ORIGINAL ARTICLE J. Med. Sci. (Peshawar, Print) January 2010, Vol. 18, No.1: 49-53

PRIMARY POSTPARTUM HEMORRHAGE; PROFILE AT A TERTIARY CARE HOSPITAL

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ABSTRACT

Objectives: To describe the causes and risk factors for primary postpartum hemorrhage (PPH) and its associated morbidity and mortality at a tertiary care hospital.

Material and Methods: This descriptive study was done at the obstetrics and gynecology unit of Hayatabad Medical Complex, Peshawar, from January 2007 to October 2008. All cases with primary PPH were included. Patient age, parity, mode of delivery, cause of PPH, risk factors, management and outcome were recorded.

Results: Primary PPH was identified in 164 patients, 44 of these occurred at our hospital and 120 cases were referred. PPH occurred in 106(64.63%) cases after vaginal delivery, 38 (23.17%) after instrumental delivery and 20(12.20%) after caesarean section. Causes of PPH included atony in 42 patients, tears and lacerations in 39, retained placenta in 24, ruptured uterus in 18, placental pieces in 14, and 13 after Antepartum Haemorrhage (APH), previous caesarean scar rupture in 6, combined atony and tears in 4 cases, coagulation disorder in 3 and inversion in 1. PPH following APH was the only cause more common in hospital delivered cases ($P<0.008$). Unbooked status, grandmultiparity, prolonged labour and lack of active management of 3rd stage of labour were the common risk factors. The majority were treated conservatively with uterine massage and uterotonic drugs. Surgical intervention in the form of hysterectomy was done in 32 (19.51%) cases, mainly for ruptured uterus, repair of uterus in 6, and tear repair in 39 cases. Retained placenta and placental pieces were removed manually. Major morbidity included shock in 33 (20.12%), coagulopathy in 20 (12.2%), ICU admission in 10 (6.09%), renal failure in 4(2.4%) and anemia in 42 (25.6%) cases. Mortality was 6.9% (10 cases), 8 in referred patients and 2 in hospital delivered.

Conclusions: Early recognition of primary postpartum hemorrhage (PPH), appropriate treatment and timely surgical intervention minimize the potentially serious outcomes.

Key words: primary postpartum hemorrhage, morbidity, mortality, causes, risk factors.

INTRODUCTION

Postpartum hemorrhage (PPH) is a potentially life threatening complication of both vaginal and caesarean deliveries, and is a leading cause of maternal mortality globally[1,2]. Annually, an estimated 150,000 maternal deaths occur worldwide from obstetric hemorrhage.[3] In developing countries, PPH accounts for 25-43% of maternal deaths.[4]

Primary PPH is defined as a blood loss in excess of 500 ml after vaginal delivery and 1000 ml after caesarean delivery within the first 24 hours, or any amount of blood loss sufficient to cause symptoms of hypovolemia, a 10% drop in hematocrit or requiring transfusion of blood products[4,5]. Some studies suggest the cut-off for clinically significant PPH as 1000 ml.[4,6]. PPH is a frequent complication of delivery and its incidence is reported as 2-4% after vaginal birth and 6% after caesarean section.[4]. The most common cause of PPH is uterine atony. Other causes are genital tract trauma, retained placenta, uterine rupture, uterine inversion and coagulation disorders.[5,7] The risk factors for PPH include prolonged labour, prolonged 3rd stage of labour, abnormal placentation, operative and instrumental delivery, previous history of PPH and absence of|prenatal care[5,8]. Any delay in the treatment of PPH results in hypovolemic shock, disseminated intravascular coagulation and renal failure[9].

PPH Is very frequently seen in our population and in Pakistan, PPH accounts for nearly 25% of maternal deaths[10]. This study was undertaken to describe the common causes for primary PPH, the associated morbidity and mortality, and management at a tertiary care hospital.

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MATERIAL AND METHODS

This study was undertaken in the obstetrics and

gynecology unit, Hayatabad Medical Complex, Peshawar from January 2007 to October 2008. All patients with primary postpartum hemorrhage were included in the study. Patients presenting with PPH after 24 hours of delivery were excluded. Information was recorded about demographics, delivery characteristics, place of delivery, risk factors and management data as well as complications. Examination findings, presence of shock and laboratory investigations for anemia, coagulopathy, and renal failure and transfusions given were recorded. Emergency care provided, and management of underlying cause of primary PPH according to protocol was also recorded.

All the data was collected on a predesigned proforma and analysed to calculate frequencies. Chi-square test was applied and p-value calculated where applicable, to test the significance.

RESULTS

A total of 164 cases of primary PPH were recorded during the study period . Forty-four (26.83%) cases of primary PPH were recorded among the women delivered in our hospital, while 120(73.17%) cases were received with primary PPH after having delivered elsewhere or after home delivery.

Ages of the patients ranged from 18-45 years with a mean age of 31.56 ± 2 S.D years. The majority of the patients, 72 (43.90%), were in the age group of 31-40 years, as shown in table-1. Primiparas were 18(10.97%), 52 (31.70%) were multipara, 57 (34.75%) were grandmultipara and 37(22.56%) were more than para 9. One hundred and six (64.63%) cases of PPH occurred after vaginal delivery of which 56(52.83%) were home deliveries. Instrumental deliveries were 38(23.17%), of which 11(25.05%) were performed at our hospital. PPH after caesarean section occurred in 20(12.20%) cases, 13 were performed for antepartum hemorrhage (APH). APH was due to abruptio placenta in 10 and placenta previa in 3 cases. Two caesarean sections were done for uterine fibroids and the remaining 5 for obstructed or prolonged labour and chorioamnionitis.

Table 2 shows the causes of PPH. Uterine rupture was the cause in 18 (10.97%) cases, 16(88.8%) were referred cases and in grand multipara. Six of these were delivered at home by Traditional Birth Attendents (TBAs) with a history of intramuscular oxytocin injection,3 cases were delivered by LHVs , and the rest were referred from peripheral and local maternity homes. Rupture of previous caesarean scar was the cause in 6 (3.66%) patients and of these, 2 patients had delivered at our hospital.

Retained placenta accounted for 24 (14.63%) cases of PPH. PPH due to retained placental pieces occurred in 14 (8.54%) cases. Thirteen (7.93%) cases of PPH followed APH. PPH due to coagulation disorders was seen in 3(1.83%) cases, 2 due to liver disease, and 1 case due to thrombocytopenia. The risk factors included unbooked status in 95(59.73%) cases, prolonged labour in 70(42.7%), lack of active management of 3rd stage of labour in 64(39.02%), and multiparity 94(57.32%) . More than one risk factor was found in 52(31.7%) cases. The majority of cases presented within 4-6 hours of delivery.

Table 3 shows the management of different causes where as Morbidity and mortality is shown in Table 4.

Mortality was 10 among 164 cases giving a mortality rate of 6.09%; Two (1.22%) were due to shock due to ruptured uterus, 4(2.43%) due to coagulopathy, 2(1.22%) due to organ failure, while 2(1.22%) were received in moribund state and expired within minutes of arrival despite all resuscitative measures.

DISCUSSION

The loss of more than 500ml of blood after delivery occurs in upto 18 percent of births in developed countries, and is a major cause of maternal morbidity and mortality world wide[10,11].

The result of our study however indicates a frequency of 1.58 for PPH (calculated from hospital deliveries only), which is quite low as compared to global literature. The reason for this could be an underestimation of the normal loss, and the fact that active management of the 3rd stage is practiced routinely in our hospital. Referral biases, natural tendencies, and the limitation of the study to one facility may have contributed to it. An incidence of 0.6% has been reported from a tertiary care hospital in north India, while a study from Abbottabad reported a frequency of 7% for PPH, and a study from Karachi has reported a 1.2% frequency for PPH[4,10,12]. Similarly PPH complicated 0.4% of all deliveries in a study aimed

Table 1: Age, parity and type of Delivery (n=164)

Particulars		No. of patients
AGE:	≤ 20 years	19 (11.58%)
	21-30 years	46 (28.05%)
	31-40 years	72 (43.90%)
	≥40 years	27 (16.46%)
PARITY:	P1	18 (10.98%)
	P2-P4	52 (31.70%)
	P5-P8	57 (34.75%)
	≥P9	37 (22.56%)
DELIVERY:	Vaginal	106 (64.63%)
	Instrumental	38 (23.17%)
	Caesarean	20 (12.20%)

Table 2: Causes of PPH

Causes	No. of patients n-164	Hospital n=44 (26.83%)	Referred n=120 (73.17%)	P value
Atony	42 (25.61%)	10 (22.72%)	32 (26.66%)	0.75
Genital tract tears	39 (23.78%)	13 (29.54%)	26 (21.66%)	0.66
Retained placenta	24 (14.63%)	5 (11.36%)	19 (15.83%)	0.63
Ruptured uterus	18 (10.97%)	2 (4.54%)	16 (13.33%)	0.18
Scar rupture	6 (3.66%)	2 (4.54%)	4 (3.33%)	0.91
PPH following APH	13 (7.93%)	8 (18.18%)	5 (4.16%)	0.008
Retained placental pieces	14 (8.54%)	3 (6.81%)	11 (9.16%)	0.80
Inversion	1 (0.61%)	0 (0%)	1 (0.83%)	0.5
Atony and tears	4 (2.44%)	1 (2.27%)	3 (2.50%)	0.26
Coagulation disorders	3 (1.83%)	2 (4.54)	1 (0.83%)	0.36

Table 3: Management (n=164)

Mode of Treatment	No. of patients
Uterine massage	44 (26.83%)
Repair of tears	36(21.95%)
Uterine massage and tear repair	7(4.26%)
Repair of ruptured uterus	2(1.22%)
Repair of scar rupture	4(2.43%)
Hysterectomy	32(19.51%)
Removal of placenta	23(14.02%)
Exploration of uterus	14(8.53%)
Correction of inversion	1(0.60%)
Transfusion: $\leq$ Blood 2 units	48(29.44%)
$\geq$ 3 units	50(30.48%)
FFPs	28(17.07%)

Table 4: Morbidity and Mortality (n = 164)

Morbidity /Mortality	No of patients
None	28(17.2%)
Anemia	42(25.61%)
Hypotension / hypovolemia	15(9.14%)
Shock	33(20.12%)
Coagulopathy	20(12.18%)
ICU admission	10(6.09%)
Renal failure	4(2.43%)
Mortality	10(6.09%)

to identify obstetric risk factors for early PPH in singleton gestations[13].

An assessment of the causes of early PPH in our study showed uterine atony in 42 (25.61%) cases, genital tract trauma including tears and ruptured uterus in 39 (23.78%) and 18 (10.65%) cases respectively, retained placenta in 24 (14.63%) cases and scar dehiscence in 6(3.66%) cases. Studies in Pakistan have also mentioned uterine atony as the main cause of PPH, the figure in different studies being 65% ,58% and 34%[7,12,16]. Uterine atony is the most common cause of PPH in other countries also, the figures varying from 50% to 76%[13,14].

The demographic profiles of the patients with PPH showed that subjects had a lower age profile with a mean age of 31.5 years with the highest number of cases 72 (43.90%) falling in the 31-40 years age group. Another local study found most cases to be over 35 years [12]. The reason for this young age is the relative increased gravidity and parity at a younger age in our society.

Multiparity, particularly grand-multiparity, has been specified as a factor predisposing to increased frequency of PPH by different studies[12,16,17], and this is supported by our study also. Another risk factor identified was unbooked status; a majority of patients came in emergency, after having delivered at home, a fact supported by other studies also[12]. Operative and instrumental delivery increases the risk for PPH.

The frequency of PPH is more in patients with APH[7,12]. APH was followed by PPH in 13 (7.93%) cases in our study, as in an international study reporting PPH in 8% cases of APH[17]. Various studies have shown uterine compression sutures applied for atony and severe postpartum hemorrhage, to be safe, decrease the need for hysterectomy and do not jeopardize subsequent pregnancy[18,19]. In another study, 27 cases of intractable atonic PPH were successfully treated with uterine balloon tamponade[20].

Oxytocin, methylergometrine (methergine) and 15-methylated prostaglandin F 2á analogue are potent uterotonic agents and are used for treatment of PPH. Recently, misoprostol has also been used successfully as a uterotonic in PPH. In a study in 40 women with primary PPH, rectal misoprostol was used and found comparable to methergine as a second line treatment of PPH.[21] Zuberi NF et al, used sublingual 600 ug misoprostol as an adjuvant treatment for atonic PPH, and there was reduced blood loss, a smaller drop in postpartum hemoglobin and lesser need for additional interventions[10].

Management of massive, life threatening PPH is a challenge for the clinical team and hospital transfusion services. A protocol of 6:4:1 fixed ratio of un-crossmatched group O- negative red blood cells, FFPs and platelets is recommended by Burtelow M et al for resuscitation and management of massive PPH[22,23].

PPH accounted for 11.7% of direct maternal deaths, due to multiple organ failure, ruptured uterus and coagulopathy with a maternal mortality rate of 6.1% due to PPH[4], where as in our study it was in 6.09% cases.

Maternal mortality has been used traditionally as a measure of the quality of health care. Recently maternal morbidity is being taken into account to assess the burden of the disease. It has been estimated that PPH increases the risk of morbidity 50 times, and has nearly 5 times higher morbidity than mortality[4,12]. Our study also revealed a high morbidity associated with it. However no statistically significant difference was seen in the causes and risk factors for PPH between hospital delivered patients and referred patients.

Overall hospital deliveries had a better outcome, milder course and lesser complications due to active management of the 3rd stage of labour and early intervention for management of PPH.

CONCLUSIONS

Safe motherhood policies, systematic evaluation, aggressive and appropriate treatment, prompt resuscitation and volume replacement minimize the potentially serious outcomes associated with PPH.

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