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FREQUENCY, CAUSES AND OUTCOME OF POST PARTUM HAEMORRHAGE AT LIAQAT MEMORIAL HOSPITAL KOHAT, PAKISTAN

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ABSTRACT

OBJECTIVE: to determine the frequency, causes and outcome of postpartum haemorrhage (PPH) at Liaqat Memorial Women & Children Teaching Hospital (LMWCTH) Kohat, Pakistan.

METHODS: This descriptive study was conducted on diagnosed patients of PPH admitted in labour room of LMWCTH, Kohat, Pakistan. Data regarding mode of delivery, management and outcome of PPH was collected from January 2011 to December 2015. The blood loss measurement was subjective. The standard criterion for PPH definition & classification was used. The data was analysed via SPSS-21.

RESULTS

Out of 46266 deliveries during the study period, documented PPH cases were 1453 (**3.14%).** The most common cause of PPH was atonic uterus (n=566; **38.95%),** followed by genital tract trauma (n=489; **33.7%).** Primary PPH was seen in 1408 **(96.9%)** cases. Out of 1453 cases of PPH, 993 (**68.34%)** had C/section, 330 (**22.71 %)** were delivered vaginally and 130 (**8.95%)** had abdominal delivery for ruptured uterus. Conservative medical management was done in 535 (**36.82%)** patients; repair of various kinds of tears was done in 489 (**33.65%)** patients and subtotal abdominal hysterectomy in 198 (**13.63%)** cases. Nine (**0.62%)** patients had disseminated intravascular coagulation (DIC), 7 **(0.48%)** patients had ruptured bladder along with ruptured uterus, 5 (**0.34%**) patients had renal failure and 3 (**0.21%)** patients developed pulmonary edema. Thirty five (2.41 %) patients died due to PPH.

CONCLUSION: PPH was observed in 3.14% of admitted patients. Atonic uterus and genital tract trauma were the main causes while DIC and ruptured uterus were main complications of PPH. Mortality rate was 2.4%.

KEY WORDS: Postpartum haemorrhage (MeSH), Uterine inertia (MeSH), Atonic uterus (Non-MeSH), uterine rupture (MeSH), Disseminated intravascular coagulation (MeSH), Maternal mortality (MeSH), Subtotal abdominal hysterectomy (Non-MeSH).

INTRODUCTION

Postpartum haemorrhage (PPH) is the major cause of maternal deaths in low-income countries and is responsible for about one-quarter of global maternal deaths.[1] PPH is causing 140,000 deaths each year which means one women is dying in every four minutes due to PPH.[2] According to Pakistan demographic & health survey (PDHS 2006-07), PPH is contributing for 27.2% maternal deaths in Pakistan.[3]

Uterine atony, retained placenta and genital lacerations are the most common causes of PPH.[4] Hypovolumic shock, disseminated intravascular coagulation (DIC), hepatic dysfunction, acute respiratory distress syndrome and renal failure are the serious complications of massive PPH.[5-7] Among PPH survivors, an estimated 12% will suffer from the consequences of severe anemia.[8] PPH, an opportunity killer can occur unpredictably and no patient is immune from it. The rapid onset and progression of PPH means that high-quality services are required if we have to prevent PPH-related mortality and morbidity.[9]

Although various studies have been done on causes, morbidity and mortality of PPH in Pakistan;[5,6,10-12] however, the magnitude of PPH & its associated complications in southern districts of Khyber Pakhtunkhwa, Pakistan was not highlighted. This study was carried out to determine the frequency, causes and outcome of PPH, over the period of last five years in Liaqat Memorial Hospital, Kohat, Pakistan.

METHODS

This retrospective study was conducted on the diagnosed patient of PPH, who were admitted in Liaqat Memorial Women & Children Teaching Hospital, Khyber medical University Institute of Medical Sciences (KIMS), Kohat, Pakistan from January 2011 to December 2015. All women received with PPH or develop PPH in hospital after deliveries were included in the study. Patients on

anticoagulants were excluded from study. Information was collected through a structured questionnaire with questions on bio-data, place of delivery, mode of delivery, possible causes of PPH, medical and surgical interventions. All the data was entered in SPSS 21 and also analysed through it.

Out of total deliveries, documented evidence of PPH was found in 1453 deliveries. The measurement of blood loss was subjective and on hemodynamic instability of patient.

Ethical approval of the study was taken from ethical review board of KIMS, Kohat, Pakistan.

Operational definitions:

Primary PPH was considered as "the loss of 500 ml or more of blood from the genital tract within 24 hours of the birth of a baby".[13] Secondary PPH was defined as "abnormal or excessive bleeding from the birth canal between 24 hours and 12 weeks postnatally". [14]

RESULTS

Out of total **46266** deliveries from January 2011 to December 2015, **40,329 (87.17%)** were vaginal deliveries, 5807 (12.55%) were caesarean deliveries and 130 (0.28%) patients had abdominal deliveries (in cases with ruptured uterus).

The documented cases of PPH in **46266** deliveries were **1453 (3.14%)**. Out of 1453 patients, 409 (28.1%) patients were having parity of 2-4, 693 (47.7%) were between para 5-8, 283 (19.5%) were primipara and 68 (4.7%) were of parity 9 or above.

Out of 1453 patients with PPH, 1316 (90.57%) had in-hospital delivery while only 137 (9.43%) patients were delivered at home. There were total 35 (2.41%) maternal deaths with 18 (51.43%) due to atonic uterus, 9 (25.72%) due to DIC and 8 (22.85%) due to ruptured uterus.

The commonest mode of delivery associated with PPH was caesarean section (n=993; 68.34%) [Table1]. The most common cause of PPH was atonic uterus (n=566; 38.95%) followed by genital tract trauma (n=489; 33.7%), and uterine rupture (n=247; 17.01%) [Table II). Secondary PPH was observed in 45 (3.1%) cases.

While managing PPH, conservative medical management was done in 535 (36.82%) patients, repair of various types of tears was done in 489 (33.65%) patients and subtotal abdominal hysterectomy (STAH) in 198 cases (13.63%) cases (Table III). Out of 198 cases of STAH, 102 (51.5%) were operated for rupture uterus and 96 (48.5%) cases for atonic uterus.

Apart from these procedures, eighty (5.6%) patients had additional conservative surgical procedures in the form of B-Lynch suture, bilateral **uterine artery ligation & bilateral internal iliac arteries ligation. Out of** 247(16.99%) cases of ruptured uterus, 145 (58.70%) patients had repair & 102 (41.30%) cases ended up in STAH.

Out of 1453 PPH patients, 24 (1.65%) patients developed serious complications. Nine (0.62%) patients went into DIC, 5 (0.344%) patients had renal failure, 3 (0.21%) patient developed pulmonary edema and 7 (0.48%) patients had ruptured bladder along with ruptured uterus. Patients with renal failure & pulmonary edema were referred to intensive care units (ICU) of tertiary care hospital for further management.

DISCUSSION

In our study, PPH was reported in 3.14% of cases from January 2011 to December 2015. Majority (90.57%) developed PPH during hospital delivery. Primary PPH was seen in 96.9% cases. The commonest mode of delivery associated with PPH was C/Section (68.34%) & the most common cause of PPH was atonic uterus (38.95%). About half of the patients with PPH had parity of **5-8**. Majority of patients (63.18%) were managed with various surgical procedures and 36.82% had conservative medical management.

The global prevalence of PPH was estimated 10.8% and 2.8% of severe PPH in one systematic review. This systematic review identifying regional variations in the prevalence of PPH showed low prevalence of severe PPH in Asia (1.9%) as compared to Africa (5.1%).[15] In another multi-country survey the reported rate

of PPH was 1.2%.[16] The frequency of PPH in our study was 3.14% while it was 1.7% in a study conducted at Liaqat national hospital Karachi[12] & 18.60% in a study done at Lahore.[10] Systematic reviews have shown that wide variation in the global and regional prevalence of PPH and severe PPH are mainly due to methodological diversity in the measurement and prevalence-estimation of PPH.[15,17]

Atonic uterus has been reported as one of the major cause of PPH. The frequency of atonic uterus in our study was 38.95%. It was reported 53.3% in a study at Bolan medical college hospital Quetta[18] & 28.9% in a study conducted at Jinnah postgraduate medical centre Karachi.[19] In developed countries, the increased incidence of PPH was shown to be associated with increase in the incidence of uterine atony.[20,21]

After uterine atony, genital tract trauma (33.65%) was the second leading cause of PPH in our study. The frequency of genital tract trauma as causes of PPH was 23.3% in study at Quetta[18] and 23.7% in a study done in Haryana district of India.[22] Among genital tract trauma, cervical injuries represent frequent morbidities associated with vaginal deliveries.[4] The frequency of instrumental delivery contributing to PPH in our study was 3.65%, majority due to forceps delivery. Forceps and vacuum deliveries are considered as significant risk factors for maternal soft tissue injury and cervical lacerations.[23,24] In our study, vaginal & broad ligament haematoma were responsible for 31(2.13%) cases of PPH. This is in accordance with other international & local studies.[5,25]

The third common cause of PPH in our study was ruptured uterus (n=247: 16.99%). The frequency of ruptured uterus in other studies done in Pakistan was 20% [26] & and 1.14%[27]. The variation in frequencies is because of variation in duration& number of patients in these studies. Out of 247 cases of ruptured uterus, 102 (41.3%) cases had STAH, which is in accordance with another study (45.2%) done in Karachi.[28]

PPH is the major direct cause of maternal mortality across the globe , and is responsible for one-third of all maternal deaths in Africa and Asia.[29] In a WHO systematic review the leading cause of maternal death was haemorrhage signifying 27.1% (19·9–36·2) of maternal deaths & PPH due to atonic uterus

was identified as the main cause of haemorrhage.[30] The result of our study reflect same picture as among 35 (2.41%) maternal deaths, more than half (51.43%) were due to atonic uterus, 25.72% due to DIC & 22.85% due to ruptured uterus. Local figures for mortality rate in patients with PPH are variable and various hospital based studies have reported 0-40% mortality in patients presented with PPH in various hospitals in Pakistan.[5,6,31] However, out of all maternal deaths, PPH is still the leading cause, contributing for 27.2% of maternal mortality in Pakistan.[3]

International epidemiological studies have shown that obstetric haemorrhage & hypertensive disease in pregnancy are the main reasons for intensive care admission of obstetric patients.[32] In our study 24 (1.65%) patients developed serious complications like DIC, renal failure, pulmonary edema and ruptured bladder. Patients with renal failure &pulmonary edema in our study were referred to tertiary care hospital for intensive care & management. This is in accordance with a clinical review from Pakistan showing that about half of obstetric patients admitted in ICU are with haemorrhage and 61% of patients have multiorgan failure.

CONCLUSION

PPH was observed in 3.14% of admitted patients in our set up. Majority of patients had primary PPH. Atonic uterus and genital tract trauma were the main causes. Majority of patients were managed with various surgical procedures and about one third of patients had conservative medical management. DIC and ruptured uterus were main complications of PPH. Mortality rate was 2.4% and majority of deaths were due to atonic uterus and DIC.

LIMITATIONS AND RECOMMENDATIONS

Main limitation of our study was that it was conducted in a hospital setting and cannot represent the true figures of the population. More population-based studies are needed to determine the real burden and outcome of PPH in population. More in-depth studies are needed to explore the early identification of causes and management of PPH at primary and secondary level.

REFERENCES

TABLE 1: MODE OF DELIVERY IN PATIENTS WITH POSTPARTUM HAEMORRHAGE

MODE OF DELIVERY	Frequency (n=1453)	% age
C-Section	993	68.34
Normal Vaginal Delivery	273	18.79
Abdominal Delivery (in cases of ruptured uterus)	130	8.95
Instrumental Delivery	53	3.65
Assisted breech delivery	04	0.27

TABLE II: CAUSES OF POSTPARTUM HAEMORRHAGE

CAUSES OF POSTPARTUM HAEMORRHAGE	FREQUENCY (N=1453)	%AGE
Atonic Uterus	566	38.95
Genital tract trauma (vaginal, cervical tears, extended CS tears)	489	33.66
Ruptured Uterus	247	17.01
Retained placenta	75	5.16
Retained Conception Product	45	3.09
Haematoma(vaginal/broad ligament)	31	2.13

TABLE III: MANAGEMENT OF POST PARTUM HAEMORRHAGE

Management of postpartum haemorrhage	Frequency (n=1453)	%age
Conservative medical management	535	36.82
Repair of various types of tears	489	33.65
Subtotal abdominal hysterectomy	198	13.63
Conservative surgical management	80	5.5
Manual removal of retained placenta	75	5.16
Evacuation of uterus	45	3.1
haematoma drainage	31	2.13

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