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Original Research Article

Study of cases of post-partum hemorrhage after spontaneous vaginal delivery in labour room of obstetrics and gynecology department of tertiary care center, Ranchi, Jharkhand, India

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ABSTRACT

Background: Postpartum haemorrhage is one of the common causes of maternal death worldwide. Whenever the amount of blood loss from or into genital tract is 500 ml or more after delivery of baby or any amount of bleeding that makes patients haemodynamically unstable is post-partum haemorrhage.
Methods: In this study amount of blood loss after spontaneous vaginal delivery was measured in 100 cases by calibrated blood drape. Patients having high risk criteria for PPH were excluded.
Results: In this study 55% patients were from 20-30 years age group. 82% cases were nontribal. 94% belonged to lower middle class. 67% patients were primigravida. 89% patients had atonic PPH and 11% had traumatic PPH. 85% patients had mild PPH. 60% of atonic PPH was managed by oxytocin only. 10% required oxytocin + Methergin, 6% required oxytocin + Methergin + Misoprostol. 6% required Oxytocin + Methergin + Misoprostol + Carboprost. In this study surgical intervention was required in 18% cases. Blood transfusion was required in 74% cases. 75% cases were from non-tribal ethnicity.
Conclusions: PPH is a life-threatening condition. If it can be diagnosed early and managed properly then many maternal lives can be saved. In this study there was no maternal death.

Keywords: Post-partum hemorrhage atonic, Tamponad, Traumatic post-partum hemorrhage, Uterotonics

INTRODUCTION

Haemorrhage is the number one cause of maternal death worldwide. Among all type of haemorrhages, post-partum haemorrhage is the commonest cause of maternal death. There is one death every 10 minutes somewhere in world due to PPH.[1] WHO estimates that PPH accounts for nearly 30% at maternal death worldwide with an estimated 20 million deaths annually.[2] Blood loss from or into genital tract more than 500 ml after birth of baby is called post-partum haemorrhage. Clinical definition is any amount of blood loss after childbirth which makes women haemodynamically unstable, amounts to PPH. When bleeding is within 500-1000 ml it is mild PPH. Bleeding more than 1000 ml amounts to severe PPH. PPH is divided into primary and secondary. When bleeding occurs within 24 hours it is primary PPH and when bleeding occurs beyond first 24 hours up to 12 weeks it's is secondary PPH.[3] Primary PPH may be due to a tonicity, cervical tear, vaginal tear, para urethral tear, retained placental beats or coagulopathy. Actual blood loss after delivery is difficult to measure. Toledo and colleagues have shown that calibrated drape with marking improved estimation accuracy.[4]

Routine active management of third stage of labour is a prophylactic measure to prevent PPH. AMTSL comprises of 10 units oxytocin IM within 1-2 minutes of delivery after excluding second baby of twin, delayed cord clamping and delivery of placenta by controlled cord traction and uterine massage. AMTSL reduces incidence of PPH and maternal mortality by 40%.[3] Oxytocin is the drug of choice for AMTSL. Other uterotonic used for management of PPH are ergometrine (after excluding hypertension and heart disease), carboplast (after excluding bronchial asthma) and Misoprostol. In addition to the above medicines, the 2009 and 2012 WHO Guidelines for managing PPH, mentioned carbetocin, recombinant F-VIIa and tranexamic acid as possible therapeutic interventions for PPH.[3] Historically PPH was one of the leading cause of maternal deaths in the industrialized nations up to second world war.[5] The first uterotonic drugs were ergot alkaloids, followed by oxytocin and finally prostaglandins.[6] High quality evidence showed that calibrated blood drapes were better than measuring the blood and blood soaked materials at detecting blood loss at least 500 ml.[7]

Objective of this study was to know incidence of PPH, it's type, age and parity and ethnic distribution. To know Incidence of severe PPH, its response to medical method of treatment by uterotonics, and to know number of cases requiring surgical management and overall outcome.

METHODS

Present study is a cross sectional study carried out in labour room of department of obstetrics and gynecology, Rajendra Institute of Medical Sciences, Ranchi. Study duration from April 2018 to September 2019.

A total 100 cases of PPH after normal vaginal delivery in labour room of RIMS, Ranchi. Patients were selected randomly.

Inclusion criteria

- Patient having PPH after normal vaginal delivery.

Exclusion criteria

- High risk cases for PPH e.g.- pre-eclampsia, eclampsia, twin pregnancy, anaemia, jaundice, intrauterine fetal death, placenta previa, hydramnios, blood coagulopathy.

The angle between the ultrasound beam and direction of Estimation of blood loss after delivery of baby was done by a calibrated blood drape. Blood drape is a plastic sheet with a calibrated pocket to measure blood loss. Blood drape is placed beneath the buttock of women just before delivery.

PPH with flabby uterus means atonic PPH and PPH with contracted uterus is traumatic PPH. Sometimes it is combined type. The golden first hour is the time at which resuscitation must begin to achieve maximum survival before metabolic acidosis sets in.[8] PPH was managed according to protocol of management of PPH : shout for help, two big bore IV cannula (No. 16,18) was put, blood samples taken and blood requisition was given to patient (depending on requirement) either normal saline or Ringers lactate was started fast from one side and from other side Ringers lactate with 20 units of oxytocin was started at the rate of 40-60 drops per minute. Uterine massage is started in atonic PPH. Foley's catheterization was done. Gradually dose of oxytocin was increased if uterus was still flabby. In 24 hours maximum 3 units of oxytocin drip or maximum 100 units of oxytocin can give. Other drugs used were Methergin (0.2 mg) IV/IM excluding hypertension and heart disease. Maximum 5 doses in 24 hours can be given. Carboprost acts as a smooth muscle stimulant and is recognized second line agent for use in the management of postpartum uterine atony unresponsive to oxytocin or ergometrine, 250 microgram IM stat is given.[9] It can be repeated every 15 minutes up to 8 doses if required. Contra indication of Carboprost is Bronchial asthma. Other drugs used was misoprostol 1000 microgram given per rectally. If PPH is suspected to be traumatic or atonic PPH not responding to uterotonics then patient was shifted to OT. Cervical visualization was done, under anaesthesia uterine exploration was done for retained placental bits. Repair of cervical tear was done if cervical tear was detected.

If PPH was still not controlled, then bimanual uterine compression was tried. Balloon tamponade was done in some cases with condom catheter. Some cases required laparotomy followed by uterine artery ligation. In 4 cases of severe PPH not responding to oxytocic and other method - including surgical methods of stepwise devascularisation, subtotal hysterectomy was done as life saving measure. Routine use of active management of third stage of labour for all vaginal singleton births in health facilities is recommended by FIGO and ICM as well as by WHO.[10]

Statistical analysis

Data is entered in MS excel and analyzed BY IBMSPSS statistical version 20 data editor. Frequency and chi square test performed for categorical variables.

RESULTS

Table 1 shows incidence of PPH was more in age group of 20-30 years. Followed by age group of <20 years, 55% and 41% respectively. This may be due to the fact that maximum number of patients in this study was between 20-30 years.

A total 33% of patients were literate.

A total 82% of patients are non-tribal. Ethnicity may have some role in PPH and needs further research. This may

also be due to the fact that majority of patients included in the study were nontribal (Table 2).

Table 1: Distribution of cases according to age of patients.

Age group	Frequency	Percent
< 20 years	41	41.0%
20-30 years	55	55.0%
> 30 years	4	4.0%
Total	100	100.0%

Table 2: Distribution of cases according to ethnicity.

Ethnicity7	Frequency	Percent
Non-tribal	82	82.0%
Valid		
Tribal	18	18.0%
Total	100	100.0%

A total 94% cases belonged to lower middle class. Poor nutritional status may be responsible for increased incidence of PPH. 4% patients were from lower class and 1% each from upper class and upper middle class (Table 3).

Table 3: Distribution of case according to socioeconomic status.

Socioeconomic status	Frequency	Percent
Upper class	1	1.0%
Upper middle class	1	1.0%
Lower middle class	94	94.0%
Lower class	4	4.0%
Total	100	100.0%

Table 4: Distribution of cases of parity.

Parity	Frequency	Percent
Primigravida	67	67.0%
Multigravida	33	33.0%
Total	100	100.0%

Table 5: Distribution of cases according to types of PPH.

Type of PPH	Frequency	Percent
Traumatic	11	11.0%
Atonic	89	89.0%
Total	100	100.0%

A total 67% of patients were primigravida and 33% were multigravida. This result does not tally with the fact that PPH is commoner in multigravida. It may be incidental finding as more primigravida patients were included in this study. Incidence in primigravida was 33% (Table 4). A total 89% cases had atonic PPH and 13% cases had traumatic PPH. This tallies with previous studies that atonic PPH is commoner than traumatic PPH (Table 5).

A total 85% of patient had mild PPH and 15% of patient had severe PPH.

Table 6: Distribution of cases according to amount of blood loss.

Amount of blood loss	Frequency	Percent
500-1000 ml	85	85.0%
1000-1500 ml	15	15.0%

Table 7: Distribution according to cases who responded to medical management done in PPH.

	Frequency	Percent
Oxytocin	60	60.0%
Oxytocin+Methergin	10	10.0%
Valid Oxytocfin +Methergin+Misoprostol	6	6.0%
Oxytocin+Methergin+Miso prostol+Carboprost	6	6.0%
Total	82	82.0%

A total 60% patients of atonic PPH were managed by oxytocin only. 10% cases of atonic PPH required oxytocin + Methergin 6% cases required oxytocin + Methergin + Misoprost and 6% cases required. Oxytocin + Methergin + Misoprostal + Carboprost (Table 7).

Table 8: Distribution of cases according to surgical management.

Surgical management	Frequency	Percent
Not required	82	82.0%
Cervical tear repair	11	11.0%
Uterine artery ligation	3	3.0%
Subtotal hysterectomy	4	4.0%
Total	100	100.0%

A total 9% cases required uterine balloon tamponade. 11% case cervical tear was repaired, 3% case uterine artery ligation was required, and 4% cases hysterectomy was done (Table 8).

Table 9: Distribution of cases according to requirement of blood transfusion.

Blood transfusion	Frequency	Percent
Yes	74	74.0%
Not required	26	26.0%
Total	100	100.0%

A total 74% of patient require blood transfusion whereas 26% of patient were required volume expansion by crystalloid and colloids. This corresponds with the fact that majority of patients in the study had mild PPH (Table 9).

In non-tribal group 91.4% had mild PPH whereas 8.8% had severe PPH where as in tribal group 63.36% patients

had mild PPH where as 36.4% patients had severe PPH. This shows that incidence of mild PPH was more in non-tribal group. Incidence of severe PPH is more in tribal population. It may be due to small number of tribal patients in this study. Further study with larger sample size is required (Table 10).

Among primigravida patients 91.2% had mild PPH and 8.8% had severe PPH whereas among multigravida patient 72.6% had mild PPH and 27.4% had severe PPH. Incidence of mild PPH was more in primigravida. Incidence of severe PPH was more in multigravida (Table 11).

Table 10: Correlation between ethnicity and amount of blood loss measured by blood drape.

	Amount of blood loss measured by blood drape				Total
	500-1000 ml		1000-1500 ml		
Non-tribal	75	91.4%	7	8.8%	82
Ethnicity					
Tribal	11	63.6%	7	36.4%	18
Total	86		14		100

p value = 0.001.

Table 11: Correlation between parity and amount of blood loss measured by blood drape.

Parity	Amount of blood loss measured by blood drape				Total
	500-1000 ml		1000-1500 ml		
Primigravida	61	91.2%	6	8.8%	67
Multigravida	24	72.6%	9	27.4%	33
Total	85		15		100

DISCUSSION

The mean age was 27.7 year in a study conducted by Solwayo Ngwenya on PPH: incidence risk factors and outcome at Mpilo hospital in Zimbave, for a duration from January 2016 to June 2016.[11] In this study PPH was found to be more common in 20-30 years age group. 55% of patients were between 20-30 years age group whereas A total 41% were of less than 20 years age group. This may be due to the fact that majority of patients were from this age group.

A total 82% of patients were nontribal whereas 18% patients were tribal.

A total 94% patients were from lower middle class. This finding tallies with the fact that poor nutritional status may be responsible for higher incidence of PPH in this class of patients.

A total 67% patients were primigravida whereas 33% were multigravida. This is contrary to the finding of other studies where PPH is commoner in multigravida. This may be due to the fact that majority of patients included in the study were primigravida. This may be an incidental finding.

In this study 89% cases were of atonic PPH and 11% were traumatic PPH. This tallies with previous studies.

Incidence of mild PPH was 85% patients and incidence of severe PPH was 15%.

In a study conducted by Sheldon WR et al, on postpartum hemorrhage, risk, and maternal outcome: findings from WHO multi-country survey on maternal and new-borne health from 1st May 2010 to 31st December 2011 in 28 countries, of total 274985 deliveries, among cases of PPH 92.7% received uterotonics for treatment.[12] In this study 60% patients of atonic PPH were managed by to oxytocin only, 10% of cases of atonic PPH required Oxytocin + Methergin, 6% cases required Oxytocin + Methergin + Misoprostol, 6% required carboprost in addition to Oxytocin + Methergin + Misoprostal.

A total 18% of cases required surgical management. Cervical tear repair was done in 11% cases, uterine artery ligation was done in 3% cases and subtotal hysterectomy was done in 4% cases. Blood transfusion was required in 74% cases. 26% cases were managed by volume expansion by crystalloids and colloids.

Among 82 cases of non-tribal ethnicity 75 had mild PPH and 7 had mild PPH. Among 18 tribal patients 11 had mild PPH and 7 had severe PPH. Among 67 primigravida 61 had mild PPH and 6 had severe PPH. Among 33 multigravida patients 24 had mild PPH and 9 had severe PPH.

CONCLUSION

In this study uterine atony followed by traumatic PPH was most common cause of PPH. PPH is leading and most preventable cause of maternal mortality. Incidence

of PPH was found to be more in non-tribal. Tribal may be ethnically protected from PPH but it needs further research.

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