (47.67%) of the patients belonged to age group of 21-25 years. It was found that the commonest (18.02%) risk factor associated with postpartum haemorrhage in our study was anaemia, followed by obstructed/prolonged labour (12.20%) and ante partum haemorrhage (11.05%). Main cause of PPH in this study was uterine atony (69.19%). Second common cause was traumatic i.e. 26.74%. Incidence of peripartum hysterectomy done for atonic cases was 7.56% and 2.17% in cases of rupture uterus. 67.44% cases were given blood transfusion. Maternal death due to haemorrhage in our study was 2.33%.

Conclusion: PPH is the leading cause of maternal mortality and morbidity globally. Identification of high-risk factors, timely referral and timely active management (multi-disciplinary skilled approach) of labour is very crucial for the prevention of PPH.

Keywords: Atonic PPH, APH, Post-partum Haemorrhage, Traumatic PPH, Uterine Atony, Maternal morbidity and mortality.

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I. Introduction:

Historically post partum hemorrhage has been defined as blood losses ≥ 500 ml after vaginal birth and ≥ 1000 ml following cesarean delivery ⁽¹⁾.

The ACOG now defines postpartum hemorrhage as **cumulative** blood loss >1000 ml or blood loss accompanied by signs and symptoms of hypovolemia regardless of route of delivery ^(2, 3).

According to RCOG, PPH can be minor (500–1000 ml) or major (more than 1000 ml). Major could be divided to moderate (1000–2000 ml) or severe (more than 2000 ml) ⁽⁴⁾.

WHO defines PPH as the loss of at least 500ml of blood from the genital tract within 24 hours of birth, regardless of whether the delivery was vaginal delivery or cesarean section ⁽⁵⁾.

Severe obstetric hemorrhage is the most feared obstetric emergency that can occur to any woman at childbirth. If unattended, the hemorrhage can kill even a healthy woman ⁽⁶⁾. Each year, about 14 million women experience PPH resulting in about 70,000 maternal deaths globally ⁽⁷⁾. As per the data of World Health Organization (WHO), PPH is the most common cause of maternal mortality and morbidity worldwide and is responsible for 25% of all maternal deaths ^(8,9). 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 ⁽¹⁰⁾.

About 75 to 90% of PPH cases are caused by uterine atony ⁽¹¹⁾.

The most common type of obstetric hemorrhage is postpartum hemorrhage, mainly primary, which is defined as PPH which occurs within 24hrs which is the focus of this article. Secondary PPH is less common (which occurs after 24hrs).

Blood Loss Estimation:

1) qualitative method: at delivery, visual estimation is often used as a qualitative measure of blood loss. However, this method is more likely to under estimate the actual blood loss when volumes are high and to

overestimate it when volumes are low (al kadri, 2011; natrella, 2018). Thus, estimated blood loss that is considered greater than “average” should alert the provider.

2) quantitative method: blood loss during vaginal delivery was estimated visually and weighing from the total amount of blood on gauze, perineal pads and cloth sheet. The amount of blood lost during cesarean section was estimated visually by the chief surgeon and weighing from the total amount of blood on gauze, gauze pads and cloth sheet during the operation, after removing amniotic fluid. After the patient returned to the ward from the delivery room or operating room, blood loss during the first 24hours postpartum was determined from record of the ward nurse by weighting the blood on perineal pads.

3) retrospective method: whenever the postpartum hematocrit is lower than one obtained on admission for delivery, blood loss can be estimated as the sum of the calculated pregnancy-added volume plus 500 ml for each 3-volume-percent decline of the hematocrit.

Causes and risk factors: frequent causes are uterine atony with placental site bleeding, genital tract trauma, or both. Important exceptions are unrecognized intrauterine and intravaginal blood accumulation and uterine rupture with intraperitoneal or retroperitoneal bleeding. Another consideration is an expanding vulvar or vaginal hematoma ⁽²⁾.

ETIOLOGY	CAUSES	RISK FACTORS
1) ATONY :	a) Atonic Uterus	<ul style="list-style-type: none"> • Prolonged use of oxytocin • High parity , Chorioamnionitis • General Anesthesia
	b) Overdistended Uterus	<ul style="list-style-type: none"> • Multiple Gestations • Polyhydraminos , Macrosomias
	c) Fibroid Uterus	<ul style="list-style-type: none"> • Multiple uterine fibroids
	d) Uterine Inversion	<ul style="list-style-type: none"> • Excessive umbilical cord traction , short umbilical cord • Fundal implantation of placenta
2) GENITAL TRACT TRAUMA:	Episiotomy , Cervical , Vaginal and Perineal lacerations Uterine rupture	<ul style="list-style-type: none"> • Precipitous delivery • Instrumental vaginal delivery • Obstructed labor • Previously scarred uterus
3)RETAINED TISSUE:	a) Retained Placenta	<ul style="list-style-type: none"> • Succenturiate Placenta
	b) Placenta Accrete Spectrum (PAS)	<ul style="list-style-type: none"> • Previous Uterine Surgery
4) ABNORMAL COAGULATION:	a) Inherited clotting factor deficiency (Von Willebrand , Hemophillias etc.) b) Severe infection c) Amniotic fluid embolism d) Excessive crystalloid replacement e) Therapeutic anticoagulation	<ul style="list-style-type: none"> • Pre-eclampsia • Fetal death • Placental abruption • Sepsis • Current thromboembolism treatment
OTHER RF	Anaemia , Malnutrition Previous h/o PPH	

Management: Call for help , resuscitation , start iv line with two 14 g (large), send blood for hemogram , platelet count , bleeding and coagulation profile , urea , electrolytes , liver function tests, arrange at least 2 units of blood and 2 units off FFP , platelets , cryoprecipitate, fast infusion of normal saline , Hartman’s solution or Ringer lactate or hemacel upto 2L till blood reaches , catheterize with Foley’s catheter, start oxygen , consider central line for major PPH.

For atonic PPH, management includes uterine massage, emptying bladder, ensuring complete uterine evacuation, blood transfusion, weighing all swabs and estimating blood loss, oxytocin infusion 40 U in 500 ml of NS or RL at rate of 40-60 drops per minute (never given as i/v bolus) and inj. Methergin 0.2 mg iv every 20-40 minutes (max 5 doses). After above mentioned steps, if uterus still remains atonic, 250 ug of carboprost i/m every 15-90 minutes for 8 doses can be given (maximum 2 mg) and 800 ug misoprostol can be kept per-rectally. If Uterus still remains atonic, consider uterine tamponade (bimanual uterine compression or intrauterine packing with 5m*8cm gauze under anaesthesia or insertion of Sengstaken-Blakemore oesophageal catheter or Bakri balloon or condom catheter). Consider military anti-shock treatment or garment (MAST),

continue blood transfusion and uterotonics. Further management includes Surgical options such as Brace sutures, Hayman sutures or Cho's sutures, b/l uterine and utero ovarian arteries ligation, b/l anterior division of internal iliac artery ligation and uterine artery embolization. Hysterectomy is the last resort.

Management of traumatic PPH includes exploration (cervico-vaginal exploration) and haemostatic sutures on the tear sites (stitching of perineal, vaginal and cervical tears). If there is suspicion of uterine rupture, emergency laprotomy f/b uterine rupture repair or if required, hysterectomy (total or subtotal) should be done.

II. Aims And Objectives:

- 1) To study socio-demographic profile of patients with PPH.
- 2) To study various risk factors associated with PPH.
- 3) To study cause and management of patients with PPH.

III. Material And Methodology:

Type of study: RETROSPECTIVE STUDY (conducted in department of obs-gynecology, Umaid Hospital, SNMC, Jodhpur).

Duration of study – 7 months (October 2022 to April 2023)

Sample size – 322

Inclusion criterion – patients with diagnosis of PPH (EBL \geq 1000 ml)

IV. Result And Observations:

INCIDENCE of PPH in our study: 3.97%

1. Socio-demographic details of patients with PPH:

Age wise distribution	Number of patients (%)	Parity	Number of patients (%)
≤ 20	41(12.7%)	Primiparity	155(48.1%)
21-25	153(47.5%)	Multi parity	167(51.9%)
26-30	93(28.9%)	Mode of delivery	
> 30	35(10.9%)	LSCS	114(35.4%)
Religion		NVD	208(64.6%)
Hindu	279(86.6%)	Antenatal visits	
Muslim	43(13.4%)	Booked	165(51.2%)
Place of delivery		Unbooked	157(48.8%)
Home	18(2.48%)		
Hospital	314(97.5%)		

2. Associated risk factors and maternal complications:

Risk Factors	No. of patients (%)	Maternal complications	No. of patients (%)
Anemia/Thrombocytopenia	58(18.01%)	Need of blood transfusion	217(67.4%)
Pre-eclampsia / eclampsia	21(6.5%)	Maternal shock	7(2.2%)
Multiple pregnancy	14(4.3%)	DIC	17(5.3%)
APH :	36(11.1%)	ICU Ventilation	29(9%)
Placenta previa / accrete	6(1.9%)	Sepsis	3(0.9%)
Abruption	30(9.31%)	Maternal deaths :	5(1.5%)
Prolonged / Obstructed labor	39(12.2%)	Atonic PPH	1(20%)
No RF	154(47.8%)	Traumatic PPH	2(40%)
		Mixed	1(20%)
		Coagulative	-

3. Causes and Management:

Atonic PPH :	223(69.2%)	Traumatic :	86(26.7%)
Conservative management	148(66.4%)	Vaginal wall / Cervical tear repair	50(58.1%)
B/L uterine artery ligation with intrauterine packing	58(26%)	Vaginal wall hematoma drainage and repair	12(13.9%)
Compression sutures	01(0.49%)	Ruptured uterus repair	17(19.8%)
Balloon tamponade	03(1.35%)	Hysterectomy	03(3.5%)
NASG	02(0.62%)	NASG	02(2.32%)
Hysterectomy	11(4.72%)	Balloon Tamponade	01(1.16%)
Coagulative :	10(3.1%)	Mixed	06(1.86%)
Transfusion of PCV / FFP	10(100%)	Retained placenta/ Uterine inversion	03(0.93%)
Hysterectomy	-	MRP	02(66.7%)
Secondary PPH :	27(8.39 % of PPH cases)	Manual reposition of uterus	01(33.3%)

V. Discussion:

Incidence in our study came out to be 3.97% which is comparable to the reported incidence which varies widely from 2- 10% ⁽¹²⁾. 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% ⁽¹³⁾.

Highest number of cases i.e.153 out of 322 were in 21–25 years age group .(reason being the younger age of marriage in our country in general associated with the relative increased gravidity and parity at younger ages).

With respect to parity, we found bimodal distribution (48.1% in primigravida and 51.9 % in multigravida) reason being different predisposing factors in primigravida like teenage pregnancy, preeclampsia, eclampsia, abruption, anaemia, uterine over activity while high parity is the reason in multiparous women. In our study, 86.6% patients were Hindu reflecting the major population religion in the city and nearby referral areas, 51.2 % patients were unbooked , majority of them being referred suggesting the lack of facilities in the periphery and also ignorance among women regarding proper antenatal check-ups and care.

In ½ of patients i.e. 47.8% of PPH there is no identifiable risk factor but PPH is not major in this group. Most common risk factor was anaemia (around 18 %) followed by prolonged/obstructed labour , antepartum haemorrhages and others.

Major cause of PPH in this study was uterine atony with a frequency of 69.2% which is comparable to the causes listed in literature (Yee, 2019), out of which 66.4% of cases were managed conservatively (medical management) f/b intrauterine packing done in 26% of cases . Second common cause was traumatic PPH which was around 26.7%, in which vaginal and cervical tear repair was done in around 58% cases f/b repair of ruptured uterus in around 20% cases. The least common cause of PPH was retained tissue which was around 0.93%. The incidence of peripartum hysterectomy done for atonic cases was 4.72% (2 were subtotal hysterectomy) while for ruptured uterus, it was 3.5%.

Secondary PPH was much less common than primary PPH, occurring in about 8% of deliveries.

It was found that 67.4% of cases required blood transfusions. In sub-Saharan Africa, it is estimated that 26% of maternal hemorrhagic deaths are a direct consequence of the lack of blood transfusion services, and globally up to 150,000 pregnancy-related deaths could be avoided each year if women had access to safe blood ^(14, 15).

Disseminated intravascular coagulation (DIC) was found in 6% cases of PPH in the study by Ayub et al ⁽¹⁶⁾. Hypovolemic shock and DIC was present in 2.2 % and 5.3 % of our patients with PPH. NASG was applied in 0.62% of atonic and 2.32% of traumatic cases.

ICU admissions were 9%. There were 5 cases of maternal mortality out of which 1 was due to atonic PPH, 2 were traumatic and 1 was due to mixed etiology (traumatic + coagulative).

VI. Conclusion:

In addition to hypertension and infection, obstetrical haemorrhage remains among the infamous triad of maternal death causes ⁽²⁾.

Haemorrhage is also the single most important cause of maternal death worldwide (Goffman, 2016; Oladapo, 2016).

The frequency and impact of severe hemorrhage can be effectively reduced by reducing avoidable risk factors, especially those related to obstetric interventions and associated 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 during antenatal period and planned conjoined management. Early diagnosis and timely referral also plays an important role.

Finally, surest prophylaxis of PPH is correct management of all stages of labour.

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