

Overview of primary postpartum hemorrhage

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ABSTRACT

INTRODUCTION: The main aim of the study was to evaluate the primary postpartum hemorrhage at Paropkar Maternity and Women Hospital, Kathmandu, Nepal.

METHODS: This was a retrospective study undertaken at Paropkar Maternity and women Hospital among 211 cases of primary postpartum hemorrhage between 1st jesh 2070 to 30 th asoj 2070. (15th May 2013-15th November 2013)

RESULTS: Out of 9415 deliveries 211 cases had primary postpartum hemorrhage. The most common cause was uterine atony, 180 (85.3%) retained product of conception 16(7.58%) and genital tract injury 15(7.1%). Factor causing uterine atony were induction and augmentation of labor 80(42.7%) and prolong labor 52(27.8%). Among 211, 48(22.74%) had Vaginal delivery 2(0.94%) delivered by vacuum delivery and cesarean section 161(76.30%) that includes elective and emergency cesarean section. Additional Uterotonic were given among 176(83.4%) and 35(16.58%) cases minor surgical procedure such as exploration, condom temponade, B-Lynch suture and tear repair and 2 patients undergone for subtotal abdominal hysterectomy. More than 2000 ml blood loss occurs among 5 cases and five cases received more than 5 pints of blood. There was no maternal mortality during six months period.

CONCLUSION: Primary postpartum hemorrhage can be prevented by avoiding unnecessary induction and augmentation of labor.

KEY WORDS: atony, genital tract injury, hysterectomy, postpartum hemorrhage

INTRODUCTION

Primary postpartum hemorrhage defined as a blood loss of 500 ml or more within 24 hours of delivery.¹ It is an obstetrical emergency that can occur during vaginal and cesarean delivery. Primary postpartum hemorrhage (PPH) is a major cause of maternal morbidity and one of the top three causes of maternal mortality in both high and low income group, although the absolute risk of death from postpartum hemorrhage is very low in high income country (1 in 100,000 deliveries in the United Kingdom versus 1 in 1000 deliveries in the developing country.²

There are four 'T's main causes of postpartum hemorrhage i.e. Tone, Tissue, Tear and Thrombin. However, delay in identifying hemorrhage, delay in transfer to the health facility and delay in receiving treatment all contribute to high rate of maternal mortality and morbidity due to PPH.³ Postpartum hemorrhage is defined as primary and secondary. Primary postpartum hemorrhage occurs in the first 24 hours after delivery and secondary postpartum hemorrhage occurs 24 hrs to 12 weeks after delivery.² In Nepal maternal mortality rate is estimated to be 229 per 100,000 live births in 2008/2009. Maternal death due to postpartum hemorrhage contributes to 47 % of all deliveries.⁴

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The objective of this study was to review the primary postpartum hemorrhage in Paropkar Maternity and Women Hospital (PMWH) Kathmandu.

METHODS

This was a retrospective study done at PMWH. Ethical approval was taken from hospital authority. The medical record of admission room, labor room, birthing center, and Operation Theater were reviewed from Jesth 1st 2070 to Kartik 29th 2070 (15th May 2013 to 15th November 2013) total of six months. The charts were collected from medical record section. Inclusion criteria term pregnancy and hospital deliveries. All data were analyzed manually and statistical analysis was done.

RESULT

There were total 9455 deliveries occurs within six months period. Among them 211(2.23%) cases had PPH. Among 211 cases of postpartum hemorrhage 110 (52.2%) were p2-3 and 7 (3.5%) were p4-5 and para more than 6 only 1(0.47%) case. Regarding gestational age there were no difference in postpartum hemorrhage in 37 weeks of gestation and 42 weeks of gestation that is 37-39 weeks 101(48.4%) and 40-42 weeks (47.9%). (Table 1)

Table 1: Obstetrical characteristics of the patients (n=211)

Gestational age (weeks)	Number (%)
37-39	102(48.4)
40-42	101(47.9)
>42	08(3.7)
Parity	
P1	93 (44)
P2-3	110 (52.2)
P4-5	07 (3.4)
>6	01 (0.47)

Mean () =39.6 weeks. This table shows PPH occurs in 39.6 weeks of gestation. SD=1.6 weeks

Regarding parity this table shows incidence of PPH high among P2-3 which was 110 (52.2%)

In induction and augmentation the postpartum hemorrhage was significantly high 80(42.7%) The most common cause of postpartum hemorrhage was uterine atony 180(85.3%). (Table 3) Majority of the cases had blood loss 500-900 ml in both vaginal as well as cesarean section 169(80.09%). Only 5 cases had blood loss more than 2000 ml among them 1(0.47%) had 3500 ml blood loss and 1(0.47%) had 6000ml. (Table 3) Uterine atony was the main cause

of PPH 180(85.3%), 72 (34.12%) cases received blood transfusion among them 5(6.10%) received more than 5 pints blood. Additional Uterotonics and minor surgical interventions were done among 176(83.41%). (Table 4)

Table 2. Risk factor for primary postpartum hemorrhage (n=187)

Grandmultiparity	01 (0.53)
Polyhydramnios	04 (2.67)
Ante partum hemorrhage	12(6.4)
Multiple pregnancy	05 (2.1)
Hypertensive disorder in pregnancy	15(8)
Previous LSCS	18(9.6)
Prolong labor	52(27.8)
Labor induction and augmentation	80(42.7)

This table shows labor induction and augmentation was the main risk factor of PPH

Table 3

Mode of deliveries	
Normal vaginal deliveries	48(22.74)
Vacuum deliveries	02(0.94)
LSCS	162(76.30)

Amount of blood loss	Blood loss (ml)
500-900	169(80.09)
1000-1400	25(11.34)
1500-1900	12(5.68)
>2000	05(2.36)

Blood transfusion	72(34.12)
No transfusion	139(65.87)
I-II	47 (22.27)
III-IV	20(9.50)
>V	05(2.36)

Mean () =857.7ml

An average, 851.7ml was blood loss among 211 cases within 24 hrs of delivery. SD=342.6ml Which was 40% of an average loss.

Table 4 Cause of PPH

Atony	180 (85.3)
RPOC	16 (7.58)
Genital injury	15(7.6)
Use of additional uterotonics =	176-(83.41)
Oxytocin	56(26.54)

Oxytocin, methergin	14(6.63)
Oxytocin, methergin, misoprostol	84(39.81)
Oxytocin, methergin, carboprostol, misoprostol	12(5.68)
Oxytocin, methergin, carboprostol, misoprostol, transaminic acid	10(4.73)
Minor surgical intervention with uterotonic	35(16.58)
Exploration	05(2.36)
Exploration with condom temponade	10(4.73)
Exploration with cervical tear repair	15(7.10)
B-Lynch	05(2.36)

Major surgical intervention

Subtotal hysterectomy	02(0.94)
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This table shows 176 (83.41%) received additional uterotonics among 211 cases and 35(16.58%) undergone for minor surgery and uterotonics.

DISCUSSION

The incidence of postpartum hemorrhage varies widely depending upon the criteria used to define the disorder. In an analysis of population based data from the United State National Inpatient Sample for the year 1994-2006 it shows that discharge diagnosis of PPH increases from 2.3 to 2.9%.² This was similar to the study done at Paropkar Maternity and Women Hospital 211(2.23 %) among 9455 deliveries. This is responsible for maternal mortality around 25% Worldwide (WHO 2007).³ Bushra S.Z reported that the severity of PPH increases with increase in parity i.e. PPH in primipara was 24 % and in multipara 76 %.⁵ But in present study the postpartum hemorrhage was more common among P2-3 110(52.2%) where as in grandmultipara only 7(3.4%) had PPH. (Table 1)

Kramer M.S. reported that incidence of PPH high according to gestation it shows that in gestation age <32 weeks, 32-36 weeks and >37 weeks the incidence is 1.9%, 7% and 91%.⁶ But in present study there were no difference in gestation 37-39 weeks 102 (48.4%) and 40-42 weeks 101 (47.9%). (Table1) Average gestational age was 39.6 and SD=1.6 weeks. According to Suzuki S the incidence of PPH was significantly greater in cases with gestational age more than 39 weeks.⁷ The study

done by Will R. and found that the risk of PPH was two and half times more in multiple pregnancy than that of singleton pregnancy.⁸ In the present study the incidence of PPH in multiple pregnancies was 5 (2.67%). (Table2) This is lower than the study done by Rueangchanikhom W (3.3%), Alzriki L. (3.4%).^{9,10} The study done by Bibi S and found that the incidence of PPH in multiple pregnancy 2 (1.5%).¹¹ This is lower than the present study. According to Singhal SR ante partum hemorrhage (APH) is also a major risk factor for PPH that is 21.84%.¹² In present study total number of PPH 12(6.4%) in patient with ante partum hemorrhage. This was lower than the study done by Singhel SR.(Table 2) According to Al-Kadri HM the risk of PPH was 6 fold higher in women with hypertensive disorder in pregnancy.¹³ In present study the hypertensive disorder in pregnancy contributes to 15(8%). The study done by Jha M, and found that postpartum hemorrhage was most common maternal complication in repeat cesarean section 88.88%.¹⁴ In present study the third commonest risk factor of postpartum hemorrhage was repeat cesarean. (Table 2) This is similar to the study done by Rueangchaikhom W.⁹ The study done by Lu M.C.et.al and found that prolong second stage of labor 3 fold increases the risk of postpartum hemorrhage.¹⁵ In the present study prolong labor was second commonest and induction and augmentation of labor was first commonest risk factor of postpartum hemorrhage. (Table 2) According to Bibi S the uterine atony 96(70.5%) was the most common cause of postpartum hemorrhage.¹¹ But in the present study postpartum hemorrhage due to uterine atony was 180(85.3%) which was higher than the study done by Bibi S. In same study the genital tract injury was second commonest cause of PPH i.e 29.4%. The present study showed that genital tract injury contribute to 15(7.6%). (Table 4) There were no coagulation disorders seen in this study. In the present study maximum number of cases had blood loss in the range of 500ml-900ml, 169 (80.09%) followed by 25(11.34%) 1000ml-1400 ml and 5(2.36%) cases had blood loss more than 2000ml among them 1 (0.47%) had 3500ml and 1(0.47%) had 6000ml blood loss. (Table 4) An average blood loss was 851.7ml within 24 hrs of delivery.SD=342.6ml.which was the 40% of average loss.The study done by Vivien D.T. and Selo-Ojeme DO concluded that most of the cases had blood loss more than 1000 accounting of 71.4% and 44.5% respectively.^{16, 17}

This was higher than the present study. (Table 4) The present study showed that maximum number of the cases did not received blood 139(65.87%) only 72(34.12%) received blood transfusion. Among 72 cases 47(22.27%) received 1-2 pints, 5 cases received more than 5 pints i.e. 2.3%. (Table 4) 2 cases received massive blood transfusion 1 case received 11 pints who had vaginal delivery and 1 case received 17 pints who delivered by cesarean section. Balki m. reported that blood transfusion within 24 hours of delivery was required 0.31% of cases, highest blood transfusion in patients who underwent cesarean section during labor 0.49% compared with 0.23%. Those who had prelabor cesarean section and increased blood transfusion was in induced labor than in spontaneous labor.¹⁸ The study done by Edhi Muhammad Muzzammil and found that 218 cases received additional dose of Uterotonics.¹⁹ In the present study 176 (83.4%) requires additional Uterotonics among them maximum number 84(39.81%) of cases needs 4 Uterotonics. (Table 5) Among 176 cases 35(16.58%) needs minor surgical intervention and Uterotonics. B-Lynch compression suture applied in 4 (1.8%) cases. Subtotal abdominal hysterectomy performed in 2 cases whose bleeding was not controlled with conservative treatment. There was no maternal mortality in the present study due to postpartum hemorrhage during six months period. Li X concluded that the risk of maternal mortality decreases in hospital delivery but it did not have effect in urban areas.²⁰ Improving health care for women during child birth to prevent and treat PPH is an essential step towards the achievement of the Millennium Development Goal¹

CONCLUSIONS

Primary PPH is still the commonest cause of maternal morbidity and mortality. We can reduce it by avoiding unnecessary induction/augmentation of labor; risk factors assessment and active manage of third stage of labor.

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