

A Retrospective Study of Risk Factors and Outcome Analysis of Post Partum Haemorrhage in A Tertiary Care Hospital

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Abstract

Introduction: Postpartum hemorrhage is important cause of maternal mortality in developing as well as developed countries. It is defined as blood loss of more than 500ml in normal vaginal delivery and more than 1000ml in a case of caesarean section or amount of blood loss that can affect hemodynamic stability of patient. It is a significant cause of maternal morbidity and mortality.

Materials and Methods: This was a cross sectional observational study conducted in a Tertiary care hospital, MGM Medical College and Hospital, Jamshedpur conducted from November 2016 to June 2018 having high no of referrals from city as well as periphery. On admission to the hospital their detailed history such as name, age, parity, socio economic status, address, whether booked or unbooked, whether handled at home by untrained dais / relatives, at PHC's by health workers, medical officers, or at private nursing home were noted. A complete obstetric history included duration of pregnancy, duration of onset of pain, history of vaginal leak, history of bleeding, etc. In case of referred case, time, date, place of referral, method of interventions like use of IV fluid, use of oxytocin, epidural, per vaginal examination, ARM, any inducing agent instillation, episiotomy given, any instrumental use, blood transfusion, whether manual removal of placenta was tried were noted. A detailed past obstetric history, past menstrual history, past history, family and personal history were noted.

Results: The cross tabulations were used to study the demographic, obstetrical and medical factors in women with severe obstetrical haemorrhage. Total number of patients admitted in labour room was 8016 and 8012 patients delivered during this period. Results showed that severe obstetrical haemorrhage (more than 1500 ml) was in 110 patients (prevalence of 1.37%).

Conclusion: The prevalence of severe obstetric haemorrhage was 1.37%. The frequency and impact of severe hemorrhage can be effectively reduced by reducing avoidable risk factors, especially those related to obstetric interventions as increased CS rate and induction of labor. 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 and planned conjoined management. The result of the study indicate that severe obstetric haemorrhage can be used as an indicator to assess the level of obstetric care. By identifying the risk factors of severe obstetrical haemorrhage, preventive measures can be taken to avoid fetal/maternal morbidity & mortality.

Key Words: Postpartum hemorrhage, maternal mortality, maternal morbidity,

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I. Introduction

Postpartum hemorrhage is important cause of maternal mortality in developing as well as developed countries. It is defined as blood loss of more than 500ml in normal vaginal delivery and more than 1000ml in a case of caesarean section or amount of blood loss that can affect hemodynamic stability of patient.^{1,2} It is a significant cause of maternal morbidity and mortality. Primary PPH is defined as blood loss within 24 hours of delivery and Secondary PPH is blood loss after 24 hours of vaginal delivery.²⁻⁴ Prevalence of postpartum hemorrhage is 6% worldwide and Africa being the one with the highest prevalence rate of 10.1%.⁵ Maternal Hemorrhage is the commonest cause of maternal mortality in India.

Proportion of maternal deaths due to postpartum hemorrhage is significantly low in developed countries (8% as compared to 25% in developing countries) suggesting that it is preventable to an extent.⁶ Identification of risk factors, early diagnosis and timely intervention can help in reducing significant maternal morbidity and mortality due to post-partum hemorrhage. Atonicity of uterus is the commonest cause of postpartum hemorrhage. Therefore, based on evidence based intervention active management of third stage of

labor is being promoted in developing countries for preventing this complication.⁷⁻⁹ However, on review of few studies it was found that there are gaps in reducing maternal morbidity and mortality during application of active management of third stage of labour, either due to inappropriate knowledge about it or its incorrect use.¹⁰⁻¹²

Anaemia is also one of the most significant factor which complicates maternal outcome in patients with postpartum hemorrhage. Therefore it is very important to identify high risk patients during antenatal visits and modification of those risk factors if possible. WHO in 2007 has provided guidelines for the prevention of Postpartum hemorrhage based on the best available evidence regarding various interventions which come under active management of third stage of labour.¹³ Thus proper training of health professionals, early diagnosis and timely intervention can reduce maternal mortality due to postpartum hemorrhage to large extent.

II. Materials And Methods

This was a cross sectional observational study conducted in a Tertiary care hospital, MGM Medical College and Hospital, Jamshedpur conducted from November 2016 to June 2018 having high no of referrals from city as well as periphery.

Inclusion Criteria:

- All anc >24 wks till 42 days post delivery with haemorrhage
- Those having Blood loss >1500ml and
- Haemodynamically unstable (collapse)

On admission to the hospital their detailed history such as name, age, parity, socio economic status, address, whether booked or unbooked, whether handled at home by untrained dais / relatives, at PHC's by health workers, medical officers, or at private nursing home were noted. A complete obstetric history included duration of pregnancy, duration of onset of pain, history of vaginal leak, history of bleeding, etc. In case of referred case, time, date, place of referral, method of interventions like use of IV fluid, use of oxytocin, epidurin, per vaginal examination, ARM, any inducing agent instillation, episiotomy given, any instrumental use, blood transfusion, whether manual removal of placenta was tried were noted. A detailed past obstetric history, past menstrual history, past history, family and personal history were noted.

III. Results

The cross tabulations were used to study the demographic, obstetrical and medical factors in women with severe obstetrical haemorrhage. Total number of patients admitted in labour room was 8016 and 8012 patients delivered during this period. Results showed that severe obstetrical haemorrhage (more than 1500 ml) was in 110 patients (prevalence of 1.37%).

Type	No of cases	Percentage
Booked	18	16.36
Unbooked	92	83.63
Total	110	100

Table 1: Total number of booked and unbooked cases

Among 110, only 18 (16.36%) patients had antenatal checkups at least 3 visits while rest 92 (83.63%) were not booked.

Age (years)	No of cases	Percentage
16-20	8	7.27
21-25	56	50.90
26-30	30	27.27
31-35	12	11.81
36-40	04	3.63
Total	110	100

Table 2: Age wise distribution of cases

Parity	No of cases	Percentage
Primigravida	38	34.54
Multigravida	67	60.90
Grand Multi	05	4.54
Total	110	100

Table 3: Parity wise distribution of cases

Condition of patient on admission	No of cases	Percentage
Hemodynamically stable	64	58.18
Hemodynamically unstable	36	32.72
Total	110	100

Table 4: Condition of patient on admission

Causes	No of cases	Percentage
Retained placenta	11	10
Genital tract trauma	04	3.63
Uterine atony	33	30
Abruption	25	22.52
Placenta previa	18	16.36
Coagulopathy	07	6.36
Uterine rupture	12	10.90
Total	110	110

Table 5: Cause wise distribution of cases

Medical variables	No of cases	%
Cardiac diseases	03	14.28
Hypertension	10	47.61
Diabetes mellitus	02	9.52
Sickle cell disease	06	28.57
Total	21	100

Table 6: Medical variables related to cases

Morbidity Indicators	No of cases	%	Morbidity Indicators
Sepsis	18	16.36	Sepsis
DIC	21	19.09	DIC
ARF	17	15.45	ARF
Dialysis	08	7.27	Dialysis
Devascularisation	20	18.18	Devascularisation
Internal iliac A ligation	05	4.54	Internal iliac A ligation
Hystrectomy	22	20	Hystrectomy
Massive transfusion	75	68.18	Massive transfusion
Pulmonary edema	11	10	Pulmonary edema
MODS	18	16.36	MODS
ARDS	10	9.09	ARDS
Uterine artery embolisation	10	9.09	Uterine artery embolisation
Respiratory failure	19	17.27	Respiratory failure

Table 7: Secondary outcome variables or maternal morbidity indicators (n=110)

Indicators	Number	%
NICU Admission	28	24.45
Prematurity	77	70
Jaundice	35	31.81
Septicemia	4	3.63
No Morbidity	15	13.63

IV. Discussion

The prevalence of severe obstetric haemorrhage was 3.4 %. In this study measurement was based on visual estimation of blood loss. The prevalence is comparatively higher in developing countries as compared to developed countries.⁸ In our study the prevalence may be due to the study place is a tertiary care hospital getting heavy referrals. According to Al-Zirqi, S Vangen, L Forsen et al, the prevalence of severe obstetric haemorrhage was 1.7% which might be at least partly due to differing definitions and recording practices.

Antenatal care

The booking status is important contributing factor for hemorrhage. As 83.63% Of the patients in study were unbooked, it contributed the high prevalence rate & antenatal care. The current level of antenatal care in our country is 43.8% (WHO 1999) which is more than twice the level than in our study, which is 14.7%. This reflects the very poor standard of obstetric care of our expectant mother in our catchment area.

Age wise distribution of cases

The significant increase in hemorrhage with age above 25 years emphasizes the importance of not deferring pregnancy to older age.¹⁴This high incidence attributed to age may be due to increased parity, placenta previa, abruption placenta, uterine atony and increased incidence of cesarean section. The mean age in this study was 25.5 ± 4.14 , most common age group was 21 to 25 which accounts to 50.90% which was comparable to Al-Zirqi et al (37.8%).⁹This shows that at risk approach for better utilization of scarce resources is not rational and each pregnancy whether teen or otherwise has to be considered important, as maternal complications cannot be predicted with reasonable and emergency obstetric care (EMOC) should be made available to all pregnancy women at all times, since child birth can take place at any time, and also complications can occur at any time as observed by Rajesh Kumar (2002).¹⁵

Parity wise distribution of cases

A large proportion of the patients (60.90%) were multipara which was comparable to Al-Zirqi et al.⁹It was seen that occurrence of postpartum hemorrhage increased with increasing parity. This was comparable with the other study of Limaye et al.¹⁶

Hemodynamic stability on admission

In our study 40.86% cases were hemodynamically unstable which was more compared to Limaye et al, (18.8%) patients were in hemodynamically unstable condition probably due to high number of referrals & delay in referral in irreversible state.

Risk factors

Most common among medical disorders (cardiac diseases, hypertension, diabetes, sickle cell disease, & coagulopathy) was hypertension (40.9%), while Mark Waterstone, et al has 46.8% of the combined hypertensive conditions.¹²Cardiac disease were 9.09% comparable with Al-Zirqi et al⁹which was 5.2%.Among pregnancy related risk factors or obstetric haemorrhage commonest was Anemia (41.73%) in this study, among these 41.73% anemia cases, Others being pregnancy induced hypertension (25.19%), previous cesarian section (18.11%), HELLP (7.08%) , multiple pregnancy (5.51%), and GDM (2.36%). According to Al-Zirqi et al⁹anemia 50%, previous cesarian section 5.4%, HELLP 2.8% and multiple pregnancy 2.1%.In this study 55.65% were delivered by emergency cesarean section which comparable to Al-Zirqi et al⁹which was 60% Delivery by emergency CS carries the highest risk for severe obstetric hemorrhage.¹¹Morbidity indicators associated with severe obstetric haemorrhage in this study were sepsis 8.95%, acute renal failure (ARF) 8.52%, dialysis 3.13%, devascularisation 9.41%, & 35.42% received massive transfusion , pulmonary edema 4.3%, multi organ failure 8.52%, ARDS 4.93%. and according Al-Zirqi, et al⁹sepsis 2.4%, ARF 5.7%.Abdrabbo SA et al¹⁸ has reported that step wise uterine devascularization which include unilateral uterine vessel ligation (Step I), contralateral uterine ligation (Step II), lower bilateral uterine vessel ligation (Step III) Unilateral ovarian vessel ligation (Step IV) bilateral ovarian ligation (Step V). He had observed that step 1 and 2 are effective in over 80% of the cases, he also mentioned that this technique can be followed by normal menstruation and pregnancy.Major postpartum blood loss in hemodynamically unstable patients is more likely to need hysterectomy that can be one of the most dangerous procedures. Hysterectomy rate in this study is 10.31% which corresponding with Drife J et al.¹²

Maternal & Perinatal Outcome

In India, according to the 2006 National Family Health Survey The single most common cause of maternal mortality is obstetric haemorrhage, generally occurring postpartum and accounting for 25 to 33% of all maternal deaths. Mortality in this study was 21.73% and morbidity was 78.26%. According to Mark Waterson et al¹²incidence of severe obstetric morbidity was 12/1000 deliveries, with morbidity: mortality ratio of

118:1.Neeru Gupta²¹in her series found that the obstetric hemorrhage constituted 30% of maternal mortality in our country, which is correlating with study where maternal mortality due to hemorrhage is 21.73%.Perinatal mortality includes both late fetal deaths (still births) and early neonatal deaths. In this study perinatal mortality was 27.82% and morbidity was 59.13%. This is similar to the study of Anjali A Kamal et al²²who had perinatal mortality of 26.9%. Limaye et al¹⁶in his series also had perinata mortality of 28.3%. Perinatal morbidity indicators were NICU admission 26.09%, prematurity 65.22%, jaundice 30.43%, septicemia 3.48%.

V. Conclusion

The prevalence of severe obstetric haemorrhage was 1.37%. The frequency and impact of severe hemorrhage can be effectively reduced by reducing avoidable risk factors, especially those related to obstetric interventions as increased CS rate and induction of labor. 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 and planned conjoined management. The result of the study indicate that severe obstetric haemorrhage can be used as an indicator to the assess the level of obstetric care. By identifying the risk factors of severe obstetrical haemorrhage, preventive measures can be taken to avoid fetomaternal morbidity & mortality.

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