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A Prospective Study to Assess the Risk factors and Effectiveness of Management Strategies in Postpartum Haemorrhage

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ABSTRACT
Postpartum hemorrhage is the major cause of adverse maternal outcome of which 75 to 90 % results from uterine atony. Most PPH occurs within 4 hours postpartum, mainly complicating third stage of labour. Identification of risk factors and early intervention can help in preventing and attenuating incidence of PPH. Stepwise approach is used in achieving hemodynamic stability, arrest of bleeding andat extreme hysterectomy for effective management of PPH.
The purpose of this study is to Identify, enumerate and decide frequency of risk factors in PPH and effectiveness of management strategies.
This is a prospective study, conducted in the department of obstetrics and gynecology at Shri M P shah medical college Jamnagar for a period of one year among52 patients having PPH.
At the end of the study common risk factors found were multiparity, twin pregnancy, anemia, retained placenta, nulliparity and instrumental delivery. It is more common between 24 to 30 year age group. Majority were mild to moderate PPH, effectively managed using uterotonics, 16 patients were managed surgically including5 subtotal hysterectomy amid failed medical treatment for PPH.
In this study an attempt has been made to study the risk factors associated with PPH and effectiveness of management strategies. It is an emergency complicating about 3 to 6 percent of all deliveries and potentially life threatening. This study will enhance our existing knowledge about patient care and better understanding of prevention and management of PPH through mitigating associated risk factors.
***Keyword**: PPH, uterotonics, hysterectomy*
***Abbreviation**: PPH postpartum hemorrhage.*

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I. INTRODUCTION

The third stage of labour is the pivotal stage for women since unexpected serious complications can occur following uneventful and normal first and second stage of labour.
Postpartum haemorrhage is the significant contributor for maternal mortality and morbidity. Obstetric haemorrhage accounts for 38% of maternal deaths, of whichPPH accounts for 25%
In today life around 1600 women die in childbirth and of which approximately500 bleeds to death. Leading cause is atonic PPH and more than 99 % in the developing countries.
Incidence of PPH is reported as 2% to 4% after vaginal delivery and 6% after caesarean section.
It has been observed that most deaths from PPH occur in middle and low income countries.
India has an unexpectedly high maternal death rate of 540 per 1,00,000 live births.

DEFINITION

Quantitatively PPH is defined as bleeding from genital tract of more than 500ml after birth of baby up to the end of puerperium (6weeks). If it occurs within first 24hrsit is called primary PPH, if it occurs after 24hrs to end of puerperium it is called secondary PPH. As per ACOG, any blood loss >= 1 litre irrespective of mode of delivery is called PPH. Clinically vaginal blood loss irrespective of its amount post-delivery up to the end of puerperium as a result of which patient becomes hemodynamic ally unstable associated with tachycardia and hypotension.
Practically hematocrit drop of 10% or hemorrhage requiring immediate transfusion.

The average blood loss after vaginal delivery is 500ml, after caesarean section1 litre and post caesarean hysterectomy is 1.5 litre.
It can also be classified as minor PPH (Blood loss 500ml to 1 litre), major PPH (blood loss 1 to 2 litre) and massive PPH (blood loss>2 litre)

II. AIMS AND OBJECTIVES

The purpose of this study is to identify, enumerate and decide frequency of riskfactors in PPH and effectiveness of management strategies which will reduce significant reduction of hospital stay and also decreases the long term psychological impact of PPH on affected women.

III. MATERIALS AND METHODS

This is a prospective study conducted in the department of obstetrics and gynaecology at Shri M P SHAH medical college Jamnagar for a period of 1year November 2021 to November 2022 among which 52 patients had PPH.

This study included all patients admitted primarily in our department also those referred from primary and community health centre of nearby areas were included.

Estimation and diagnosis of PPH was based on visual estimation of blood loss>500ml, general condition, tachycardia, hypotension, signs and symptoms of haemorrhagic shock for diagnosis of PPH.

Distribution according to parity

IV. RESULTS

Parity	Primipara	10	19.2
	Multipara	42	80.7

Age distribution of patients

Highest number of cases i.e. 40 out of 52 were in 24-30 yrs age group.

Age Group	Number Of Patients	Percentage
<20	2	3.8
20-23	6	11.5
24-30	40	77
>30	4	7.7

Presence of high risk factors

In this study about 40% patients belonged to rural area and low socioeconomicstatus. In 65% of PPH cases there was no identifiable risk factors.

High Risk Factor	Number	Percentage(%)
No any factor	3 4	65
Anemia	1 0	20
Preeclampsia / eclampsia	4	7
Twins / polyhydromnios	1	2
Prolong labour / obstructed labour	3	6

Distribution according to etiology

Most common cause for PPH is Atonic PPH (69%), second most common causeis traumatic PPH (20%) of cases. Secondary PPH is less common than primary PPH.

Etiology		Number	Percentage%
Atonic		36	69
Traumatic (20%)	1.Cervicovaginal tear	8	82.35
	2.Vulval hematoma	1	2.9
	3.Pelvic hematoma	1	5.8
	4.Rupture of uterus	1	8.8
Coagulation defects		4	8.9
mixed		1	2

Frequency of management strategies

In table 4 shows management done in cases of PPH to save patient's life. Incidence of peripartum hysterectomy done for atonic cases was 5.5 % and 2 % for traumatic PPH.

Atonic Pph	Number	Percentage(%)
Medical management	24	46
Bimanual uterus compression	3	5.5
Compression suture	2	4
Vessel ligation b/l uterine, ovarian, internal iliac	4	7.5
Obstetric hysterectomy	3	5.5

Traumatic Pph	Number	Percentage(%)
Drainage of hematoma	9	17
Repair of rupture uterus	1	2
hysterectomy	1	2

Coagulation Defect	Number	Percentage(%)
Transfusion of PCV / FFP / platelet	4	8
Obstetric hysterectomy	1	2

Maternal morbidity and mortality associated with PPH

Maternal morbidity and mortality associated with PPH. Development of acute severe anaemia due to PPH in our study was found to be 20%, hypovolemic shock andDIC was found in 19.2%. Intensive care was required in 19.2 % of cases. Blood and blood products were given in 90.3% of cases.

Morbidity	Number	Percentage
Severe Anemia	38	73
Hypovolemic shock	10	19.2
Need of blood transfusion	47	90.3
Need of icu	10	19.2

2 patients had mortality due to postpartum haemorrhage.

Maternal Death	Number	Percentage
Atonic PPH	1	1.4
Traumatic PPH	1	1.4
Mixed	0	0
Coagulation defects	0	0

V. DISCUSSION

Pregnancy and childbirth still remains the leading cause of death, disease and disability in women of reproductive age in developing countries.

In our study among 52 cases, 10 patients were primigravida and 42 were multigravida. Maximum number of cases were in the age group of 24 to 30 years of age. In our study most of the patients had no any risk factor (65%), followed by patients having pre existing anaemia (20%), hypothyroidism prevlscs, premature rupture of membranes , macrocosmic babies forming other risk factors.

In Michael S Kramer et al study, they found that labour induction, augmentation of labour and prior caesarean section are majorly associated with risk of PPH, and their increase over the study period largely explained the observed rise in PPH in their study.

In similar study, they found that caesarean section, multiple pregnancy, fetal macrosomia and HIV were found to be risk factors for PPH.

Jane B Ford etal in their study on postpartum haemorrahge found that 5.8% of women had PPH in their first preganancy,4.5% had PPH in their second pregnancy and 4.5% had PPH in their third pregnancy.

Lao et al, in their study found that parturient aged >= 35 years had significantlyincreased incidence of PPH.

Anaemia in pregnancy is common and linked to PPH in terms of uterine atony.

The more severe the anaemia, the more likely the blood loss and adverse outcome.

Frass et al, showed that 29.1% of anemic women developed PPH during caesarean delivery due to uterine atony. Previous studies have showed that severe anaemia may impair myometrial contractility resulting from impaired transport of hemoglobin and oxygen to uterus causing tissue enzymes and cellular dysfunction.

In their study severe uterine atony required emergency hysterectomy which occurred in 39.6% of women who had severe anemia.

Magann et al, in their study found that the PPH rate in nonelective caesarean (6.75%) was greater than elective caesarean (4.84%).

Lilltrinenyflot et al in their study is associated with premature rupture of membranes in 12% of cases

Michael S Kramer et al studies a studied a total of 1,03,726 deliveries during the study period, among which 2346(2.3%) had a recorded PPH and 157(0.15%) had a PPH accompanied by a blood transfusion and or hysterectomy. In our study PPH was controlled with uterotonics in 46% of cases and surgical management like b lynch suture, Hayman sutures were required in 36.5% of cases, hysterectomy was done in 5 cases. Blood transfusion was done in almost all cases of PPH.

If medical method fails mechanical methods like balloon tampanode using faoley's catheter, Rusch balloon, Bakri balloon, were used. It was effective in 91.5% of cases since it is relativly simple technology and should be a part of existingprotocol.

Radiological management: uterine artery embolisation is useful in situations preservation of fertility is desired.

Surgical management: multiple options are available including uterine compression sutures, vascular ligations and peripartum hysterectomy.

Uterine compression sutures made a revolution in decreasing the incidence of hysterectomy for severe PPH. These compression sutures exert a mechanical compression of uterine vascular sinuses without occluding either uterine arteries oruterine cavity. Other types of sutures are B lynch suture, chi square suture, hayman sutures.

Vascular ligations: its mainly done to decrease blood flow to the uterus, in order to arrest life threatening PPH. Bilateral uterine artery ligation – b/l ovarian artery ligation-internal iliac artery ligation. It causes almost 85% reduction in pulse pressure and provides hemostasis via clot formation.

Peripartum hysterectomy can be total or subtotal is the last resort when all other methods to control PPH fails. Subtotal hysterectomy is the choice unless there is a trauma to cervix or lower uterine segment.

VI. CONCLUSION

- Globally PPH is the leading cause of maternal mortality and morbidity.
- Prevention plays a very important role by identifying high risk factors andeffective management of labour.
- Management is by medical, mechanical, surgical, radiological methods.
- A multidisciplinary approach is essential in severe haemorrhage.
- Availability of blood and blood products is essential.
- It is very important to identify the aetiology, although uterine atony iscommon.
- Prediction and assessment of blood loss remains the cornerstone for promptand effective management of PPH

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