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Pattern of Clinical Presentation, Risk Factors and Maternal Outcome In Patients Presenting With Primary Postpartum Hemorrhage

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ABSTRACT

Objective — *To determine the frequency, risk factors, causes and maternal outcome in patients presenting with primary postpartum hemorrhage (PPH).*

Study design — *Cross sectional study..*

Place & Duration of study — *Department of Obstetrics and Gynecology Unit II, Ghulam Muhammad Mahar Medical College & Hospital Sukkur Sindh Pakistan, from January 2020 to December 2022.*

Methods — *All pregnant women, above 24-weeks of gestation, who developed PPH within 24-hours of vaginal or abdominal delivery in our hospital and those who presented with the history of delivery at home or other healthcare facilities, were included in this study. Women on anticoagulant therapy were excluded. Data were collected on especially designed form. Data were entered into SPSS version 20 software.*

Results — *Total Number of births during the three years study period were 4627. The number of patients who developed primary PPH were 49 (1.05%). Majority of the patients (n=44 - 90%) were non booked. Most of the patients (n=25 – 51.0%) were in the age group of 26-35 years. Majority (80%) of women had vaginal delivery. Nine (18.3%) patients were received from outside. Grand multiparty was the commonest risk factor in 25 (51.5%) followed by prolonged labour in 6 (12.2%), placenta previa in 5 (10.2%) and abruptio placentae in 4 (8%) patients. Uterine atony was the commonest cause of PPH (n=37 - 75%) followed by cervical and perineal tears (n=8 - 16%). Medical management along-with uterine massage was the commonest management option used for uterine atony in 80% cases, followed by intra-uterine packing in 6 (12%), and peripartum hysterectomy in 4 (8%) women. Four women (8.1%) died in this series.*

Conclusion — *The frequency of PPH was 1.05%. Grand multiparty, prolonged labor and placenta previa were the common risk factors. Uterine atony was the commonest cause of primary PPH. Medical management along-with uterine massage was the commonest technique used to control hemorrhage.*

Key words — *Postpartum hemorrhage, Grand multipara, Uterine atony, Peripartum hysterectomy, Retained placenta.*

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INTRODUCTION:

Postpartum hemorrhage is the leading cause of maternal morbidity and mortality all over the world and is responsible for 25% of maternal death annually. Maternal deaths due to PPH according to WHO statistics were 60% in developing countries and is responsible for more than 100,000 deaths per year worldwide.[1] WHO reports that PPH complicates

2-4% of deliveries.[2] PPH is defined as the blood loss of more than 500ml following vaginal delivery or 1000ml following cesarean section.[3] PPH is termed as primary when it occurs within 24-hours of delivery and secondary or late PPH when it occurs after 24-hours to six weeks poat-delivery.[4]

PPH can be minor when the blood loss is between 500-1000ml and major when it is more than 1000ml. Major PPH is further subdivided into moderate (1000-2000ml) and severe if more than 2000ml.[5] There are certain risk factors for PPH. These may present in antenatal period or encountered at operation. Multiple pregnancy, previous PPH, pre-eclampsia, fetal macrosomia, prolonged 2nd or 3rd stage of labour, placenta accreta and retained placenta are some of the causes.[6-9] Identification of women at high risk of PPH is necessary to plan timely intervention and prevent maternal morbidity and mortality.[10]

Common causes of PPH are uterine atony, genital tract trauma, and failure of blood clotting system. Uterine atony is responsible for 75% of cases.[11] Retained placenta is also one of the causes of primary and secondary PPH.[12] The active management of 3rd stage of labor significantly decreases the incidence of PPH.[13] This study was conducted to determine the frequency of PPH and related morbidity and mortality in our hospital with the identification of the risk factors. Such audits are needed to find out pattern of diseases over the years and help in developing management priorities.

METHODS:

Study design, place & duration

This cross sectional study was conducted in the Department of Obstetrics and Gynecology Unit II, Ghulam Muhammad Mahar Medical College & Hospital Sukkur, Sindh Pakistan, from January 2020 to December 2022.

Ethical considerations: Approval was obtained from the Ethical Review Committee letter No.713/23 dated 22-02-2023 and informed consent was taken.

Inclusion / Exclusion criteria: Patients with more than 24-weeks of gestational age who developed postpartum hemorrhage within 24-hours of vaginal or abdominal delivery were included. Patients from our hospital and those delivered at any other clinics or at home were enrolled. Patients on anticoagulant therapy were excluded from this study.

Sample size estimation: All patients reporting during the study period with PPH were included by non-probability sampling technique.

Statistical analysis:

Study protocol: Data were collected on a predesigned form. Variables collected included age, parity and mode of delivery. Associated risk factors like prolonged labor, type of placental attachment, presence of multiple pregnancy, polyhydramnios, previous history of PPH were recorded. Causes of primary PPH, and maternal mortality were also recorded.

Statistical analysis: Data were analyzed by SPSS Version 22. Quantitative variables like age, parity were presented as mean with standard deviation. Qualitative variables like risk factors and causes were calculated in frequency and percentages.

RESULTS:

Total number of births in the hospital during the three years study period was 4627. In this duration 49 (1.05%) women presented with PPH. Most (n=44 - 90%) of the women non-booked. Majority (n=25 - 51%)of the women were between 26-35 years of age. In 39 (79.3%) women vaginal delivery was reported. Cesarean section was performed in 10 (20.5) patients. Nine (18.5%) patients were referred from outside after delivery at home or other hospital. The gestational period was from 34 to 40 weeks. Most (n=44 - 89.7%) of the patients were of 37 weeks gestation. Blood loss was mild in 75%, moderate in 20% and severe in 5%. The associated risk factors in patients with primary PPH are given table I. The causes of primary PPH were uterine atony (n=37 - 75%) followed by cervical, perineal tears in 08 (16%) and retained placenta in 4 (8%) patients.

Medical management of the patients included IV infusion of oxytocin (syntocinon®) for 4-6 hours, misoprostol rectal pessaries, injection tranexamic acid along-with uterine message. Intrauterine packing was used in 06 (12%) patients. In dire situation peripartum hysterectomy was performed in 04 (18%) patients.

Repair of cervical tears were done under anesthesia in 08 (16%) patients. Manual removal of placenta was undertaken in 04 (8%) women. Maternal demise occurred in 04 (8.1%) cases. These were referred cases, three of whom presented with severe blood loss after delivery at home. Of these two were grand multipara with uterine atony and sustained perineal and cervical tears. One patient presented with massive abruptio placentae and developed severe blood loss immediately after delivery.

Table I: Risk Factors For Primary PPH

Risk Factor	Number	Percentage
Grand Multiparity	25	(51.1%)
Prolonged Labor	06	(12.2%)
Placenta Previa	05	(10.2%)
Abruption Placentae	04	(8%)
Prior PPH	04	(8%)
Polyhydramnios	03	(6.1%)
Multiple Pregnancy	02	(4.0%)

DISCUSSION:

Postpartum hemorrhage is an important cause of maternal morbidity and mortality and is responsible for one quarter of maternal deaths.[14] The frequency of primary PPH in our study was 1.05% which is almost similar to studies conducted in other countries.[15-17] The incidence reported from Nigeria is 2.2% while WHO figures are 2-4% of deliveries.[2,18] In Pakistan it varies from 0.5-9.5%.[19] Majority of patients in our study were un-booked. This pattern is due to the tertiary care status of our hospital where patients are referred from surrounding villages and towns. Same is reported in other studies.[20] The commonest age group of the patients with primary PPH was from 26-35 year of age which is also comparable to reported figures.[16,17]

Most of the deliveries were conducted through vaginal route. This pattern is also reported in another study.[17] Though only 18.5% patients were referred from outside after delivery at home or hospital and rest were managed in our institute but majority fell into the category of un-booked cases. They had no antenatal visits thus were in a high risk group. About 90% were at full-term as observed in other studies.[16] Blood loss in majority of the patients with PPH was in mild category. Similar trend was observed in other study.[21] Majority of patients (80%) were anemic, belonged to the poor socioeconomic status and grand-multipara.[22]

Regarding the risk factors for primary PPH grandmultiparity remained on the top. These patients have the risk to develop uterine atony. Other risk factors included prolonged labor and different placenta related issues. Other studies also found similar risk factors but in different proportion.[24,25]

All patients are managed in the beginning with drugs. Oxytocin, misoprostol and tranexamic acid are commonly employed.[24] Along with the medical management uterine massage is also done during the 3rd stage of the labor. Intrauterine packing was also used in our series as reported by others.[17] Peripartum hysterectomy was needed in 10% cases as a last ditch measure. Same is done in other study.[16] Repair of cervical and perineal tears are done in a standard manner. Manual removal of placenta is also recommended where indicated.[17,25] All these measures were also taken in our study. Primary PPH is responsible for 2-20% of maternal deaths. There are four maternal deaths in our study. All were referred cases. from outside after the delivery. Massive blood loss due to uterine atony occurred in grandmultiparous patients that contributed to the mortality.

Limatations of the study: This is a single centre study with small number of patients with descriptive study design.

CONCLUSION:

Grand multiparous women are at an increased risk for developing primary PPH. Prolonged labor in un-booked women further complicate the scenario. Placenta previa remained an important condition for the PPH.

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