AN AUDIT OF PRIMARY POST PARTUM HAEMORRHAGE

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Background: Postpartum haemorrhage (PPH) is one of the leading causes of maternal morbidity and mortality .Its causes & risk factors are important for its prevention and management. Poor, unhealthy, high parity women delivering away from health facility are usual victims. The purpose of this study is to determine causes of PPH, risk factors, preventable factors and to assess treatment measures adopted. **Methods:** This retrospective study is carried out in Gynaecology 'B' unit of Ayub Teaching Hospital Abbottabad. All patients admitted with PPH or developed PPH within hospital from 1st Jan–31st Dec 2006 are included. Exclusion criteria were patients with bleeding disorders and on anticoagulants. Records of admissions, deliveries, caesareans, major & minor procedures and history charts were thoroughly evaluated for details. Details included age, parity, socioeconomic status, transportation facility, distance from hospital, onset of labours, birth attendant skilled/unskilled, evaluation of risk factors, duration of labour and mode of delivery. Patient's general health, anaemia, shock, abdominal and pelvic examination and laboratory findings were also taken in to account. Treatment measures including medical, surgical, blood transfusions were evaluated. **Results:** The most important cause was uterine atony, 96 (70.5%) and traumatic lesions of genital tract, 40 (29.4%). Factors causing uterine atony were augmented labour 20 (20.9%), prolonged labour 21 (21.9%), retained placental tissues, 11 (12.5%), retained placenta, 11 (11.4%) Couvelliar uterus, 10 (10.4%), placenta preavia, 8 (8.3%), placenta increta, 7 (7.3%), chorioamnionitis 5 (5.2%), and multiple pregnancy, 2 (2.1%). Risk factors, grand multiparity 70 (51.5%), antepartum haemorrhage 12 (8.9%), instrumental delivery 10(7.3%), previous PPH, 6 (4.5%), choreoamnionitis, 5 (3.6%), multiple pregnancy, 2 (1.5%), no risk factor, 21 (15.4%). Socioeconomic status was poor (75) & lower middle class (61). Induced labour, 33 (24.3%), augmented labour 62 (45.5%).Uterotonics used for prophylaxis in 30 (22%), for treatment of PPH, 106 (78%). Patients delivered by traditional birth attendants 70 (51.4%), lady health workers 40 (29.4%) & doctors 26 (19.2%).Uterine massage performed in 30 (22%), minor surgical procedures 33 (24.3%), manual removal of retained placenta, 11 (8%), hysterectomy, 50 (36.7%), & compression sutures were applied in 3 (2.2%). Maternal deaths due to PPH were 6 (40%). **Conclusions**: PPH can be prevented by avoiding unnecessary inductions/augmentations of labour, risk factors assessment and active management of 3rd stage of labour. It needs critical judgment, early referral and early resuscitation by birth attendant. There is room for temponade and compression sutures. Hysterectomy should be the last option.

Keywords: Post Partum Haemorrhage, Uterine atony, Uterotonics, Compression sutures.

INTRODUCTION

Primary post partum haemorrhage (PPH) is defined as the loss of greater than 500ml of blood from the genital tract in the first 24 hours following delivery.[1] This compares with 1000ml of blood loss for caesarean section.[2] It is one of the leading causes of maternal morbidity and mortality.[3] There are 600,000 maternal deaths reported world wide every year and 99% of these occur in developing countries.[4] 25% of deaths in developing world are due to PPH, the prevalence is 34% in Pakistan.[5-7]

PPH has many potential causes but the commonest is uterine atony, responsible for 80% of cases.[8] When uterus fails to contract, it leads to continuous blood loss from placental site. Risk factors for uterine atony are prolonged first and/or 2nd stage of labour, augmented labour, retained placenta, placenta accreta, multiple pregnancy, polyhydramnios and uterine fibroids. Multiparity and precipitate labour also promote uterine atony.[9] Other causes of primary PPH include retained placental tissues, uterine rupture, lower genital tract trauma, uterine inversion and consumptive coagulopathy.[10-12]

The risk of dying from PPH depends not only on the amount and rate of blood loss but also on the health of women, poverty, unhealthy life style, malnutrition and women's lack of control over their reproductive health, are some of major issues that have come to be accepted as inevitable and unchangeable.

Prevention of uterine atony is the key to reducing the incidence of PPH. The benefits of active management of 3rd stage are well documented. It decreases need for blood transfusion, post partum anaemia and less use of additional therapeutic uterotonic drugs.[13,14]

Oxytocin, syntometrine, ergometrine, prostaglandin F2 alpha and misoprostol are different medical preparations used as uterotonics for prophylaxis and therapeutic management of PPH. The two main aspects of management of PPH are resuscitation and identification/ management of underlying cause. Interventions like, temponade test,

application of compression sutures, internal iliac arteries ligation, uterine arteries immobilisation and hysterectomy are other life saving measures.

Objectives of this study are to determine causes of PPH, high risk patients, preventable factors and various treatment methods used in our set up.

MATERIALS AND METHODS

All the cases admitted with or developed PPH within hospital in Gynae 'B' Unit of Ayub teaching hospital over a period of one year from 1st Jan 2006 to 31st Dec 2006, were analyzed. Inclusion criteria were all women admitted with or developed PPH in hospital after delivery/caesarean section.

Exclusion criteria were patients with history of bleeding disorders and those on heparin/warfarine.

Patient's details were taken from history charts, records of admissions, deliveries, caesarean sections, minor procedures and major procedures registers. All patients were analyzed for age, parity, socioeconomic status, distance from hospital and transport facility. Details of risk factors including grand multiparity, polyhydramnios, multiple pregnancy, induction/augmentation of labour, prolonged labour, choreoamnionitis, previous history of PPH, caesarean section, precipitate labour and instrumental delivery. The use of uterotonics for PPH prophylaxis was also taken in to account. Assessment of general health including anaemia, blood pressure, abdominal, pelvic examination and laboratory investigations was done. Details of onset of labour spontaneous or induced were recorded. Deliveries conducted by traditional birth attendants (TBAs), lady health workers and doctors were evaluated. Distance of place of confinement from our hospital, transport facility and time taken to reach to health facility were determined. Causative factors for PPH were evaluated.

Management including resuscitation, uterine massage, uterine exploration, use of oxytocic agents, prostaglandins, minor surgical procedures and major surgical interventions were determined. Hb estimation was performed. Number of transfusions given and length of hospital stay was also considered.

RESULTS

A total of 136 cases of primary PPH were managed in one year period. Uterine atony identified as major cause 96 (70.5%), traumatic lesions of genital tract, 40 (29.4%). Causes of atony (Table-1), risk factors for PPH (Table-2). Socioeconomic status was poor 75 (55.1%) & lowers middle class 61 (44.9%). Induced labour, 33 (24.3%), augmented labour 62 (45.5%). Uterotonics used (Table-3). Most patients were delivered by traditional birth attendants 70 (51.4%) & lady health workers 40 (29.4%), doctors 26 (19.2%). Blood pressure un-recordable in 33 (24.3%), systolic B.P below 80mmHg, 55 (40.0%), systolic B.P above 100 in 48 (35.3%). Hb% levels were between 8–10gm% in 63 (46.4%) and less than 8gm% in 73 (53.6%). Blood transfusion was done in all cases. Uterine massage was performed in 30 (22%), minor surgical procedures 33 (24.3%), manual removal of retained placenta, 11 (8%), hysterectomy, 50 (36.7%), & compression sutures were applied in 3 (2.2%). Maternal deaths due to PPH were 6 (40%).

Table-1: Factor causing uterine atony (n=96)

	Number	%
Augmented labour	20	20.9
Prolonged labour	21	21.9
Retained placental tissues	12	12.5
Retained placenta	11	11.4
Couvelliar uterus	10	10.4
Placenta preavia	8	8.3
Placenta increta	7	7.3
Choreoamnionitis	5	5.2
Multiple pregnancy	2	2.1
Total	96	100

Table-2: Risk factors of PPH (n=136)

Factor	Number	%
Grand multiparity	70	51.5
Antepartum haemorrhage	12	8.9
Instrumental delivery	10	7.3
Previous C/Section	10	7.3
Previous history of PPH	6	4.5
Choreoamnionitis	5	3.6
Multiple pregnancy	2	1.5
No risk factor	21	15.4
Total	**136**	**100**

Table-3: Procedures used for PPH (n=136)

Uterotonics used for	Number	%
Prophylaxis of PPH	30	22.0
Treatment of PPH	106	78.0
Total	**136**	**100**

Table-4: Procedures used for PPH (n=136)

Procedure used	Details	Number	%
Uterine massage and uterotonics only		30	22.0
Minor surgical procedures	Repair of cervical and vaginal tears	21	15.5
	Uterine exploration for retained tissues	12	8.9
Manual removal of placenta +		11	8.0
Uterotonics	Compression sutures	3	2.2
	Uterine arteries ligation	3	2.2
Laparotomy (where other measures failed)	Internal iliac ligation	1	0.7
	Subtotal Hysterectomy	50	36.8
	Repair of ruptured uterus	5	3.7
Total		**136**	**100**

Table-5: Maternal mortality due to PPH

Total maternal deaths during one year	Deaths due to PPH	Percentage of total deaths
15	6	40%

DISCUSSION

PPH is the most common cause of maternal mortality and accounts for 25% of all maternal deaths world wide. Majority of these deaths (88%) occur within 1st 4 hours of delivery due to events in 3rd stage of labour.[15] uterine tone, retained tissues, trauma and thrombine deficiency are major causes. In our study, uterine atony is the most common cause of PPH (70.59%) which is quite comparable to the other studies of 80%.[8]

Ruptured uterus and lower genital tract traumatic lesions were found in 29.41%. Prolonged labour, obstructed labour and its sequelae ruptured uterus and uterine atony are common in poor unhealthy and malnourished women who deliver away from health facility. Delivery in a well staffed and well supplied medical facility prevents delay in recognition of complication, delayed transportation and delay in receiving adequate comprehensive care.[16] Traumatic lesions can not be compared to international studies because labours are supervised in better facilities and timely interventions are made to prevent prolonged and obstructed labours.

Common risk factor identified in our study is grand multiparty (51.5%). Grand multiparas are considered to be at higher risk of PPH but some studies suggest that their risk may be no greater than women of lower parity.[17] In our study the correlation of PPH with higher parity could be due to the fact that almost all of grand-multies belong to lower socioeconomic group (55%) and delivered away from healthy facility. This is comparable to a study, which states 60% of births in low income countries occur outside a health facility.[18]

Other risk factors identified as prolonged labour, augmented labour placental complications, multiple pregnancy and previous history of post partum haemorrhage are similar to that described by George Condous. [19] Using antenatal risk assessment, only 40% of women with an identified risk factor develop PPH.[20]

Active management of 3rd stage of labour is the key to reducing incidence of PPH due to uterine atony.[21] Our study reveals use of uterotonics in only 20% for prophylaxis of PPH, because the level of care provider was suboptimal as 51.4% patients received care by traditional birth attendants (TBAs). Early oxytocic therapy reduces the incidence and severity of PPH by 40%, post partum anaemia and the need for blood transfusions.[22-24] This method is for from ideal in low resource setup where births are supervised by TBAs away from hospital and where lethal PPH are occurring. Misoprostol 800 microgram per rectal is valuable in the treatment of PPH in low resource setups because of its low cost and easier storage.[25,26]

Rapid recognition, resuscitation and restoration of circulating blood volume plus simultaneous identification and treatment of the cause play key role with help from multidisciplinary team. In our study resuscitative measures were done satisfactorily within hospital but transportation delay lead to delayed initiation of treatment. As more time elapses between onset of severe shock and resuscitation the percentage of surviving patients decreases because of metabolic acidosis. No resuscitation was done at primary care level. An intravenous line and oxytocic infusion can save a lot of blood loss from uterine atony at primary level. Correct assessment of blood loss, adequate blood transfusions and other blood products are vital in treatment of PPH.[27]

Uterine massage uterotonics and minor surgical procedure were performed in 68 (50%). Another 50% patients were treated by major procedures. Our study revealed hysterectomy as the top most (36.7%) surgical procedure. In high resource countries haemorrhage requiring hysterectomy is considered one of the life threatening condition.[28] A temponade test can reduce the amount of blood loss and indicate rapidly the need for definitive surgery.[29,30] Our study did not reveal application of temponade test in any patient. Uterine packing or Burki SOS balloon temponade has a predictive value of 87% in successfully managing PPH without further surgical intervention.[31] Success rates have been reported with use of condoms in low resource settings.[32] Application of temponade might have prevented few hysterectomies in this study.

Compression sutures were applied in 5 patients. They are easy to perform and quick. B lynch suture not only increases tension and compression force but also eliminates the need to open the uterus.[33-35] There is more room for compression sutures to prevent hysterectomy as in our study.

Systematic devascularization was performed in only one case. Uterine artery ligation is technically easier and associated with less morbidity than internal iliac artery. The success of internal iliac ligation is 40-75%.[36] In our study systematic devascularization was not adequately practiced.

Hysterectomy being radical procedure is associated with loss of child bearing potential and psychological problems is the last option. It is life saving and can be warranted earlier where patient is haemodynamically unstable or there is uncontrollable bleeding despite other medical and surgical measures.[37]

Our study revealed 40% of maternal mortality due to PPH which is higher than world wide (25%), but comparable to others like 43% in Indonesia, 53% in Philippines and 53% in Guatemala.[6]

CONCLUSION

PPH can be prevented by avoiding unnecessary inductions/augmentations of labour, identification of high risk patients and use of active 3rd stage management protocol. Every birth attendant should have access to needed supplies, equipment and acquire knowledge, skills and critical judgment for early referral and initial resuscitation measures. Use of temponade and compression sutures needs consideration and hysterectomy should be performed as last resort.

RECOMMENDATIONS

1. Good antenatal care, improvement of general health & anaemia.
2. Assessment of risks, placental problems and relevant counselling.
3. Proper evaluation for cephalopelvic & fetopelvic disproportions, Avoidance of inductions, augmentations of labour & instrumental deliveries in setups where quality of care is suboptimal.
4. Patients with previous scars in uterus, history of PPH should be managed in tertiary care hospitals.
5. Adequate assessment of failure of progress and timely referral.
6. Active management of 3rd stage of labour should be practiced.
7. Delay in decisions making, transportation and delay in initiation of life saving measures should be avoided. Optimum blood transfusion services must be available.
8. Senior obstetrician should be called for massive PPH cases.
9. The use of uterine temponade & compression sutures should be practiced where needed.
10. Decision of hysterectomy should be critically analyzed in younger females. High paritus can be safely benefited by hysterectomy.

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