

PRIMARY POST PARTUM HAEMORRHAGE: OUTCOME OF DIFFERENT TREATMENT MEASURES

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This study was carried out to compare the efficacy and safety of different therapeutic measures used for controlling primary postpartum haemorrhage (PPH). The venue of this work was the Department of Obstetrics and Gynaecology Lady Willingdon Hospital Lahore over a period of six months from July 1, 2005 – December 31, 2005. Fifty patients of primary PPH were recruited in this study. After identifying the risk factors for primary PPH thorough history, examination and investigations, these patients were treated medically and surgically to control haemorrhage. Control of bleeding by different measures was secured for the survival of patients. Medical intervention included use of oxytocins, and prostaglandins. Different surgical procedures like manual removal of placenta, suturing of genital tract tears, bimanual uterine compression and packing, stepwise devascularization and caesarean hysterectomy were done. Results of different procedures were analysed by using research proforma. The results show that out of fifty, fifteen (30%) were booked patients. The major predisposing factor was grand multiparity in twenty-five (50%) patients. The predominant cause was uterine atony in thirty (60%) cases. Twenty (66%) patients were completely cured by different oxytocins. Eight (16%) had manual removal of placenta and two (4%) required evacuation of retained products of conception. Nine (18%) were treated by suturing the tears and lacerations. The commonest morbidity (66%) was anaemia. Mortality rate was 6%. In conclusion there is a need to reduce the alarmingly high maternal mortality and morbidity caused by primary PPH. Its main predisposing factors should be controlled. High parity, illiteracy and ignorance coupled with inadequate maternity services contribute towards this tragedy. If patients reach hospital well in time, effective management of obstetric haemorrhage should be prompt restoration of circulatory volume, accurate diagnosis of the cause of bleeding and early appropriate therapy to arrest the bleeding.

Key Words: *Primary PPH, Grand multiparity, Maternal morbidity and mortality.*

INTRODUCTION

The World Health Organization (WHO) defines primary PPH as bleeding in excess of 500 ml in the first 24 hours following delivery¹. The base line incidence of PPH has been estimated at 4 to 6% of all pregnancies². PPH is a major cause of maternal morbidity and mortality in both developed and developing countries³. About 1.3% of all deliveries may lead to PPH with a blood loss of more than 1 liter while life-threatening haemorrhage occurs in one in a thousand deliveries⁴.

Pakistan, like other developing countries of South Asia has high maternal mortality rates. The magnitude and causes of the problem are difficult to measure as many estimates are based on hospital statistics. Seventy percent of the women don't receive any antenatal care. Majority deliver at home and in only 35% of the cases trained personnel are available. These deliveries and deaths may never be registered and moreover

many women who develop obstetric complication even may not reach hospital facilities for treatment. PPH is a common cause of maternal mortality in Pakistan. Uterine atony accounts for 75-90% of PPH. Trauma and retained placenta account for most of the remainder of the cases, where as coagulopathies; placenta praevia and accrete are relatively rare causes of PPH⁵.

The survival rate of bleeding patients depends upon the time it takes to start the treatment⁶. Some patients bleed profusely and require aggressive treatment. Uterine atony can be treated medically with Oxytocic drugs and prostaglandins. Intra uterine packing or massage can also stimulate uterine contractions. Surgically it may necessitate internal iliac artery ligation or hysterectomy. Emergency arterial embolization is a valuable therapy in cases of PPH but can only be carried out in specialized units⁷. The successful use of the inflated stomach balloon of a Sengstaken tube has

been reported⁸. Trauma to genital tract requires identification and repair of damage. Retained placenta is managed by manual removal of placenta. This may be done under either general or spinal anaesthesia. Where there is no access to anaesthetic services it may be performed under narcosis induced by pethidine or similar drugs⁹. The effect of different measures used for prophylaxis and treatment of PPH is usually assessed by using an indirect parameter of blood loss like change in pulse rate, or fall in blood pressure, the need for additional drugs to stop excessive bleeding, or need for blood transfusion, as well as laboratory investigations such as fall in haemoglobin level¹⁰. Direct visual estimation of blood loss is well known to be inaccurate, compared with blood loss estimation in the laboratory¹¹. However, these laboratory methods are often cumbersome to use and time consuming; while, direct visual estimation is feasible and reliable if done carefully. Upon recognition of PPH, the most effective management should be initiated. Every effort should be made to stabilize the patient and maintain her reproductive capability¹². As PPH is a major contributor of maternal death and it can be avoided in half of the cases so this study will be focused upon identification of risk factors and evaluation of treatment measures in terms of morbidity and mortality. This will help us to improve the obstetrical care of primary PPH¹³.

PATIENTS AND METHODS

This study was carried out in the department of Obstetrics and Gynaecology Lady Willingdon Hospital, Lahore. A total of fifty patients with primary PPH over a span of six months, with effect from July 1, 2005 – December 31, 2005 were selected by temporal sampling. It was an observational comparative study. The patients included in the study had either uterine atony, retained placenta / products of conception or genital tract injuries as cause of PPH while all other causes of postpartum collapse within 24 hours after delivery, congenital bleeding disorders, liver diseases and patients on anti coagulant therapy were excluded.

The written consent was obtained from patients who satisfied the inclusion criteria. After admission in hospital, detailed history was taken regarding present pregnancy, booked or unbooked, parity, place of delivery, mode of delivery, amount of blood loss and previous history of PPH. In referred cases, diagnosis was based on history of profuse vaginal bleeding after delivery, a deteriorating maternal condition and need for blood transfusion. Complete general physical examination was done. Vital signs were noted. Signs of active haemorrhage and severity of

bleeding were assessed from general condition of the patients. Abdominal examination was performed to find out size of uterus and state of uterus whether relaxed or contracted. Pelvic examination was done to remove blood clots, confirm size of uterus, state of uterus, presence of placenta whether inside or de-livered.

Those patients who developed primary PPH in hospital measurements of blood loss was done by visual estimation of the size of blood clots and general condition of patient. In those patients who developed primary PPH outside the hospital, blood loss was approximately assessed from the description of patient and relatives and general condition of the patients. Laboratory tests including haemoglobin, haematocrit were performed. Immediate resuscitative measures like intravenous access, fluid replacement and catheterization were done. The initial evaluation included clinical examination. From treatment point of view medical intervention included use of oxytocins, and prostaglandins. Where prophylactic dose of oxytocin was already given a repeat dose of 10 units of intravenous oxytocin was administered. Ergometrine was only given in normotensive patients, while in hypertensive cases a further 10 units of oxytocin were given in case of slow response. Lastly prostaglandins were administered to control atonic haemorrhage that was unresponsive to oxytocin and / or ergometrine. PGE₂ was used rectally and failed response was treated with additional intramyometrial PGF₂ alpha. Different surgical procedures like manual removal of placenta, suturing of genital tract tears, bimanual uterine compression and packing, bilateral uterine artery ligation and caesarean hysterectomy were performed to control haemorrhage where medical management failed. Results of different procedures were analysed by using research proforma. Data was analysed on computer by using SPSS (10.0). The student t-test and ch-square test were used according to quantitative or qualitative data. Data was analyzed regarding risk factors, treatment measures, morbidity and mortality.

RESULTS

In this study out of 50 patients 15 (30%) were booked cases whereas 35 (70%) were unbooked. The age of patients included in study ranged between 20 and 40 years. Thirteen (26%) of patients presented with primary PPH were in 20-25 years, 30% (15) in 26-30 years, 16% (8) in 31-35 years and 28% (14) in 36-40 years of age. The range of parity was between primipara to grandmultipara and maximum prevalence (50%) of primary PPH was in grandmultiparas.

Table 1: Association between Primary PPH and Risk Factors.

Risk Factor	Number	Percentage
Grand Multiparity	25	50
PIH	13	26
RIH	11	22
Multiple Pregnancies	02	04
Polyhydramnios	01	02
Fibroid	Nil	Nil
Previous PPH	02	04

Twenty (40%) patients were delivered at home and presented with primary PPH while 60% (30) patients were delivered in the labour room. Twenty five (50%) patients developed primary PPH after spontaneous vaginal delivery, 10 (20%) after instrumental delivery and 30% (15) after caesarean section.

The most common predisposing factor for primary PPH in this study was grand multiparity (50%), antepartum haemorrhage in 26% cases, pregnancy induced hypertension in 22%, multiple pregnancies in 4%, previous history of PPH in 4% and polyhydramnios in 2% of cases (Table 1).

The commonest cause of primary PPH was found to be uterine atony responsible in 40% cases. Next common cause was retained placenta in 36% cases. In 24% of cases genital tract trauma was the cause of primary PPH (Table 2).

Table 2: Prevalence of different causes of primary PPH.

Cause	Number	Percentage
Uterine atony	20	40
Retained placenta and fragments	18	36
Genital tract trauma	12	24

In majority of patients (60%) blood loss was upto 1000 ml. In 32% haemorrhage was upto 1500 ml and in 8% cases there was severe haemorrhage. Thirty patients were treated medically with oxytocin drugs (Table 3) and 20 were treated surgically (Table 4).

The commonest complication seen was anaemia (64%). Thirty six percent patients developed puerperal pyrexia. Thirty percent patient suffered from hypovolaemic shock. UTI was seen in 20% while 10% patients suffered from wound sepsis. Only 2% patients developed acute renal failure due to severe hypovolaemia and prolonged hypotension. 2% patients developed clotting derangements. Not a single patient had Sheehan syndrome. Mortality rate was 6%. In majority of patients (84%) PPH was timely managed and patients did not develop major complications and were discharged within 7 days. Only 8 patients had prolonged hospital stay.

Table 3: Association of given medical treatment and cure rate of primary PPH.

Treatment	Number	% age	Cured		Not Cured	
			No.	% age	No.	% age
Oxytocin	30	60	13	43.3	17	56.7
Repeat oxytocin	15	30	05	29.4	12	70.6
PGE ₂	10	20	08	80	02	20
PGF ₂	02	04	01	50	01	50

Table 4: Association of given surgical treatment and cure rate of primary PPH.

Treatment	Number	% age	Cured		Not Cured	
			No.	% age	No.	% age
Manual Removal of Placenta	8	40	8	100	Nil	
Evacuation of RPOCS	2	10	2	100	Nil	
Repair of Tears and lacerations	10	50	9	90%	1	10%

DISCUSSION

In this study of primary PPH 70% patients happened to be unbooked and the booked cases were only 30%. This reflects lack of knowledge about the significance of antenatal check up in our country. This fact was highlighted by a study conducted in Agha Khan University Hospital, Karachi, Pakistan analyzing maternal death in a developing country, which showed seventy percent of the women (83% in rural area and 40% in urban areas) don't receive any antenatal care¹⁴.

Regarding the ages of patients this study showed incidence among 20 - 30 years is 56% and 31-40 years

is 44%, that is parallel with the study conducted by Vivien where 88% patients aged 20-29 years¹⁵.

It was also observed that 50% of these patients were grand multipara and similar observations are submitted by other researchers in this country¹⁶.

Out of 50 patients of primary PPH 25 (50%) were delivered by spontaneous vaginal delivery, 10 (20%) by instrumental delivery and 15 patients (30%) by caesarean section. After vaginal delivery most common cause of PPH was uterine atony. Among those who were delivered by caesarean section, primary PPH was due to placenta previa, abnormally adherent placenta and uterine atony. It is evident from study of Manyonda¹⁷ that excessive bleeding after vaginal delivery results from uterine atony, disruption of genital tract and placental abnormalities. This study showed that major predisposing factor was grand multiparity operating in 50% cases. Other predisposing factors seen during this study were antepartum haemorrhage in 26%, pregnancy induced hypertension in 22%, multiple pregnancies in 4% polyhydramnios 2% and previous PPH in 4%. These results are similar to study carried out by Vivien in Zimbabwe analyzing various risk factors for PPH.

The commonest cause of primary PPH in this study was found to be uterine atony seen in 40%, retained placenta found in 36% and genital tract trauma in 24% of cases. The results are comparable to the results of Vivien where retained placenta and uterine atony ranked higher and next common cause was traumatic lesion of genital tract seen in 25% cases. Uterine atony was proved to be most important cause in the study carried out by Burke¹⁸ and the results are comparable to our study.

Among the 30 medically treated patients 13 (43.3%) were cured completely with oxytocin and did not require any further management. 2 needed repeat oxytocin as ergometrine could not be given because they were hypertensive. In 15 (50%) patients ergometrine had to be used to maintain uterine contraction.

Out of 10 (33.3%) cases which were not cured with both the therapies i.e. oxytocin and ergometrine, PGE₂ per rectal was used and 2 out of them needed additional intramyometrial PGF₂ alpha. The cure rate of PGE₂ treated group was 80% and with PGF₂ alpha it was 50%. The study in Peoples Medical College, Nawab Shah showed that the haemorrhage was controlled by oxytocin in 46.11% cases and 25% patients required PGE₂ to control PPH. The results are also comparable to the study conducted by Tammy, in which the patients receiving oxytocin required more than one uterotonic agents to control PPH²⁰.

The cumulative cure rate with prostaglandins was 75% in our study while in the studies carried out by Tammy and Bigrigg, the cure rate was 90%^{19,20}. The reason for low efficacy in the group might be due to difference in the use of PGE₂ in our study while in their study misoprostol (PGE₁ analogue) per rectal was used. The second reason might be the improper storage of PGE₂ and F₂ alpha, in our country, which decreases the efficacy of the drug.

Retained placenta was the cause of primary PPH in 10 patients. In 8 patients manual removal of placenta and in 2 patients evacuation of retained products of conception was carried out. In this group cure rate was 100%. There was genital tract trauma in 10 patients. There were perineal, cervical injuries in 9 patients and uterine rupture in 1 patient. Repair of tear and lacerations was performed. Cure rate was 90% in this group. One patient died (see below).

Regarding morbidity of primary PPH it was noted in this study that 32 (64%) patients suffered from anaemia and 15 (30%) from hypovolaemic shock. Next common complication seen was puerperal pyrexia in 18 (36%), urinary tract infection in 10 (20%), wound infection in 05 (10%), acute renal failure in 01 (2%) and clotting derangement in 01 (2%) patient. These results are nearly equal to the results of study carried out by Adetoro. He studied 204 cases of primary PPH during 2 years period at University Hospital in Nigeria. It was found that anaemia and hypovolaemic shock were two commonest avoidable complications. Then comes puerperal fever due to pelvic infections and urinary tract infections. These complications were due to increased incidence of infection, which is due to lowered resistance in these patients²¹.

Sheehan syndrome is a rare complication, incidence estimated to be 1/10,000 deliveries. None was seen in this study.

In this study mortality rate from primary PPH was 6% (3 patients). Among one of the three mortalities in the study group, one patient was brought in emergency unaccompanied by the relatives. The hospital was arranging for surgical intervention but she was in moribund condition and expired before anything could be done. The second patient died due to genital tract trauma, hysterectomy was decided but she expired before it could be undertaken. The third patient received all possible treatment measures to stop the PPH, but the life could not be saved and the patient died due to disseminated coagulopathy. Khoro quotes a maternal mortality rate from PPH as high as 12.77%¹⁶. Different studies show that in cases of primary PPH death is usually due to avoidable factors. Primary

PPH still ranks high as cause of maternal death in developing countries like ours. In developed countries maternal mortality rate from PPH has been significantly decreased.

It was noticed in this study that majority of patients stayed in hospital for one week. They developed fewer complications and were discharged for home in satisfactory conditions. Eight patients (16%) had to stay for more than 1 week due to wound infection, renal failure and clotting derangement.

In conclusion this study shows that primary PPH is still a serious problem encountered in our daily obstetrical practice. It can result in significant maternal morbidity and mortality. In most of the cases death is due to avoidable factors. Regular antenatal checkups and improvement of overall socio economical conditions are mandatory. Public awareness programs about importance of antenatal care should be carried out. Its role in prevention of primary postpartum haemorrhage by identifying high risk cases, early diagnosis and control of predisposing factors and preventive measures during labour should also be highlighted. Preventive measures taken during labour to avoid Primary PPH are active management of the third stage of labour, good supervision during delivery, availability of medications, blood and setting for emergency surgical procedures. Use of different treatment modalities both medical as well as surgical either singly or in combination in appropriately selected patients proved well in treating the postpartum haemorrhage even in-patients who have delay in reaching hospital. The resources of even well equipped and staffed units may be stretched by massive obstetric haemorrhage and staff should be familiar with an agreed protocol that can be implemented quickly and promptly.

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