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Original Research Article

A study of maternal and perinatal outcome in patients of postpartum hemorrhage in a tertiary care hospital, Gujarat

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ABSTRACT

Background: Postpartum hemorrhage (PPH) is significant factor for maternal mortality. Prevalence of PPH is 6.0% worldwide and highest prevalence was noted in Africa which is almost 10.1%. In India, maternal hemorrhage is the very common factor for maternal mortality. The objective of the study was to understand incidence of PPH and various risk factors for it, to study maternal morbidity and mortality associated with PPH and to study the effective mode of management in PPH.

Methods: This prospective study was done among 50 cases of postpartum haemorrhage out of 13,628 deliveries at civil hospital, Asarwa, Ahmedabad during November 2008 to October 2010 and analysis was done regarding patients' socio demographic characteristics, various risk factors, causes and maternal and perinatal outcome.

Results: Incidence of PPH was 0.36%. Almost >85% cases were belonged to 20-34 years age group. Highest cases (38%) seen in primigravida and 72% cases have normal vaginal delivery. Anemia noted in highest cases (22%) and 68% cases have most common etiology was atonicity. Birth weight <2.5 kg found in 36% cases. Most common maternal outcome was fever (16%) and 72% cases delivered healthy and alive birth.

Conclusions: The patients were mostly primiparous. The commonest associated medical condition was anemia. The commonest underlying cause of PPH was atonicity of the uterus. Commonest maternal outcome was fever. Out of total births, 72.0% were alive and healthy babies followed by 18.0% babies were still birth.

Keywords: Atonicity, Maternal outcome, Perinatal outcome, PPH

INTRODUCTION

In both developing and developed countries, postpartum hemorrhage (PPH) is significant factor for maternal mortality. It is defined as blood loss of more than 500 ml in normal vaginal delivery and more than 1000 ml in a case of caesarean section or amount of blood loss that can affect hemodynamic stability of patient.^{1,2} PPH is important element of maternal morbidity and mortality, responsible for almost 33.0% of all pregnancy-related deaths in Africa and Asia.³

Prevalence of PPH is 6.0% worldwide and highest prevalence was noted in Africa which is almost 10.1%.⁴ In India, maternal hemorrhage is the very common factor for

maternal mortality. Maternal mortality due to PPH can be preventable because incidence of maternal deaths due to postpartum hemorrhage is very low in developed countries.⁵ Risk factor for PPH was noted that the history of prior PPH, nulliparity, overdistended uterus, placental abnormalities, such as placenta praevia or placenta accrete, coagulation abnormalities, anaemia, induction of labour, augmentation of labour, or use of an epidural and prolonged labour.⁶⁻¹²

Active management of third stage of labor is being encouraged in India like developing countries for prevention of PPH like complication because atonicity of uterus is the commonest cause of postpartum hemorrhage.¹³ Duhan et al observed that out of total births,

75% were alive and healthy babies followed by 16% babies who were admitted in Neonatal Intensive Care Unit (NICU). Prevention steps like encouragement of regular antenatal visits, timely referral of high-risk patients, training of health personals and timely intervention can prevent many maternal and neonatal deaths.¹⁴ The objective of the study were to understand incidence of PPH and various risk factors for it, to study maternal morbidity and mortality associated with PPH and to study the effective mode of management in PPH.

METHODS

This prospective study was done among 50 cases of PPH out of 13,628 deliveries at civil hospital, Asarwa, Ahmedabad during November 2008 to October 2010. Data collection was done after ethical permission from institutional ethical committee and informed consent of clients. This study included all emergency and booked patients having pregnancy more than 28 weeks. Active management of third stage of labor was done in all patients delivered at our institute which involved uterotonic drug administration, early cord clamping and control cord traction. The patients who delivered outside and referred as a case of PPH were analyzed and managed actively. Blood loss was assessed on the basis of measurements from kidney tray and blood loss on linen, mops and sponges. Detailed history was taken, thorough clinical examination was done, examination findings were noted to find out possible causes of PPH and necessary investigation were carried out. Patients were resuscitated by IV fluids and blood transfusion; medical management was given and operative interventions were done when required. Morbidity and mortality were analysed among treated patients. The data were recorded in an excel sheet and descriptive analysis was performed with the use of Epi info statistical software, CDC and Atlanta.

RESULTS

Present study observed the incidence of PPH was 0.36% out of total 13,628 total deliveries.

Table 1 shows that 2%, 86% & 12% cases belonged to age 0-19, 20-34 and >34 years respectively. Almost 86% cases were attended in emergency. Almost 38%, 20%, 24%, 8% & 10% cases were primi, 2nd, 3rd, 4th and 5th or more parity respectively. Around 84% cases have spontaneous delivery and remaining have induced or augmented labor. Almost 72%, 4%, 2% and 22% cases were delivered baby by vaginal delivery, forceps, vacuum & LSCS method respectively.

Associated medical condition like anaemia, jaundice, fever, cardiac and renal in 22%, 4%, 14%, 2% and 2% cases respectively. Almost 16%, 2%, 4% and 16% cases have pre 1 C.S, pre 2 C.S, pre 3 C.S and MTP/D and E obstetrical history respectively.

Around 68%, 28% and 4% cases have etiology for PPH was atonic, traumatic and coagulation disorders respectively. Birth weight was <2.5 kg, 2.5-3.5 kg and >3.5 kg 36% noted in 36%, 60% and 4% cases respectively.

Table 1: Socio-clinical characteristics of study participants (N=50).

Characteristics	Number (%)
Age (years)	
0-19	1 (2)
20-34	43 (86)
>34	6 (12)
Registration	
Booked	7 (14)
Emergency	43 (86)
Parity	
Primi	19 (38)
2nd	10 (20)
3rd	12 (24)
4th	4 (8)
5th or more	5 (10)
Mode of delivery	
Vaginal delivery	36 (72)
Forceps	2 (4)
Vacuum	1 (2)
LSCS	11 (22)
Associated medical conditions	
Anaemia	11 (22)
Jaundice	2 (4)
Fever	7 (14)
Cardiac	1 (2)
Renal	1 (2)
Post obstetrical history	
Pre 1 C.S.	8 (16)
Pre 2 C.S.	1 (2)
Pre 3 C.S.	2 (4)
MTP/D and E	8 (16)
Etiology	
Atonic	34 (68)
Traumatic	14 (28)
Coagulation disorders	2 (4)
Birth weight (kg)	
<2.5	18 (36)
2.5-3.5	30 (60)
>3.5	2 (4)

Table 2 shows that maternal outcome like fever, pulmonary edema, lactation failure, renal failure, hypovolaemic shock, hemolytic jaundice, DIC and wound gap noted in 16%, 2%, 2%, 2%, 2%, 4%, 14% and 6% cases respectively.

Table 3 shows that perinatal outcome like healthy, still birth noted in 72%, 18%, and 10% cases respectively.

Table 2: Maternal outcome (N=50).

Outcome	Number (%)
Fever	8 (16)
Pulmonary edema	1 (2)
Lactation failure	1 (2)
Renal failure	1 (2)
Hypovolaemic shock	1 (2)
Hemolytic jaundice	2 (4)
DIC	7 (14)
Wound gap	3 (6)

Table 3: Perinatal outcome (N=50).

Outcome	Number (%)
Healthy	36 (72)
Still birth	9 (18)
Death	5 (10)

Table 4 shows that treatment like medical treatment, vaginal packing, uterine packing, manual removal of placenta, uterine artery ligation, ovarian artery ligation, internal iliac artery ligation, subtotal hysterectomy, total

hysterectomy and reposition of inverted uterine given in 96%, 28%, 26%, 4%, 6%, 2%, 4%, 2%, 8% and 2% cases respectively.

Table 4: Treatment of established PPH (N=50).

Treatment	No. of patients (%)
Medical treatment	48 (96)
Vaginal packing	14 (28)
Uterine packing	13 (26)
Manual removal of placenta	2 (4)
Uterine artery ligation	3 (6)
Ovarian artery ligation	1 (2)
Internal iliac artery ligation	2 (4)
Subtotal hysterectomy	1 (2)
Total hysterectomy	4 (8)
Reposition of inverted uterine	1 (2)
Suturing of tear	
Cervical	9 (18)
Vaginal	4 (8)
Perineal	2 (4)
Episiotomy resuturing	2 (4)

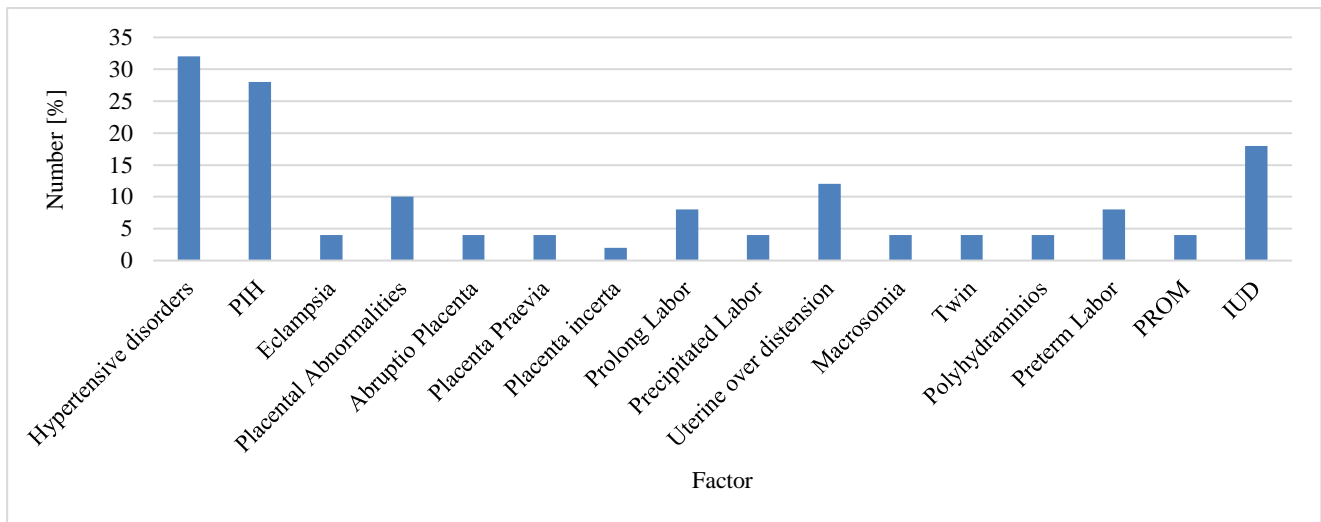


Figure 1: Associated risk factors during pregnancy and labor (N=50).

Figure 1 shows that associated risk factor like hypertensive disorders, PIH, eclampsia, placental abnormalities, abruptio placenta, placenta praevia, placenta incerta, prolong labor, precipitated labor, uterine over distension, macrosomia, twin, polyhydramnios, preterm labor, PROM and IUD observed in 32%, 28%, 4%, 10%, 4%, 4%, 2%, 8%, 4%, 12%, 4%, 4%, 4%, 8%, 4% and 18% cases respectively.

DISCUSSION

Present study observed the incidence of PPH was 0.36%. As stated above the maternal hemorrhage is a leading cause of maternal morbidity and mortality. Present study

found that almost >85% cases were belonged to 20-34 years age group. Present study noted that highest cases seen in primigravida. This finding is correlate with the study done by Duhan et al, Kramer et al, Sheldon et al, Combs et al, Tsu et al and Gilbert et al.^{6-9,14-16} Contrary observation that a parity of three or more was also significantly associated with increased odds of PPH was noted in study done by Cotter et al and Jaleel et al.^{17,18}

Present study noted that 72% cases have normal vaginal delivery. Holm et al said that compared with intended vaginal delivery, planned caesarean delivery was associated with a reduced risk of severe postpartum hemorrhage.¹⁹ Wei et al said that vaginal deliveries tended

to lead to greater postpartum blood loss than cesarean sections, and that blood loss based on change of hemoglobin levels deviated substantially from loss estimated by midwives or doctors during delivery, especially vaginal deliveries.²⁰ In vaginal delivery, especially in patients with blood loss more than 1000 ml, the amount of bleeding can be significantly underestimated.

Present study observed that anemia was the most common associate medical condition among study participants. This finding is correlate with the study done by Duhan et al.¹⁴ Anemia is also one of the most significant factors 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. Anemia is shown to be the most common cause of morbidity in few other studies.^{21,22}

Present study found that atonicity was the most common etiology among the cases. This is in correlation with various studies, where atonicity was the most common cause of PPH, followed by traumatic PPH as the second most common cause of PPH.²³

Present study noted that almost 36% cases have delivered low birth baby. Kramer et al observed LBW incidence was 6.3% and Rathie et al observed in 32.0% cases.^{15,24} Present study noted that most common maternal outcome was fever and wound gap. Few incidences of pulmonary edema, lactation failure, renal failure, hypovolaemic shock, hemolytic jaundice and DIC also noted. No maternal death was noted among study participants. Study observed 10% neonatal death and 18.0% still birth. Duhan et al observed 9.2% and Rathie et al noted 7.0% incidence of still birth.^{14,24}

Limitations

Primary among these is the fact that the study is based on deliveries from a single hospital. This is a tertiary care referral hospital, and although the referral base did not change over the study period, we have no way of assessing whether more or different kinds of women at high risk for PPH were delivered at the study hospital over this period. Sample size was less. Need to conduct the study with large sample size to see the association of risk factor and PPH.

CONCLUSION

Present study observed that majority of the patients with PPH were in the age group of 20-34 years. The patients were mostly primiparous. The commonest associated medical condition was anemia. The commonest underlying cause of PPH was atonicity of the uterus. Commonest maternal outcome was fever. Out of total births, 72.0% were alive and healthy babies followed by 18.0% babies were still birth.

Health education is of utmost importance in poor and illiterate patients and those staying in remote places. All high-risk cases in remote places where the emergency services are not available should be referred to tertiary centre in time.

In high risk cases if etiological factors were identified and treated early the morbidity and mortality can be prevented.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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