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A Study of Referral Cases of Post Partum Hemorrhage- Still An Obstetrical Tragedy which is Largely Preventable

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ABSTRACT

Aims: to study the socio-demographic profile, etiology and maternal morbidity in referred cases of post partum hemorrhage. Methods: This was a retrospective study conducted at department of obstetrics of GSVM Medical College, Kanpur from Jan 2010 to Sept 2013. Only referred cases of post partum hemorrhage were included. Records were analyzed with respect to demographic profile, etiologic factors, maternal morbidity and mortality. Results: Among all referred cases (1250), 61.36% of cases were due to post partum hemorrhage (751/1250). Majority of the referred cases of post partum hemorrhage belonged to lower socio-economic status and rural area. 63.52% of the patients were multipara. Most common cause was atonic (38.48%) followed by combined post partum hemorrhage (31.29%). Most common complication was hypovolemic shock (28.8%). Maternal mortality was 8.92%. Conclusion: By promoting institutional delivery by skilled personnel and timely referral, we can decrease incidence of post partum hemorrhage and therefore maternal morbidity and mortality.

KEYWORDS Maternal morbidity, Maternal mortality, Post Partum Haemorrhage, Preventable, Referred cases

Introduction

Obstetrics is a bloody business still holds true as among all the four stages of labor, third stage is the most crucial as the most dreaded complication i.e. post partum hemorrhage (PPH) may occur in an otherwise uneventful delivery changing it into a formidable disaster. Every day about 1600 women die in childbirth and of these approximately 500 bleed to death[1].Most of these are due to atonic PPH and more than 99% are in the developing world[2].Haemorrhage is the fifth or sixth leading cause of maternal death in developed countries. It accounts for the majority of cases that result in severe maternal or "near miss" obstetric morbidity [3,4,5]. Hemorrhage is the leading cause of death in developing countries.

PPH is defined as a bleeding from the genital tract in excess of 500 ml within first 24 hours after birth. Blood volume studies have shown that the normal woman loses about 500ml at the time of spontaneous vaginal delivery, more with the assisted vaginal delivery and up to 1000 ml at the time of caesarean section. Secondary PPH is defined as abnormal bleeding from the genital tract between 24 hours and 6 weeks postpartum.

The common causes include uterine atony, lower genital tract lacerations, retained placenta & placental fragments, coagulation disorder and uterine inversion.

PPH is a significant contributor to maternal morbidity & mortality & one of the millennium development goals set by United Nation in 2000 is to decrease maternal mortality by three quarters by 2015 & if this is to be achieved, maternal deaths due to post partum hemorrhage must be reduced.

This aim of our study was to review the maternal records with respect to age, parity, socio-demographic & etiological profile and maternal consequences in referred cases of PPH at our tertiary care centre.

Methods:

This was a retrospective study conducted in the department of Obstetrics & Gynaecology, G.S.V.M. Medical College, Kanpur from January 2010 to September 2013. All the patients included in our study were referred from primary and community health centre of adjoining areas of Kanpur with primary diagnosis of post partum hemorrhage. Records were analyzed with respect to maternal age, parity, socio-demographical & etiological profile and various complications occurring sequele to postpartum hemorrhage.

Results:

Total number of referred patients during the study period was 1224, out of which 751 (61.36%) patients were due to post partum hemorrhage. Majority of patients were multipara (63.52%) and 36.48% of patients were primipara. 94.14% of patients belonged to rural areas with poorer accessibility to good health care facilities whereas only 5.86 % of patients were from urban areas where the existing health care system is well equipped to manage PPH. 91.08% of patients were unbooked which reflects the illiteracy & ignorance still existing in lower socioeconomic strata. 62.9% (473/751) of patients had home delivery by unskilled personnel, which was con-

sidered to be a significant contributor of PPH, whereas only 37.1% (278/751) of patients with hospital delivery suffered PPH. In our study atonic postpartum hemorrhage (38.48%) was the commonest cause and coagulation disorder contributed only 2.26% of cases. Rupture uterus was seen among 33.34% (70/210) of patients, making it the commonest cause of traumatic PPH. 5.59% of patients had retained placenta/ third stage hemorrhage out of which half of them required manual removal of placenta. 2.40% of patients had secondary post partum hemorrhage. Only 3 out of 751 patients had inversion uterus making it a very rare cause of primary PPH. Medical management along with balloon tamponade was done in 90.66%(262/289) cases of atonic PPH where as only 9.34%(27/289) of atonic PPH required surgical management (hemostatic sutures & peripartum hyseterectomy).

In cases of traumatic PPH, all patients with third degree perineal tear and vulval hematoma underwent tear repair and haematoma drainage respectively. 6.67% (14/210 cases) of all cases of traumatic PPH underwent peripartum hysterectomy due to rupture uterus.

The most significant complications which occurred due to PPH was development of acute severe anemia i.e. haemoglobin less than 7gm/dl (41.14%) which increased the need for blood transfusion. Patients with hypovolemic shock (6.52%) and congestive heart failure (11.58%) had a greater need for intensive care facilities. The maternal mortality was 8.92% among all the referred cases of PPH.

Discussion

Since in our study the inclusion criteria of PPH were only referred cases, therefore the incidence came out to be 61.36% (751/1224), which is quite high as compared to the reported incidence which varies widely from 2-10% [6]. A systematic review reported the highest rates of PPH in Africa (27.5%), and the lowest in Oceania (7.2%), with an overall rate globally of 10.8% [7]. The rate in both Europe and North America was around 13%.[7]

Highest number of cases i.e. 530 (70.57%) were in 21–30 years age group (Table 1), while other studies mention most cases being over 35 years[8]. The reason for this difference perhaps lies in the younger age of marriage in our country in general associated with the relative increased gravidity and parity at younger ages. No predisposing factor was present in 40.88% (307/751) cases. Multiparity, particularly grand multiparity has been specified as a factor predisposing to increase frequency of PPH [9,10]. The percentage of multipara females (P>=2) in this study was 63.52% while primipara were 36.48%.

In our study, 91.08% of the patients were unbooked (Table 1) belonging to the rural areas with lower socio-economic status reflecting the lack of proper antenatal care, illiteracy and ignorance among such population, as is also mentioned in other studies.[11,12]

The main cause of PPH in this study was uterine atony with a frequency of 38.48% (289 cases) (Table-2). In a study conducted by Ashraf et al, uterine atony was found in 34% of cases [9]. In international studies uterine atony was the most common cause of PPH, ranging from 50% to 76% of cases [13, 14] The second most common cause of primary PPH in our study was combined (31.29%) followed by traumatic (27.97%). International studies also mention a frequency ranging from 9% to 20% of cases of traumatic lesions as the cause of PPH[15,13]. The least common cause of PPH was coagulopathy (2.26%) which was in concordance with the study reported by Anderson et al. [16]

Secondary PPH is much less common than primary PPH, occurring in about 1% of deliveries.[2] In our study the incidence of secondary PPH was 2.4%. Retained placenta (i.e., failure of the placenta to deliver within 30 minutes after birth) occurs in less than 3 percent of vaginal deliveries [17].The incidence of retained placenta was slightly higher [5.59%] in our study. This difference merely indicates a referral bias, as majority of the cases were those, that were referred after home deliveries and no case of retained placenta occurred in hospital deliveries.The incidence of peripartum hysterectomy done for atonic cases was 1.04% (3/289) in our study (Table 4). If all deliveries are considered the rate ranges from 0.4-0.8% [18,19]. In our study in cases of rupture uterus, 20% of the patients underwent hysterectomy, as compared to the reports by McMohan and Miller, in which 10-20% of such women required hysterectomy for hemostasis[20,21].

The development of acute severe anaemia and congestive heart failure due to PPH in our study was found to be 41.14% and 11.58% respectively (table 6) which also indirectly contributed to maternal mortality, as compared to 90.1% and 9.9% in a study conducted by Ayub et al[22]. It must be noted that the study conducted by Ayub et al takes into account all the cases with anaemia whereas we took cases with only severe anaemia, and thus the difference in our observations. Disseminated intravascular coagulation (DIC) was found in 6% cases of PPH in the study by Ayub et al[22]. Hypovolemic shock and DIC was present in 6.52% and 1.73% of patients who were referred to us with PPH. The admission of obstetric patients to critical care facilities is low (published intensive care units admission rates are 0.29% to 1.5% of deliveries in industrialized countries) [23,24]. Intensive care was required in 9.72% of our patients. The incidence was very much higher in our study because the majority of patients who were referred to our institution, had one or more complications, which required life saving support. Blood transfusion is recognized as one of the eight essential components of comprehensive emergency obstetric care (cEmOC), which has shown to reduce rates of maternal mortality.[25,26] It was found that 50.99% (383/751) of cases required blood transfusions, and 11.72% required massive transfusion i.e. more than 3 units of packed cell. In sub-Saharan Africa, it is estimated that 26% of maternal hemorrhagic deaths are a direct consequence of the lack of blood transfusion services, and globally up to 150,000 pregnancy-related deaths could be avoided each year if women had access to safe blood. [27,28]

Maternal mortality due to haemorrhage was observed in 24-68% of women by different authors [29, 30, 31, 32, 33]. In our study maternal mortality due to hemorrhage was 8.92%. This huge difference in the percentage mortality reflects the high standard of medical and surgical facilities available and the expert care delivered at our institute.

Hemorrhage continues to be the leading cause of maternal mortality worldwide, accounting for 34% of maternal deaths in Africa, 31% in Asia, 21% in Latin America, and 13% in developed countries [34]. If effective measures are taken to ensure provision of antenatal care to all pregnant ladies, safe home/hospital deliveries and timely referral of high risk pregnancies, complications are expected to reduce.

The majority of women in India don't deliver in hospital and therefore, the incidence and proportion of complications seen is probably very different from what occurs in the community. At the same time hospital data estimated may be more than community mortality rate as high risk women are referred to hospital for delivery and often the women are only transported to hospital when they develop life threatening complications, which is too late and swells the number of hospital deaths.

Preventable maternal deaths indicate gross violation of the basic human right of survival and highlight gross failure of health services on almost all fronts particularly in terms of choice of strategic interventions and their extent of coverage in population. Proper anticipation and skilled management, alongwith timely referral of PPH cases will lead to significant reduction in maternal morbidity & mortality, as PPH is a significant contributor to maternal mortality. So much so, that the 5th Millennium Development Goal aims at reducing the maternal mor-

tality by primarily reducing the number of cases of PPH. Every pregnancy should culminate in healthy mother and healthy baby and for that we need to ensure that all women have access to high quality essential and emergency obstetric service at first referral unit (FRU) level to reduce maternal mortality .

Table -1 Socio Demographic Determinates Of The Patients Referred With Post Partum Hemorrhage

SNo	No of patients	Percentage
1)Parity		
P1	274	36.48%
P2	116	15.45%
P3	361	48.07%
2)Age Group		
<21 years	31	4.13%
21-25 years	273	36.35%
26-30 years	257	34.22%
>30 years	190	25.30%
3)Residence		
Rural	707	94.14%
Urban	44	5.86%
4)Admission		
Booked	67	8.92%
Unbooked	684	91.08%
5)Socio-economic Status		
High	31	4.13%
Middle	91	12.12%
Low	629	83.75
6)Gestational Age		
Term	581	78.43%
Preterm	162	21.57%

Table – 2 Etiology Of Post Partum Hemorrhage

SNo Type	No. of Patients	Percentage
1. Atonic	289	38.48%
2. Traumatic	210	27.97%
(a) cervico-vaginal tear	62	29.52%
(b) vulval hematoma	36	17.14%
(c) III/IV degree perineal tear	42	20%
(d) Rupture Uterus	70	33.34%
3. Combined	235	31.29%
4. Coagulation Disorder	17	2.26

Table – 3 Type of Post Partum Hemorrhage

Type	No. of Patient's	Percentage %
Primary PPH	691	92.01%
Secondary PPH	18	2.40%
Retained Placenta	42	5.59%

Table- 4 Management Of Referred Cases Of PPH

	No. Of Patients	Percentage
Atonic PPH Management		
(1)Medical Management	117	40.48%
(2)Conservative		
(a) Balloon Tamponade	145	50.17%
(b) Hemostatic sutures	24	8.30%
(3)Hysterectomy	3	1.04%
Traumatic PPH Management		
(1)Repair cervico-vaginal tear	62	29.52%
(2)Drainage of vulval hematoma	36	17.14%
(3)Perineal tears (III/IV)	42	20%
(4)Management of rupture uterus		
(a) Repair	56	26.67%
(b) Peripartum hemorrhage	14	6.67%

Table-5 Table showing place of delivery, personnel conducting delivery and distance of referral area from our hospital

Place Of Delivery	Percentage	Number Of Patients
Home	63%	473
PHC/CHC	31.5%	237
Private	5.5%	41
Delivery Conducted By		
Untrained dai	62.9%	473
Trained Nurses/ ANMs	21.9%	165
Doctor	15.2%	113
Distance of referral area		
<25 km	5.86%	44
26-30 km	79.49%	597
>50 km	14.5%	110

Table – 6 Types Of Various Morbidites Associated With Post Partum Hemorrhage In Referred Patients

Morbidity	No of patients	Percentage
1.Severe Anemia	309	41.14%
2.Congestive Heart Failure	87	11.58%
3.Hypovolemic shock	49	6.52%
4.DIC	1	1.73%
5.Need for blood transfusion		
1 Unit	42	5.59%
2 Unit	253	33.68%
3 Unit	88	11.72%
6.Need for ICU / ventilator support	73	9.72%
7.Maternal Mortality	67	8.92%

REFERENCES

[1] Confidential Enquiry into Maternal and Child Health. Why mothers die? 2000-2002. London: RCOG Press, 2004. | [2] Munro Kerr's Operative Obstetrics 11th edition, chapter 18: pages 225-235. Elsevier publications. | [3] Drife JO. Maternal 'near miss' reports? BMJ 1993;307: 1087-1088. | [4] Baskett T, Sternadel J. Maternal intensive care and near –miss mortality in obstetrics. Br J Obstet Gynaecol 1998; 105:981-984. | [5] Baskett TF, O' Connell CM. Severe obstetrics maternal morbidity: 15nyear population-based study. J obstet Gynaecol 2005;25:7-9. | [6] Didly GA, Paine AR, George NC, Velasco C. Estimated blood loss; can teaching significantly improve visual estimation? Obstet Gynaecol 2004;104: 601- 606. | [7] Calvert, C; Thomas, SL; Ronsmans, C; Wagner, KS; Adler, AJ; Filippi, V (2012). "Identifying regional variation in the prevalence of postpartum haemorrhage: a systematic review and meta-analysis.".PloS one 7 (7): e41114. PMID 22844432. | [8] Bouwmeester FW, Bolte AC, Van Geijn HP. Pharmacological and surgical management for primary postpartum hemorrhage. Curr Pharma Des 2005;11:759–73. | [9] Ashraf T. Postportum Hemorrhage: an experience at Sandeman Civil Hospital, Quetta.J Coll Physicians Surg Pak 1997;8:68–71. | [10]Munim S, Rahbar M, Rizvi M, Mushtaq N.The effect of grand multiparity on pregnancy related complications: the Agha Khan University experience. J Pak Med Assoc 2000;50:54–8 | [11] Subtil D, Somme A, Ardiet E, Deret-Mosser S. Postportum hemorrhage: frequency, consequences in terms of health status, and risk factors before delivery. J Gynecol Obstet Biol Reprod 2004;33(Suppl 4):9–16. | [12] Wasim T, Majrooh A, Siddiq S. Maternal Mortality- One year review at Lahore General Hospital. Pak Postgrad Med J 2001;12:113–8. | [13] Sabrina D, Craigo MD, Peter S, Kapernick MD. Postpartum hemorrhage and abnormal puerperium. Current Obstetrics and Gynecology logic diagram.6th ed. London: Appleton and Lange; 1987.p 574–82. | [14] Japaraj RP, Raman S. Segstaken- Blakemore tube to control massive postpartum hemorrhage. Med J Malaysia 2003;58:604–7. | [15] Rizvi F, Mackey R, Barrett T, Mckenna P, Geary M. Successful reduction of massive postpartum hemorrhage by use of guidelines and staff education. BJOG 2004;111:495–8. | [16] Anderson JM, Etches D (March 2007). "Prevention and management of postpartum hemorrhage". American Family Physician 75 (6): 875–82. | [17] Weeks AD, Mirembe FM. The retained placenta—new insights into an old problem. Eur J Obstet Gynecol Reprod Biol. 2002;102:109–10. | [18] Briery CM, Rose CH, Hudson WT, et al: Planned vs emergent caesarian hysterectomy. Am J Obstet Gynaecol, 197(2):154.e1, 2007 | [19]Forna F, Miles AM, Jamieson DJ: Emergency peripartum hysterectomy: A comparison of caesarian and postpartum hysterectomy. Am J Obstet Gynaecol 190:1440,2004 | [20]McMohan MJ, Luther ER, Bowes WA Jr, et al: Comparison of a trial of labour with an elective second caesarian section. N Engl J Med 335:689, 1996 | [21] Miller DA, Goodwin TM Gherman RB, et al: Intrapartum rupture of the unscarred uterus Obstet gynecol 89:671,1997 . | [22] Humaira Naz, Iram Sarwar, Anisa Fawad, Aziz Un Nisa: Maternal Morbidity And Mortality Due To Primary Pph– Experience At Ayub Teaching Hospital Abbottabad, J Ayub Med Coll Abbottabad 2008;20(2):59-64 | [23]Royston E, Abouzahr C: Measuring maternal mortality, BJOG 1992;99(7):540-543. | [24]Mabie WC, Sibai BM: Treatment in an obstetric intensive unit. Am J Obstet Gynecol 1990;162(1):1-4 | [25] United Nations Children's Fund (UNICEF), World Health Organization (WHO), |United Nations Population Fund (UNFPA), authors Guidelines for Monitoring the Availability and Use of Obstetric Services. New York: UNICEF; 1997. [Accessed June 14,2011]. | [26] Obaid TA. No woman should die giving life. Lancet. 2007;370:1287-1288. | [27] Bates I, Chapotera GK, McKew S, van den Broek N. Maternal mortality in sub-Saharan Africa: the contribution of ineffective blood transfusion services. BJOG. 2008;115:1331–1339. | [28] World Health Organization (WHO) Essential Health Technologies, authors. Blood Transfusion Safety. Geneva: WHO; [Accessed June 14, 2011]. | [29] Anderson JM, Etches D (March 2007). "Prevention and management of postpartum hemorrhage". American Family Physician 75 (6): 875–82. | [30] Purandare N, Singh A,Upahdya S, et al. Maternal mortality at a referral centre: a five year study. J obstetric Gynaecology India 2007; 57(3):248-50. | [31] Kulkarni SR, Huligol A. Maternal Mortality -10 year study. J Obstetric Gynaecol India 2001; 51(2):73-76 | [32] Jayaram VK. Review of Maternal Mortality. J Obstetric Gynaecol India 2001; 51(2):80-82 | [33] Mukherj J. Maternal Mortality due to haemorrhage with Emphasis on post partum Haemorrhage. J Obstetric Gynaecol India 2001; 51(5): | [34] 3. Khan KS, Wojdyla D, Say L, et al. WHO analysis of causes of maternal death: a systematic review. Lancet. 2006;367:1066–1074. |