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Mahbooba Sahak[1,2], Almagul Kurmanova[1*]

[1]Al-Farabi Kazakh National University, 050040, Almaty,Kazakhstan
[2]Kabul Medical University, Kabul,Afghanistan
* e-mail: alm_kurmanova@mail.ru

FREQUENCY OF ATONIC UTERUS DUE TO PRIMARY POSTPARTUM HEMORRHAGE: A CROSS-SECTIONAL STUDY

Postpartum hemorrhage (PPH) is loss of 500 mL of blood from genital tract after normal vaginal delivery or 1000 mL after cesarean section. PPH is one of an important cause of maternal mortality and morbidity worldwide, the only strategy that has shown a significant reduction in maternal mortality in patients with PPH is active treatment and management of third stage of labor.

In this study we aim to determine the frequency of atonic uterus due to postpartum hemorrhage.

A descriptive cross-sectional study was carried out on women attending at Shar –Ara teaching hospital in Kabul from 1th January 2020 -1th January 2021.

In general, this study included 170 women with postpartum hemorrhage out of these 105 (61.8%) of whom had uterine atony, followed by other causes retained placenta tissue 22.4%, genital tract tears 14.7%, coagulopathies at 1.2%. It was found that 53.3% of patients were between 20-28 years old, 43.8% women were grand multipara, 87,6% cases were seen in full term pregnancies while 9.5% in post term pregnancies. 92.4% of women were found with previous history of PPH. Finally 47.6% cases managed by uterotonic agents (Metergin + Misoprostol + Oxytocin), 13.3% – only by Misoprostol, 10.5% – by Oxytocin + Misoprostol are used. B lynch compression sutures and uterine courage and massage was performed in 9,5% cases while 1.9% total abdominal hysterectomy was performed.

In our study the frequency of uterine atony due to postpartum hemorrhage was found in 61.8% of cases. Most cases have been seen in women with full term gestational age, and Uterine atony is common in grand multipara, and young patients. Uterine atony mostly managed by uterotonic agents. Any delay in diagnosis and managements of PPH lead to maternal death and disability.

Key words: Postpartum Hemorrhage, Uterine Atony, uterotonic agents, compression sutures

Introduction

Postpartum hemorrhage (PPH) is defined as the loss of 500 mL of blood from the genital tract following a normal vaginal delivery or 1,000 mL after a cesarean surgery. PPH is one of the leading causes of maternal mortality and morbidity worldwide. Obstetric hemorrhage is thought to be responsible for around a quarter of all maternal deaths, and nearly half of all postpartum deaths [1]. In high income countries the absolute risk of death from PPH is substantially lower, with an estimated of 1:100 000 deliveries compared to 1:1000 in low-income countries [2].

The prevalence of maternal deaths due to obstetric hemorrhage, the single most common cause of maternal mortality and morbidity, varies substantially, according to a recent WHO analysis of maternal deaths in high income countries, hemorrhage is responsible for 13,4% of maternal mortality, whereas in Africa and Asia, it is responsible for 34 and 30,8% respectively [1,3].

The most dangerous consequence of third stage of labor is an atonic uterus, the uterus fails to retract resulting in severe bleeding. Attributable to quick or protracted labor, the failure of contraction and retraction may be due to intrinsic myometrial dysfunction. Primiparas and grand multiparas are more prone toit [4, 5, 6]. The most prevalent cause of PPH is uterine atony (65%), genital tract trauma (33%), retained placenta (27%), coagulation abnormalities and uterine rupture [7, 8, 9, 10].

Previous history of PPH, grand multiparity, injudicious use of oxytocin, extended labor, birth of a baby weighing more than 3.5 kg, home delivery and instrumental delivery are all major risk factors for atony [4, 10, 11].

Afghanistan is one of the countries in the world with the highest maternal mortality rate, and the deaths of mothers and children are a top priority for

health programs and the international community. Health interventions to prevent maternal mortality due to PPH are emerging in developing countries.

PPH not only causes a slew of issues for the mother but it also affects her financially, socially and psychologically as well as her family. All of this could lead to family and societal disintegration.

The purpose of this study was to identify the facts about PPH caused by uterine atony. The findings of this study are being used to develop methods to reduce of maternal mortality. However, we feel that using a diverse set of data sources enabled us to develop through suggestions for further research and management of this condition.

Materials and Methods

A descriptive cross-sectional study was carried out on women attending at Shar –Ara teaching hospital in Kabul from 1th January 2020 – 1th January 2021. We employed convenience sampling during this period on 170 patients with primary PPH. The study was carried out in the Department of Obstetrics and Gynecology. The study population included all cases admitted with primary PPH during the study period. For calculation of frequencies, thetotal number of deliveries in the setting during the study period was used.

A comprehensive obstetrical clinical workup was performed on all participants, which included a histor, general physical examination, abdominal and pelvic examination and relevant laboratory investigations. The maternal condition was assessed and managed according to established hospital protocols which included both pharmacological and surgical intervention out of 105 of these, all patients with uterine atony included in this study.

Essential information about the cause of PPH, age, gravidity, gestational age, previous PPH history and management of uterine atony were gathered from patient profiles who were diagnosed and managed for PPH in case of uterine atony after extensive review during this period from delivery room (emergency department), operation room, medical records and the electronic database. Women delivered inside the hospital and occurred PPH due to uterine atony in first 24 hours, wom- en whose delivered vaginally and followed by PPH (atony) included in the study. However, pa- tients who have delivery by cesarean section and followed by PPH, women who had PPH by other causes, secondary postpartum hemorrhages were excluded. The data was entered and analyzed us- ing SPSS 2.0. Frequencies and percentages were calculated for variables.

Results

Total number of deliveries during the period of study were 950 cases. Total number of patients with PPH was 170 that the frequency of PPH in first 24 hours was 18% (figure 1).

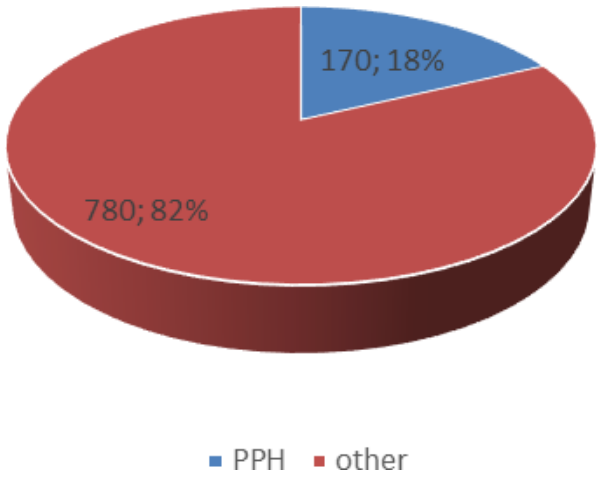

Figure 1 – Frequence of postpartum hemorrages

The leading cause of primary PPH was uterine atony 61.8% (105 out of 170), followed by other causes retained placenta tissue 22.4%, genital tract lacerations and tears 14.7%, coagulopathies at 1.2% (table 1).

Table 1 – Most common cause of postpartum hemorrhage

Causes of PPH	Number	Percent
Uterine Atony	105	61,8
Retention of Placenta tissue	38	22,4
genital tract lacerations and tears	25	14,7
Coagulopathy	2	1,2
total	170	100

We found that most cases (53.3%) the maternal age of women with uterine atony were between 20-28 years old and minimum cases were seen in women aged more then 45 years old (table 2).

Table 2 – Age distribution among women with uterine atony

years	Number	Percent
<19	30	28,57
20-28	56	53,33
29-36	16	15,24
37-45	1	0,95
>45	2	1,9
total	105	100

The number of parity of women with uterine atony is presented in table 3. I was found that 43.8% women were grand multipare (5-7), 26,7% women had 2-4 pregnancy.

Table 3 – Number of parity of women with uterine atony

Parity	Number	Percent
1	20	19,0
2-4	28	26,7
5-7	46	43,8
>8	11	10,5
total	105	100

It was found that 87,6% of women with uterine atony were seen in full term pregnancies, 9,5% – post perm and 2,9% – pre term pregnancies (table 4).

Table 4 – Gestational age of women with uterine atony

Gestational age	Number	Percent
Full term (37–41)	92	87,6
Post term (>41)	10	9,5
Pre term (<37)	3	2,9
total	105	100

Women with uterine atony had previous history of PPH in 92,4% of cases and in 7,6% – had not previous history (table 5).

Table 5 – Previous history of PPH of women with uterine atony

Gestational age	Number	Percent
Non-existed	8	7,6
existed	97	92,4
total	105	100

The table 6 shows medical treatments and procedures are used for managements of uterine atony and most cases managed by uterotonics agents (79%).

Women with uterine atony were managed by uterotonic agents with three agents (Metergin + misoprostol + oxytocin) in 47.6% cases, 13.3% – only by Misoprostol, 10.5% – by Oxytocin+Misoprostol, 7,6% – by Metergin + Misoprostol.

Uterine courage and massage were performed in 10 patients (9,5%), B-lynch compression sutures were applied in 10 patients and in 2 (1,9%) – hysterectomy (table 6).

Table 6 – Management of uterine atony

	Number	Percent
uterotonic agents (Metergin + misoprostol + oxytocin)	50	47,6
Only Misoprostol	14	13,3
Misoprostol + Oxytocin	11	10,5
Metergin + misoprostol	8	7,6
B lynch	10	9,5
uterine courage and massage	10	9,5
hysterectomy	2	1,9
total	105	100

Discussion

In the third stage of labor and delivery, as well as in the postpartum period, PPH is a significant and common complication, in our study, where 170 cases of primary PPH were found (18%).

The incidence of primary PPH was 9.6% in a research by Ara belqees [4], which is within the expected range of 5 to 8% described in the global literature according to Sabrina et al. findings [11].

The study, conducted by Ashraf T in Quetta, Pakistan, on 13,850 deliveries between January 1993 to December 1996, reported a PPH fre- quency of 2.4% [12], which is quite low when compared to global data, the causes for thelow incidence were not indicated in the previ- ous study; however, the length of the study, the characteristics of population, referral biases and natural inclinations may have all contributed to the wide range of frequency estimates, studies by Prêtvill and Adetor have shown a PPH rate of 10-20% [13, 14].

The frequency of PPH (20.9 %) was reported by Drissen M Sever, and the results of these studies are quite similar to our findings [15].

According to our findings uterine atony is the most common cause of PPH, accounting for 61.8% cases. Other causes of PPH include retention of placenta tissue (22.4 %), genital tract injuries or tears (14.7%) and coagulopathies (1.2%). Uterine atony was the most common cause of primary PPH in the study by Ara B (57.6%), followed by retained placenta tissue (21.6%) and genital tract injuries (18.7%) [4]. Driessen M results reported approximately 75% of PPH are followed to uterine atony [15], also Homira Naz study revealed the most common cause of primary PPH was uterine atony, which was found to be 58% of cases [16]. Uterine atony was also identified as the most common cause of PPH in a study conducted in Rawalpindi, Pakistan, with 65% of cases having this condition [12].

According to Sabrina and Japaraj's international reports uterine atony was the most common cause of PPH, accounting for 50% to 76% of cases [11, 17]. In result of H Nazi the second most common cause of primary PPH was vaginal, cervical and perineal tears (24%) [16].

Sabrina and Rizvi F's studies also found a higher prevalence of traumatic lesions as a causeof PPH, ranging from 9% to 20% of cases, fol-

lowed by tears (34.7%). The frequency of retained placenta were (17.3%) of cases [11, 18]. Retained placenta reported in 6% of Cases by Nazi [16]. According to a study by Shaheen from Pakistan, the retained placenta occurs in 27 % of cases [9]. In comparison to our findings, a study by Ashraf T, indicated that the frequency of retained placenta was determined to be 37% [12], this difference simply indicates that we did not have any refer cases because all of the cases were delivered in hospitals, whereas the population under study in other studies was from patients who wanted to deliver in hospitals or refer cases due to PPH from private clinics, and there were no cases of retained placenta in hospital deliveries. In 1% of cases coagulation cascade disorders and platelet dysfunction are the cause of postpartum hemorrhage [19], this conclusion is identical to our finding.

Patient demographic profiles with PPH also gave useful information, our findings revealed that 53.3% of women were between the ages of 20-28 years old, in comparison to international figures, the age profile of the subjects was lower, according to study by H Nazi, the age of patients was 34% between 21-25 years old, but Sabrina state the majority of cases are above 35 years old, and the majority of patients, in the H Nazi investigation (82%) were under the age of 35 years [16].

The explanation for this disparity may be due to the younger age of marriage in general, which is connected with increased gravidity and parityat younger ages, however, the majority of the pa- tients in Ara B study (65%) were between the ageof 21-30 years [4], this is similar to the Adetoro study, in which the majority of the patients were between the ages of 20-28 years, all of these stud- ies are very similar, the age of the mother did not appear to be related to the presence of an atonic uterus[14].

Grand multiparity was found to be a major risk factor for atony in our study, with the majority of women 54.27% being grand multipare (having more than 4 children) and 20% being primigravide while out of these (43.6%) had 5-7 children. In a study by H Nazi, the number of multiparous females were 82%, whereas primigravida was only 18%, as a result, the current study suggests that multiparity is a risk factor for PPH [16].

In our results (87.6%) cases were found in full term pregnancies while 9.5% in post term pregnancies. In study by Driessen M the majority of atonic uterus (78.5%) cases were found in full term pregnancy (37-41 weeks), 4.8% in preterm, while 16.7% in post term pregnancy (>41weeks) [15].

Montufar-Rueda C, mean of gestational age with atonic uterus was found (37.6 ± 3.2). The outcome of these studies revealed that preterm and postterm pregnancy are not important for atonic uterus [20].

According to our findings, 92.4% of women with atonic uterus had previous history of PPH, while 7.6% of women had not a history of PPH.

According to Oberg AS findings, women with a history of PPH have a threefold greater risk of PPH in subsequent pregnancies [21]. In a study by Ara B, 46.3% of women with a past history of PPHwere found to have an atonic uterus during their current delivery [4], while a study by Driessen M found that 20.9% of women with atonic uterus hada previous history of PPH [15]. These studies differfrom our finding because these studies looked at allprobable causes of PPH, whereas we only lookedat uterine atonia and vaginal delivery. In our study, uterotonic drugs (Metergine+Misoprostol+Oxyto- cin) were used in 47.6% of cases, misoprostol was used in 13.3% of cases, and oxytocin +Misoprostol was used in 10.4% of instance, 9.5% B lynch and 9.5% uterine courage and massage were conducted, whereas 1.9% total abdominal hysterectomy was performed. Approximately most cases managed by uterotonics agents (syntometrine, oxytocine) and uterine massage were found to decrease bleeding in 53.7% of cases in a study by Ara B and Prostaglandins were shown to be effective in 68.7% of cases, uterine packing was performed in (62.5%), in 7.5% of instances, uterine artery ligation was effective (80%) [4].

According to a study by H Nazi, pharmaco-logical management was used in 94% of cases, followed by surgical management in PPH cases. The current study likely to a free with such find- ings [16]. Disparities in measurements and time variations, access to health facility, resources, family barrier, capacity of health staffs, ANC of pregnant women concern could all contribute tovariance and however, some of the findings of studies are similar to our results.

Conclusion

In our study the frequency of uterine ato-ny due to postpartum hemorrhage was found in61.7% of cases. Most cases have been seen in women with full term gestational age, and Uter-ine atony is common in grand multipara, and young patients. Uterine atony mostly managed by uterotonic agents. Any delay in diagnosis and managements of PPH lead to maternal death and disability.

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