

ORIGINAL RESEARCH

Impact Of Postpartum Haemorrhage In Maternal Near Miss Cases

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ABSTRACT

Background: Primary postpartum haemorrhage (PPH) is that the leading causes for maternal mortality worldwide. India has made noteworthy progress in maternal health care services. Despite this, primary postpartum haemorrhage is a significant contributor to maternal morbidity & mortality. The aim of this study was undertaken to review maternal near misses in cases of PPH.

Materials and Methods: This was an observational prospective study conducted within the department of Obstetrics & Gynaecology, SMS medical college, Jaipur, India from January 2020 to december2020 on a sample size of 170 patients.

Results: The records were analysed with relevance to maternal age, parity, socio-demographic & etiological profile, and maternal consequences in cases of Maternal Near Miss with PPH at our tertiary care centre. The incidence of PPH was 19% because of the inclusion of all booked and referred cases. The most important cause for PPH during this study was uterine atony (60.52%). The second common cause was traumatic (34.21%) and at least common cause of PPH was coagulopathy (5.26%). In 63.17% cases blood and blood products transfusion was required.

Conclusion: Proper and early management, together with timely referral will cause a major reduction in maternal morbidity & mortality due to PPH. Maternal deaths due to PPH are clearly declining that is because of improved socioeconomic status, high standard medical and surgical management.

Keywords: PPH, Maternal mortality, Maternal Mortality Index, FRU.

INTRODUCTION

Postpartum haemorrhage (PPH) is the leading cause of maternal mortality in low-resource countries. Although PPH is relatively more prevalent in low- and middle- income countries, its incidence in high-income countries has significantly increased in recent times. Postpartum

haemorrhage (PPH) is a major cause of maternal morbidity and mortality, accounting for about one-third of all pregnancy-related deaths in Africa and Asia. The incidence of PPH in observational studies is believed to be around 6%, although this can vary somewhat by geographic region and delivery setting.¹

Postpartum haemorrhage is defined as excessive bleeding from the genital tract after the birth of the baby. Primary PPH refers to bleeding from the genital tract of 500 ml or more within 24 hours of birth. Primary PPH is more common and associated with more adverse maternal outcome compared to secondary PPH, which occurs 24 hours after delivery. Apart from the immediate threat to maternal survival, PPH is associated with significant long-term complications. Severe morbidities associated with PPH include anaemia, disseminated intravascular coagulation, blood transfusion, hysterectomy, and renal or liver failure. In addition, a woman who was a PPH near-miss has significant risk of dying in the following year from the effects of PPH. Health system factors and phase 3 delays due to deficiencies in the availability, accessibility, timeliness and appropriateness of emergency obstetric care are recognised factors that determine survival from this condition when it occurs.²

The importance of PPH as a cause of adverse maternal outcome globally has led to surgical, radiological and pharmacological breakthroughs and enriched guidelines in the management of this life-threatening condition. Health policies that ensure increased access to specialised care for woman at risk of PPH and those with PPH or PPH complications have been shown to improve the effectiveness of emergency obstetric care and foster better maternal outcome.

It is well established that accurate and reliable data are central to policy formulation for improving the quality of obstetric care. The role of adequate surveillance, early diagnosis and timely institution of life-saving intervention in the management of PPH has also been well documented.³

Although PPH occurs in all settings and all geographic regions, the majority of maternal deaths as a result of PPH take place in developing countries. This disparity has been attributed to differences in quality of care, including the availability of trained personnel attending deliveries, access to quality uterotonic drugs, and the timely receipt of needed interventions when obstetric emergencies arise. Yet disparities in severe maternal outcomes (SMOs) also occur within higher level health facilities. In the recent World Health Organization (WHO) Multi-country Survey that documented the incidence of maternal morbidity and mortality at health facilities globally, PPH accounted for 27% of all deliveries with an SMO. The aim of this analysis was to investigate the burden of PPH, to explore the clinical practices, risks, its associated SMO and various critical lifesaving interventions done in those patients to save the life in a tertiary hospital.

MATERIALS AND METHODOLOGY

This observational prospective study was conducted in the department of obstetrics and gynaecology, SMS medical college, Jaipur. It included all the cases of severe acute maternal morbidity that met the inclusion criteria and definition of near-miss maternal mortality as given by maternal near-miss review operational guidelines. On the basis of the set criteria, cases were identified and selected for data collection from January 2020 to December 2020. A detailed analysis was done with regard to the maternal age, parity, socio-demographics, and etiological profile and various complications due to PPH.

Data collection was done through in-depth interviews of maternal near miss mothers, someday after their admission, to ensure survival. At the time of data collection, the purpose of the study was clearly explained to the study subjects and they were also assured of the confidentiality of the information. The study subject was enrolled in the study only after taking written informed consent.

Clearances and permission were obtained from the scientific and ethical research committee. All the interviews were taken in local language in a semi structured questionnaire. All the results were compiled and tabulated and maternal near-miss ratio, maternal near-miss mortality ratio, and maternal mortality index was calculated.

MATERNAL NEAR MISS RATIO

Refers to the number of maternal near miss cases per 1000 live birth.

MATERNAL NEAR MISS MORTALITY RATIO

Refers to the ratio between maternal near miss cases and maternal death.

MATERNAL MORTALITY INDEX

Refer to the number of maternal deaths divided by the number of women with life-threatening conditions expressed as a %.

MATERNAL MORTALITY INDEX (MI)

Number of maternal death /Number of Maternal Death + Number of Near Misses

STATISTICAL ANALYSIS

The collected data were verified and coded. Data were expressed in proportion for categorical variables and mean \pm SD for continuous variables. Descriptive analysis was carried out for description of MNM indices and characteristics.

RESULTS

Total no of delivery was 12459 and the total no of live births was 12127. In our study, total severe maternal outcome was 208, maternal deaths 38, maternal near miss ratio were 14.01 per 1000 live births, maternal near miss mortality ratio was 4.6:1. Maternal mortality index was 18.26% and maternal mortality ratio was 313 per 100000 live births. Near miss to mortality ratio was 4.6:1 which means for every 5-6 life threatening conditions there was one maternal death. Postpartum haemorrhage as reason for near miss was 22.35%. In our study total 38 patients had PPH all including booked and referred cases. Highest number of cases i.e. 28 out of 38 were in 21-25 years age group. 39.47% were primigravida. 39.47% of PPH cases there was no identifiable risk factors (table-3). Main cause of PPH in this study was uterine atony (60.52%) and second most common cause of primary PPH was trauma (34.21%), the least common cause of PPH was coagulopathy (5.26%) (table-4). In 97.37% the cases were primary PPH.

Table 5 shows management done in cases of PPH to save patients' life. In our study all the cases of atonic PPH were medically managed; all were given bimanual uterine compression and balloon tamponade was needed in 30.43% cases followed by obstetric hysterectomy in 21.37% cases and internal iliac artery ligation in 13% cases. Among the cases of traumatic PPH, equal proportion of cases were repaired or haematoma was drained and hysterectomy was needed in 23.07% cases. 63.17% of the all cases of PPH required blood transfusion.

Table 1: Distribution of subjects of PPH according to age

AGE GROUPS (N=38)	Frequency	Percent
<20 YRS	0	0
20-25	28	73.68%
26-30	3	7.89%
31-35	4	10.52%
>35	3	7.89%

Table 2: Distribution of maternal near miss case with PPH according to PARITY

Parity	Frequency (N=38)	Percent
Primigravida	15	39.47%
2 nd Gravida	4	10.52%
Multigravida	19	50.00%

Table 3: Distribution of maternal near miss case with PPH according to High Risk Factors

High Risk Factors	Frequency	Percent
Anemia	21	55.26%
Prolonged/ Obstructed Labor	2	5.2%
No Risk Factors	15	39.47%

Table 4: Distribution according to aetiology of PPH

Aetiology of PPH	Frequency	Percent
Atonic PPH	23	60.52%
Uterine inversion	2	5.26%
Morbidly adherent placenta	4	10.52%
Inversion of uterus	2	5.26%
Traumatic PPH	9/13	34.21%
Cervicovaginal tear	5/8	21.05%
Vulval hematoma	4/5	13.57%
Postpartum scar site hematoma	2	5.26%
Coagulation defect	2/4	5.26%
Mixed	4	

Table 5: Management done in case of PPH

Management	Frequency	Percent
ATONIC PPH (N=23)		
Medical Management	23	100
Bimanual Uterus Compression	23	100
Balloon Tamponade	7	30.43%
Internal Iliac Ligation	3	13.04%
Obstetric Hysterectomy	5	21.73%
TRAUMATIC PPH (N=13)		
Repair	5	38.46%
Drainage of Hematoma	5	38.46%
Hysterectomy	3	23.07%
Coagulation Defects	2	5.41
Transfusion of PCV/FFP/Platelet	24	63.17%

DISCUSSION

Haemorrhage continues to be the leading reason for maternal mortality worldwide, accounting for 34% of maternal deaths in Africa, 31% in Asia, 21% in Latin America, and 13% in developed countries.¹ The Incidence of PPH with maternal near miss came out to be 22.35%, which is quite high as compared to the reported incidence which varies widely from

2-10%.⁴ 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%.⁵ The rate in both Europe and North America was around 13%.² Highest number of cases were in 20–25 years age group (Table 1), which was similar to other studies^{6,7} while other studies mention most cases being over 35 years.⁸ The reason for this difference perhaps lies in the younger age of marriage in our country associated with the relative increased gravidity and parity at younger ages. Multiparity, particularly grand multi-parity has been specified as a factor predisposing to increase frequency of PPH.^{3,9} In our study we found bimodal distribution of incidence of PPH in relation to parity i.e., primigravida 39.47% and multigravida 50%. Reason being different predisposing factors in primigravida like teenage pregnancy, preeclampsia, eclampsia, abruptio, anaemia, dysfunctional labour, uterine overactivity while high parity is the reason in multipara. In our study most of the patients were unbooked belonging to the rural areas with lower socio-economic status reflecting the lack of proper antenatal care, illiteracy and ignorance among such population, as is also mentioned in other studies.^{10,11} Anaemia was high risk factor in 55.26%, In 39.47% of PPH cases there was no identifiable risk factor. The main cause of PPH in this study was uterine atony with a frequency of 60.52%. (Table 4).

In a study conducted by Ashraf et al, uterine atony was found in 34% of cases.³ In international studies uterine atony was the most common cause of PPH, ranging from 50% to 76% of cases.^{12,13} The second most common cause of primary PPH was traumatic (34.21%). International studies also mention a frequency ranging from 9% to 20% of cases of traumatic lesions as the cause of PPH.^{12,14} The least common cause of PPH was coagulopathy (5.26%) which was in concordance with the study reported by Anderson et al¹⁵. Secondary PPH was less common than primary PPH, occurring in about 1% of deliveries.¹⁶ In our study the incidence of secondary PPH was 2.63% which is comparable to study by Singh et al where the incidence of secondary PPH was 2.4%.¹⁷

The incidence of peripartum hysterectomy done for atonic cases was 21.73% in our study (Table 5). The development of acute anaemia due to PPH in our study was found to be 63.17% which also indirectly contributed to maternal morbidity. Blood transfusion is recognized as one of the eight essential components of comprehensive emergency obstetric care (CEMOC), which has shown to reduce rates of maternal mortality.^{18,19} In sub-Saharan Africa, it is estimated that 26% of maternal haemorrhagic 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.^{20,21} Risk factors not amenable to vary like age, ethnic origin, and pre-existing medical diseases or bleeding disorders will be minimized by extra vigilance and planned conjoined management. The foremost common reason behind PPH is atonic PPH. PPH is multi-factorial, in 71% patients have anaemias being a major risk factor. Maternal deaths due to PPH are declining because of improved socioeconomic status, high standard medical and surgical management, use of NASG, and expert care delivered. Finally, prophylaxis of PPH is that the correct management of all stages of labour.

CONCLUSION

Proper anticipation and skilled management, together with timely referral of PPH cases will result in a major reduction in maternal morbidity & mortality. Every pregnancy should culminate in healthy mother and healthy baby and for that everyone women have access to top quality essential and emergency obstetric service from first referral unit (FRU) level itself to cut back maternal mortality.

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