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Pattern of Peripartum Haemorrhage in a Tertiary Care Centre

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Abstract

Introduction: *Obstetric haemorrhage still remains the leading cause of maternal mortality worldwide. The Confidential review of maternal deaths in Kerala from 2004-2009 has shown that obstetric haemorrhage tops the list and steps to improve obstetric standards have been introduced in Kerala since 2014.It has also emerged as the major cause of severe maternal morbidity.*

Materials and Methods: *This is a retrospective descriptive study conducted in a tertiary care centre in south Kerala to analyse the pattern of peripartum haemorrhage during the period from January to December 2016. Blood loss more than 500ml within a period of 24 hrs prior and after parturition irrespective of the mode of delivery was considered as peripartum haemorrhage. The cases were grouped into 4 according to the magnitude of transfusion.*

Results: *Of the 8520 births in the institution 140 cases had peripartum haemorrhage (1.64%). Cases with haemorrhage referred after parturition was 24. Cases which did not receive transfusion belonged to group 1(29.88%). Majority (48.78%) belonged to group 2 with transfusion of ≤ 2 PRC. Massive transfusion was received by 7.92%. The proportion of atonic postpartum haemorrhage was 70/164 (42.68%). Abruptio placenta accounted for 25% and placenta previa for 20.12 % of peripartum haemorrhage. Morbidly adherent placenta previa was the major contributor of massive haemorrhage and peripartum hysterectomy. A single maternal mortality due to haemorrhage was due to severe preeclampsia, HELLP, DIC*

Conclusion: *Atonic PPH remains the prime causeof peripartum haemorrhage. Morbidly adherent placenta previa in previous caesarean had become a major contributor of massive haemorrhage, massive transfusion, obstetric hysterectomy and maternal near miss.*

Keywords: *peripartum haemorrhage, massive transfusion, morbidly adherent placenta previa, obstetric hysterectomy, maternal near miss.*

Introduction

Obstetric haemorrhage encompasses antepartum, intrapartum and postpartum haemorrhage[(1)] It is the leading cause of preventable maternal death worldwide. One third of maternal death in Asia and Africa is due to obstetric haemorrhage.[(2)] The Confidential review of maternal deaths in Kerala from 2004-2009 has shown that obstetric haemorrhage tops the list and steps to improve obstetric standards have been introduced in Kerala since 2014.[(3)]It has also emerged as the major cause of severe maternal morbidity in almost all 'near miss audits' in both developed and developing countries.[(4,5).]

Early pregnancy bleeding (<24weeks) and mild antepartum haemorrhage usually do not have significant adverse maternal outcome. But haemorrhage just prior to or during parturition can cause serious maternal and foetal outcome. Postpartum haemorrhage can occur as a continuation of ante or intrapartum haemorrhage or denovo after the third stage of labour. Obstetric haemorrhage occurring during the time frame around the parturition process can be termed as peripartum haemorrhage. This study is to analyse the pattern of peripartum haemorrhage in a tertiary care centre

Primary objective: To study the pattern of peripartum haemorrhage for a period of one year

Study design: Retrospective descriptive

Study settings: Dept. of O&G Govt. Medical College Thiruvananthapuram

Inclusion criteria

1) All cases more than24 weeks gestation diagnosed with peripartum haemorrhage and documented in the parturition register
2) All cases referred from outside institutions after delivery with the diagnosis of postpartum haemorrhage and documented in the referral register

Exclusion criteria

1. Pregnant women with pre-existing bleeding disorders
2. Pregnant women on anticoagulant therapy
3. Women with pre-existing anaemia at the time of delivery and blood transfusion was given for the sole purpose of correcting anaemia.

Study period –February 2017 to May 2017

Sample size – All cases satisfying the inclusion criteria from 1/1/2016 to 31/12/2016 were included in the study

Materials and Methods

Cases were identified from the parturition registers and referral registers.

In the parturition register, if the total blood loss recorded was more than 500 ml within a period of 48 hours (24hrs prior to and 24 hrs after delivery) irrespective of the mode of delivery, that was included in the study. In the referral register if the case was referred as PPH even though blood loss was not formally measured and documented, it was included in the study. The institution had a protocol for assessment of blood loss by objective measurement using standard pre weighed absorbent pads and mops. The hospital protocol for blood transfusion was based on blood loss and the hemodynamic status of the patient.

The cases which were included in the study were categorised into 4 groups based on the magnitude of transfusion.

Group 1 – mild hemodynamic instability managed without transfusion of blood or blood components

Group 2- transfusion of less than or equal to 2 PRC with or without blood components

Group 3 – transfusion of 3 or 4 PRC and blood components

Group 4 – transfusion of 5 or more than 5PRC and blood components

The medical records of the cases were retrieved from the medical records library and relevant data was collected in a pre structured proforma. The data was entered into an excel sheet and analysed.

Results

In the year 2016 total delivery was 8520 and total number of peripartum haemorrhage was48 164. The proportion of peripartum haemorrhage in the institution was 1.64% (140/8520). Cases referred after delivery in peripheral institutions were 24. The referred cases accounted for 17.14% of the total haemorrhage cases.

Table 1

Year	2016
Total delivery in the institution	8520
Peripartum hemorrhage in the institution	140(1.64%)
Peripartum hemorrhage referred after delivery in peripheral institutions	24
Total	164
Referral vs instation	14.63% vs85.37%

As per the categorisation into groups, group 2 (with ≤2 prc) had the maximum share of cases (80/164) of 48.78% followed by group 1 (49/164)

(29.88%).The proportion of cases in group3 was 13.41% and group 4 was 7.92%.

The proportion of cases which received transfusion of blood and blood products was 70.12% (115/164).This is the proportion of patients with significant peripartum haemorrhage.

The prime cause of significant peripartum haemorrhage was atonicity (41/115) 35.65%. Abruption (26.96%) occupies the second position and placenta previa (20.87%) the third.

More than half (54.17%) of the placenta previa with significant haemorrhage was morbidly adherent placenta previa in previous caesarean cases. There were 17 cases of either focally or totally adherent placenta of which 14 were morbidly adherent placenta previa (MAPP)

Varying degrees of disseminated intravascular coagulation occurred in 18 cases (15.65%). DIC was a sequel of haemorrhage in 16 whereas in 3 cases haemorrhage was the sequel of DIC. One severe Preeclampsia, HELLP, DIC ended in maternal mortality which was the only mortality due to peripartum haemorrhage.

The mode of delivery was caesarean in 61.74% (71/115) of the significant haemorrhage cases.

Conservative measures were used for management of postpartum haemorrhage like condom tamponade (27), uterine compression sutures (10), uterine artery ligation (35),internal iliac ligation (4). Obstetric hysterectomy was done for 18 cases of which majority (77.78%) was for placenta previa accrete and 4 was for atonic or traumatic haemorrhage.

There were 23 cases of maternal near miss due to haemorrhage. The main reasons to qualify for near miss were obstetric hysterectomy, shock, massive transfusion and ventilation.

Table 2 Categorisation of cases according to the magnitude of transfusion

Causes of peripartum haemorrhage	Grp1 No transfusion	Grp2 ≤2 PRC	Grp3 3-4 PRC+ blood products	Grp4 ≥5 PRC +blood products	Total
Atonic	29	36	4	1	70(42.68%)
Traumatic	1	7	4	1	13(7.92%)
Atonic +traumatic	0	1	1	2	4(2.44%)
Abruption	10	24	7	0	41(25.00%)
Placenta previa	9	12	4	8	33(20.12%)
DIC due to other causes	0	0	2	1	3(1.83%)
Total	49(29.88%)	80(48.78%)	22(13.41%)	13(7.92%)	164(100%)

Table 3: Causes of peripartum haemorrhage in the year 2016

Causes of Peripartum haemorrhage	Without transfusion	With transfusion	Total
Atonic	29/70(41.43%)	41/70(58.57%)	70/164(42.68%)
Traumatic	1(02.04%)	12(10.43%)	13(7.92%)
Atonic +traumatic	0	4(03.48%)	4(2.44%)
Abruption	10(20.40%)	31(26.96%)	41(25.00%)
Placenta Previaincluding MAPP MAPP	9(18.37%) 1(02.04%)	24(20.87%) 13(11.30%)	33(20.12%)
DIC due to other causes	0	3(02.61%)	3(1.83%)
Total	49((100%)	115(100%)	164(100%)

Table 4: Significant outcome of peripartum haemorrhage

significant maternal outcome of peripartum hemorrhage	2016
Maternal mortality	1
Atonic PPH	0
MAPP	0
HELLP, DIC	1
Near miss	23
Atonic	2
Traumatic	1
Atonic + traumatic	2
Abruption	4
MAPP	14(60.86%)
Obstetric hysterectomy	18
Atonic PPH	1
traumatic PPH(rupture uterus)	1
atonic + traumatic	2
MAPP	14(77.78%)
Massive transfusion	13/115(11.30%)
Atonic PPH	1
Traumatic PPH(rectus sheath hematoma)	1
atonic +traumatic PPH	2
MAPP	8/13(61.54%)
HELLP,DIC	1
Injuries	9
Ureter +bladder	1
Bladder	7
Bowel(RVF)	1

Discussion

Peripartum haemorrhage includes antepartum, intra partum and postpartum haemorrhage. Depending upon the aetiology of haemorrhage any one component may predominate or they may merge into one another without a clear demarcation. Due to the lack of this demarcation many cases designated as postpartum haemorrhage may in fact be a combination. The definition of postpartum haemorrhage is not uniform throughout the world[6]. Asper WHO blood loss of 500 mlor more within 24 hours of delivery is defined as primary postpartum haemorrhage. For caesarean delivery blood loss above 1000 ml has been considered as upper limit of normal by some. But whatever be the mode of delivery the physiological impact of blood loss depends on the quantity and speed of loss [7]. In this study a blood loss of more than 500ml irrespective of the mode of delivery was chosen as peripartum haemorrhage.

The proportion of peripartum haemorrhage in this study is 1.64%. In a systematic review the prevalence of PPH was 6% when cut off was 500ml and 1-2% when cut off was 1000ml[8]. The prevalence varies depending upon the case definition, clinical management, and characteristics of population.

Of the total peripartum haemorrhage the proportion of atonic postpartum haemorrhage was 70/164 (42.68%) which shows that atonic PPH is still the leading cause. According to a population based eleven year study 75% of postpartum haemorrhage was due to atonicity of uterus.[9] The proportion of atonic PPH which received blood transfusion was 41/70 (58.57%). The incidence of atonic PPH depends upon whether third stage was managed expectantly or actively with utero tonics. All cases delivered in the institution had active management of third stage of labour with i/v 5 units of oxytocin within one minute of the delivery of baby followed by 20 units infusion lasting for the immediate 2 hours postpartum.

Placental causes accounted for nearly 45% of peripartum haemorrhage. Abruptio placenta accounted for 25% and placenta previa for 20.12%.

A significant finding was that morbidly adherent placenta in a scarred uterus, (all lower segment caesarean) was 39.40%(13/33).Out of 14 cases of MAPP 8 had massive transfusion(57.14%).Here massive obstetric haemorrhage and massive transfusion was the result of rapid loss of more than 3 litres of blood in less than 3 hours. The maximum number of PRC transfused was 25 and FFP 21. The main cause of massive transfusion was MAPP (61.54%). This is in contrast to the study by Green et al where the main cause of massive transfusion was atonic PPH (40%)[10].

In a systematic review of 128 studies hysterectomy complicated almost 1 per1000 deliveries [11] .In this study it is 2 per 1000 deliveries. The higher prevalence in this study may be due to the reference of all high risk cases to the tertiary centre. In the same systematic review the cause for hysterectomy was placental pathology in 38%, uterine atony in 27% and uterine rupture in 26%. [11] In this study fourteen cases (77.78%) of obstetric hysterectomy were done for MAPP whereas only four (28.57%) were for atonic or traumatic pph.

There was a single maternal mortality due to obstetric haemorrhage in this study. The haemorrhage was due to DIC in a case of severe preeclampsia, HELLP. There were 23 maternal near miss cases in this study of which MAPP was the significant contributor (60.86%). In a systematic review of 26 studies[12], the median near-miss ratio for PPH was 3 per 1000 live births and in this study it was2.7 per thousand live birth.

Conclusion

Peripartum haemorrhage is an important cause for maternal mortality and morbidity. Atonic PPH still occupies the prime position in peripartum haemorrhage. Morbidly adherent placenta previa in a scarred uterus has evolved into a very prominent cause of obstetric haemorrhage probably due to the rising caesarean rate.

No conflicts of interest declared

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