AL-NAHRAIN UNIVERSITY

COLLEGE OF MEDICINE

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جامعة النهرين

Postpartum Hemorrhage

A descriptive study

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Dedication

I dedicate this research to my **Mom** and **Dad** who Learn me

How I should be patience...who learn me the steps of success and support me always.... I have been blessed to had my parent you were always … and still the greatest parents for me and my inspiration...

Symbols and abbreviations:

PPH	Postpartum hemorrhage
SVD	Spontaneous vaginal delivery
C/S	Cesarean section
LSCS	Lower segment cesarean section
AMTSL	Active Management of the Third Stage of Labor
ACOG	American College of Obstetricians and Gynecologists
WHO	World Health Organization
BMI	Body mass index
IM	Intramuscular
IV	Intravenous

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Abstract

Background: Primary postpartum hemorrhage (PPH) is defined as blood loss from the genital tract of 500 mL or more following a normal vaginal delivery (NVD) or 1,000 mL or more following a cesarean section within 24 hours of birth, PPH contributes significantly to maternal morbidity and mortality worldwide. Women can rapidly hemorrhage and die soon after giving birth.

Aim of this study: To determine the frequency, causes, risk factor, various treatment methods used in for postpartum hemorrhage (PPH) our setup and the maternal outcomes of PPH.

Study design: Descriptive study

Patients and Methods: This study was conducted in the Department of Obstetrics and Gynecology unites of Al-immamain Al-kadhimain Medical City in Baghdad; the period of data collection started from December 2018 to February 2019. all women admitted with or developed PPH in hospital after vaginal delivery or cesarean section was included**.**

Results: There were 1353 deliveries during the period from December 2018 to February 2019 There were 43 cases of PPH during the study period. The incidence of PPH was 3.1%. The mean age was 27.5 years (SD±9.333), mean gestational age was 38.5 weeks gestation (SD ±2.2), and mean birth weight was 3.136 kg (SD ±0.603) for the studied group of patients. The majority of the cases had an identifiable risk factor for developing PPH. The most identifiable risk factor for primary PPH was pregnancy-induced hypertension. Most causes was uterine a tony, All cases of PPH (100%) survived the condition.

Conclusions: Majority of patients developed primary PPH and the commonest cause was uterine a tony. PPH was commonly seen in UN booked patients, induced/ augmented labor, emergency C/S and grand multiparous women.

Introduction

1-1 Definition:

Postpartum hemorrhage (PPH) is commonly defined as blood loss of more than 500 mL following vaginal delivery or more than 1000 ml following cesarean delivery.

Accordingly, primary (early) postpartum hemorrhage (PPH) is classically defined as loss of blood exceeding 500 ml within the first 24 hours after the end of second phase of delivery [1]

Secondary (late) PPH is defined as abnormal bleeding from the genital tract, from 24 hours after delivery until six weeks postpartum.

In addition, researchers suggest that the amount of blood lost during labor is commonly inaccurately assessed and is usually underestimated. Objective evaluation of the amount of bleeding after labor may be difficult, specifically with bleeding that is slow and steady or in the presence of intra-abdominal bleeding [2]

Moreover, the clinical signs of blood loss such as decrease in blood pressure and increased heart rate tend to appear late, only when the amount of blood loss reaches 1500 ml [1, 3]

This is mainly due to the high blood volume of pregnant women [1]

The American College of Obstetricians and Gynecologists (ACOG) has suggested that a decrease greater than 10% in hematocrit, or the need for blood transfusion after labor due to bleeding, will be defined as PPH [4]

Due to the difficulty in defining PPH and its inaccurate recognition, the precise incidence of PPH is unknown. According to several researchers, PPH is diagnosed in 4–8% of all vaginal deliveries [3, 5, and 6.] Using the definition of a 10% decrease in hematocrit, Combs et al. [5] reported a PPH rate of 3.9% in 9500 vaginal deliveries.

1-2 Epidemiology around the world:

Postpartum hemorrhage (PPH) is the leading cause of maternal mortality. All women who carry a pregnancy beyond 20 weeks' gestation are at risk for PPH and its sequelae. Although maternal mortality rates have declined greatly in the developed world, PPH remains a leading cause of maternal mortality elsewhere

The pregnancy-related mortality ratio in the United States was 17.3 deaths per 100,000 live births in 2013. National statistics suggest that approximately 11.4% of these deaths are caused by PPH.[1] in industrialized countries; PPH usually ranks in the top 3 causes of maternal mortality, along with embolism and hypertension. In the developing world, several countries have maternal mortality rates in excess of 1000 women per 100,000 live births, and World Health Organization statistics suggest that 60% of maternal deaths in developing countries are due to PPH, accounting for more than 100,000 maternal deaths per year. [2] A Practice Bulletin from the American College of Obstetricians and Gynecologists places the estimate at 140,000 maternal deaths per year or 1 woman every 4 minutes. [3]

1-3 Types of PPH:

Primary (early) postpartum hemorrhage (PPH) is loss of blood estimated to be >500 ml, from the genital tract, within 24 hours of delivery (the most common obstetric hemorrhage).

Secondary (late) PPH is defined as abnormal bleeding from the genital tract, from 24 hours after delivery until six weeks postpartum**.**

1-4 Risk factors for PPH:

The major risk factor for PPH is probably an over distended uterus, which is responsible for 90% of PPH cases [6]

Most PPHs are due to uterine a tony. Although pharmacological prevention of uterine a tony in the third stage of labor significantly decreases the incidence of PPH.

Uterine a tony can occur in cases of an over distended uterus such as polyhydramnios, multiple gestation, prolonged labor, the use of oxytocin, multi parity, and retained placenta [7]

The average rate of blood flow to the uterus during delivery is 600 ml per minute. Hence, lack of contraction of the uterus can cause severe blood loss and even hypovolemic shock or death**.**

Other risk factors for PPH are prolonged third stage due to abnormal placentation, such as placenta accreta or incerta, and perineal lacerations and episiotomy.

Risk factor for PPH.. Antenatal risk factors [6]

- Antepartum hemorrhage in this pregnancy
- Placenta praevia or Suspected or proven placental abruption
- Multiple pregnancy ,Also other causes of uterine over-distention such as polyhydramnios or macrosomia
- Pre-eclampsia or pregnancy-induced hypertension
- Grand multiparty (four or more pregnancies)
- Previous PPH , or previous history of retained placenta
- Maternal obesity. BMI>35 kg/m2
- Existing uterine abnormalities Maternal age (40) years or older
- Maternal anemia. Hb <9 g/Dl

Risk Factors relating to delivery

- Emergency caesarean section
- Elective caesarean section especially if >3 repeat procedures
- Retained placenta
- Mediolateral episiotomy
- Induction of labor
- Operative vaginal delivery and >4 kg baby
- Pre-existing maternal haemorrhagic conditions: Factor 8 deficiency - haemophilia A carrier, Factor 9 deficiency - haemophilia B carrier and Von Willebrand's disease

1-5 Causes of postpartum Hemorrhage:

The causes of PPH have been described as the "four T's

Tone :

Uterine a tony and failure of contraction and retraction of myometrial muscle fibers can lead to rapid and severe hemorrhage and hypovolemic shock. Over distension of the uterus, either absolute or relative, is a major risk factor for a tony. Over distension of the uterus can be caused by multifetal gestation , fetal macrosomia, poly hydramnios , or fetal abnormality (eg, severe hydrocephalus); a uterine structural abnormality; or a failure to deliver the placenta or distension with blood before or after placental delivery.

Poor myometrial contraction can result from fatigue due to prolonged labor or rapid forceful labor, especially if stimulated. It can also result from the inhibition of contractions by drugs such as halogenated anesthetic agents, nitrates, nonsteroidal anti-inflammatory drugs, magnesium sulfate, beta-sympathomimetics, and nifedipine. Other causes include placental implantation site in the lower uterine segment, bacterial toxins (eg, chorioamnionitis, endomyometritis, and septicemia)

Tissue :

Uterine contraction and retraction leads to detachment and expulsion of the placenta. Complete detachment and expulsion of the placenta permits continued retraction and optimal occlusion of blood vessels. Retention of a portion of the placenta is more common if the placenta has developed with a succenturiate or accessory lobe. Following delivery of the placenta and when minimal bleeding is present, the placenta should be inspected for evidence of fetal vessels coursing to the placental edge and abruptly ending at a tear in the membranes. Such a finding suggests a retained succenturiate lobe.

The placenta is more likely to be retained at extreme preterm gestations (especially < 24 wk), and significant bleeding can occur. This should be a consideration in all deliveries at very early gestations, whether they are spontaneous or induced. Recent trials suggest that the use of misoprostol for second trimester termination of pregnancy leads to a marked reduction in the All patients with placenta previa should be informed of the risk of severe PPH, including the possible need for transfusion and hysterectomy Finally, retained blood may cause uterine distension and prevent effective contraction rate of retained placenta.

Trauma :

Damage to the genital tract may occur spontaneously or through manipulations used to deliver the baby. Cesarean delivery results in twice the average blood loss of vaginal delivery. Trauma may occur following very prolonged or vigorous labor, especially if the patient has relative or absolute cephalopelvic disproportion and the uterus has been stimulated with oxytocin or prostaglandins. Trauma also may occur following extrauterine or intrauterine manipulation of the fetus.

trauma may result secondary to attempts to remove a retained placenta manually or with instrumentation.

Cervical laceration is most commonly associated with forceps delivery, and the cervix should be inspected following all such deliveries. Assisted vaginal delivery (forceps or vacuum) should never be attempted without the cervix being fully dilated. Cervical laceration may occur spontaneously. In these cases, mothers have often been unable to resist bearing down before full cervical dilatation.

Vaginal sidewall laceration is also most commonly associated with operative vaginal delivery, but it may occur spontaneously, especially if a fetal hand presents with the head (compound presentation). Lacerations may occur during manipulations to resolve shoulder dystocia. Lacerations often occur in the region overlying the ischial spines. The frequency of sidewall and cervical lacerations has probably decreased in recent years because of the reduction in the use of mid pelvic forceps and, especially, mid pelvic rotational.

Lower vaginal trauma occurs either spontaneously or because of episiotomy.

Thrombosis :

Abnormalities may be preexistent or acquired. Thrombocytopenia may be related to preexisting disease, such as idiopathic thrombocytopenic purpura, or acquired secondary to HELLP syndrome (hemolysis, elevated liver enzymes, and low platelet count), abruptio placentae, disseminated intravascular coagulation (DIC), or sepsis. Rarely, functional abnormalities of platelets may also occur. Most of these are preexisting, although sometimes previously undiagnosed. Preexisting abnormalities of the clotting system, such as familial hypofibrinogenemia and von Willebrand disease, may occur and should be considered. An expert panel recently issued guidelines to aid in the diagnosis and management of women with such conditions.

An underlying bleeding disorder should be considered in a woman with any of the following: menorrhagia since menarche, family history of bleeding disorders, personal history of notable bruising without known

injury, bleeding from the oral cavity or GI tract without obvious lesion, or epistaxis of longer than 10 minutes duration (possibly requiring packing or cautery). If a bleeding disorder is suspected, consultation is suggested.

Acquired abnormalities are more commonly problematic. DIC related to abruptio placentae, HELLP syndrome, intrauterine fetal demise, amniotic fluid embolism, and sepsis may occur. Fibrinogen levels are markedly elevated during pregnancy, and a fibrinogen level that would be in the reference range in the nonpregnant state should be viewed with suspicion in the aforementioned clinical scenarios

1-6 Presentation:

Symptoms:

Continuous bleeding, which fails to stop after delivery of the placenta - third stage.

Signs:

Pallor, tachycardia, shock, bleeding, can be concealed bradycardia can be present.

1-7 Management:

1) Call for Help and initiate resuscitation:

Check airway and Give 100% Oxygen by mask / bag

At 10-15 litres per minute

- 2 IV lines (14G) and take blood for FBC , clotting and Grossmatch
- If Shocked : Give warmed Crystalloid (0.9%) and colloid as rapidly as needed while awaiting blood once available give warmed blood as much and as rapidly as needed ideally
- Recombinant factor VIIa (rFVIIa) is increasingly frequently used for arresting bleeding in severe haemorrhage [7]

Ideally cross matched (takes 1 hour)

Blood type specific (take 15 minutes)

O- ve (immediate)

2) **IF the uterus contracted**: take to theatre and do examination under anesthesia

- If retained products : remove + AB
- If genital tract trauma : repair +- vaginal pack
- If uterine inversion : reduce
- If none of these : laparotomy and repair

3) **IF the uterus not contracted**: treatment aims contracting the uterus [8]

- Massage of uterus + bimanual compression
- Syntometrine (oxytocin 5iu/ergometrine 0.5mg) IM
- IV infusion Syntocinon (40 iu in 500 ml 0.9 % saline over 4-6 h .

Carboprost (250micrograms IM can be repeated every 15 mins. Max 2 mg)

Misoprostol 800 mgs (4 pessaries) into the uterus unlicensed in this dose or for this use

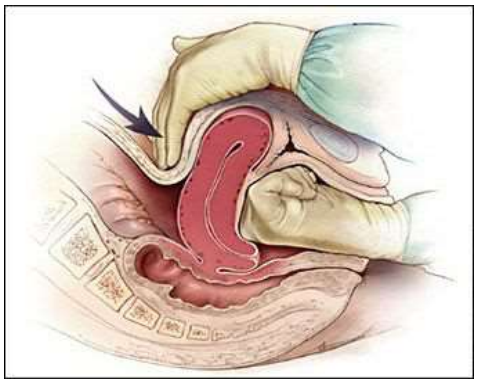

Figure 1: bimanual compression of uterus

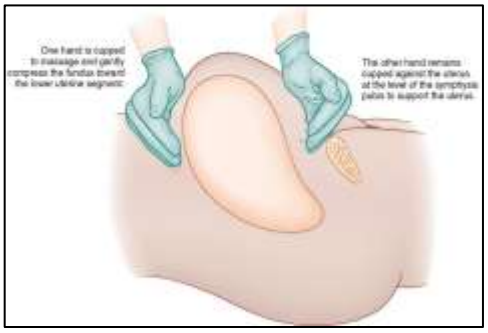

Figure 2: uterine massage

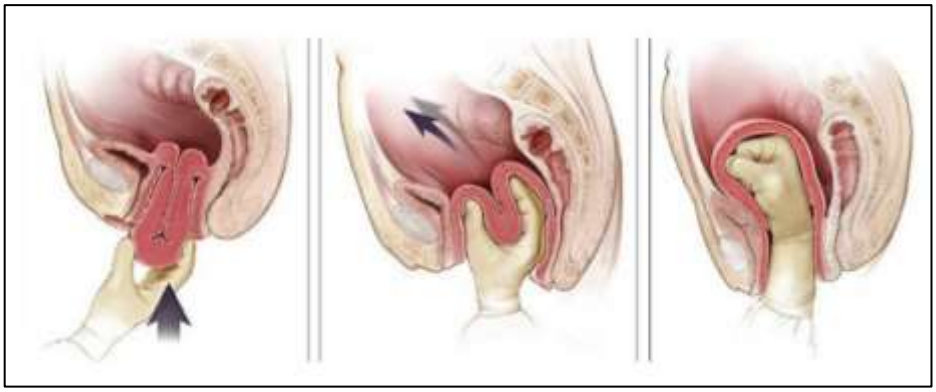

Figure 3: management uterine inversion; push and squeeze the uterine wall back through the cervix

4) IF still bleeding:

i. Hydrostatic balloon vaginally inflated with 300_500 ml water

ii. Laparotomy :

- Aortic compression
- Uterine artery ligation
- Haemostatic brace suturing - eg B-lynch brace suture [9]
- Bilateral ligation of the internal iliac arteries
- Selective arterial embolization

5) Hysterectomy should be considered early, especially in cases of placenta accreta or uterine rupture

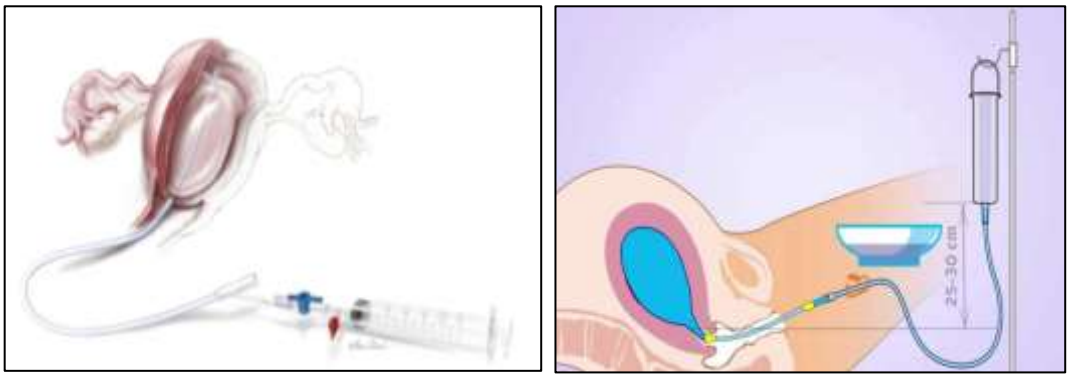

Figure 4: Hydrostatic balloon

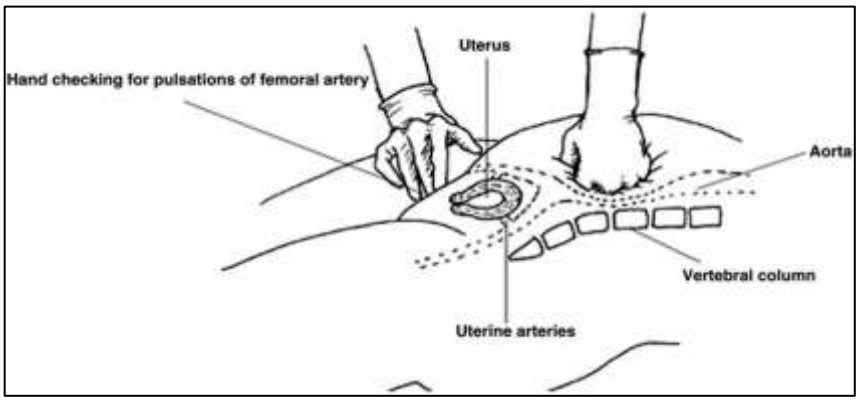

Figure 5: compression of abdominal aorta and palpation of femoral pulse

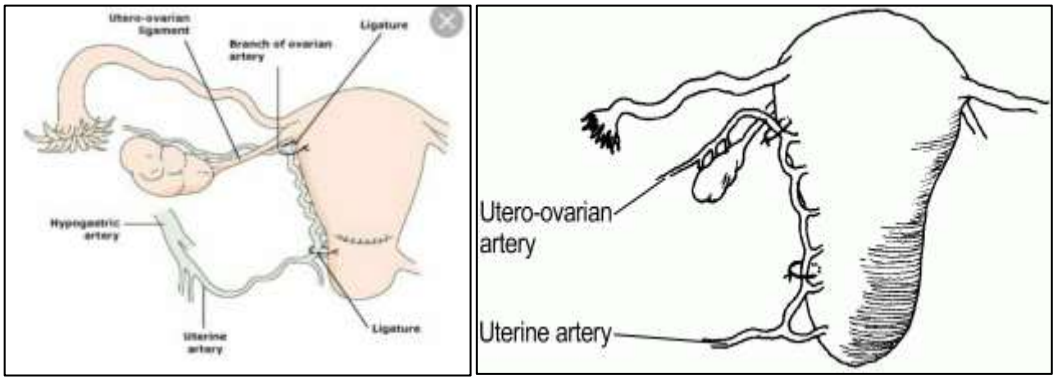

Figure 6: uterine artery ligation in PPH

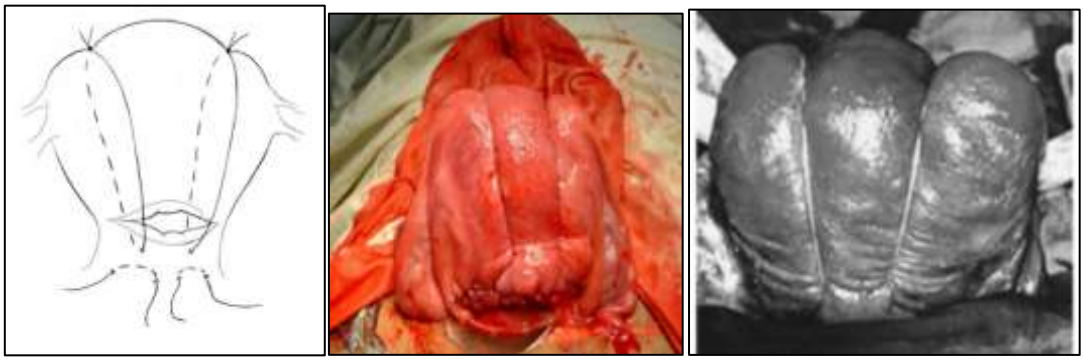

Figure 7: B-lynch brace suture

1-8 Complications:

Hypovolemic shock, DIC, Acute kidney injury , Liver failure , Acute (adult) respiratory distress syndrome and Death.

1-9 Prognoses:

In the UK the risk of death from PPH has been estimated as 1 in 100,000 deliveries [10]

1-10 Prevention:

The active management of the third stage of labor significantly reduces the risk of PPH. Prophylactic oxytocics should be routinely used in the third stage of labor, as they decrease the risk of PPH by 60%. For most women delivering vaginally, oxytocin 5 or 10 IU IM is the prophylactic agent of choice. It is used as an infusion for women having caesarean sections. Syntometrine (oxytocin plus ergometrine) may also be used in the absence of hypertension. Although oxytocin is the management of choice, in low resource settings misoprostol is an alternative. Its advantages are that it can be given orally. One study found it was more effective when given sublingually [11, 8]

Aim:

To determine the frequency, causes, risk factor, various treatment methods used in for postpartum hemorrhage (PPH) our setup and the maternal outcomes of PPH.

Patients and Methods:

This descriptive study was conducted in the Department of Obstetrics and Gynecology at Al-immamain Al-kadhimain Medical City in Baghdad, Iraq, from December 2018 to February 2019. All women admitted with or developed PPH in hospital after vaginal delivery or cesarean section was included.

Primary PPH is defined as a blood loss of more than 500 ml at or within 24 hours of delivery. Secondary PPH is defined as abnormal bleeding from the genital tract, from 24 hours after delivery until six weeks postpartum. There were a total of 1353 deliveries during this period, with PPH occurring in 43of these cases. Out of the 43 cases of PPH, 29 (67.5%) cases were of PPH due to uterine a tony. Uterine a tony was determined by abdominal palpation of uterus. In Atonic PPH uterus is soft in contrast to traumatic PPH where uterus is firm, followed by bimanual examination under anesthesia.

Inclusion criteria were all women admitted with or who developed PPH in hospital after vaginal delivery or cesarean section. All patients were analyzed for age, parity, socioeconomic status, Details of risk factors including grand multiparty, polyhydramnios, multiple pregnancy, induction /augmentation of labor, previous history of PPH, cesarean section, precipitate labor and instrumental delivery were recorded in a proforma. Assessment of general health including anemia, blood pressure, DM . Deliveries conducted by traditional birth attendants, lady health workers and doctors were also evaluated

Management including resuscitation, uterine massage use of oxytocic agents, prostaglandins, minor surgical procedures and major surgical interventions were determined. Hemoglobin estimation and number of transfusions given were also noted. Results were analyzed through computer software program SPSS version 11 and percentages were used to describe the results.

Result:

There were1353 deliveries during the period from December 2018 to February 2019; there were 43 cases of PPH. The incidence of PPH was 3.1 %

The mean age was 27.5 years (SD±9.333) , predominant age from 20-30 as table 1, mean gestational age was 38.5 weeks and mean birth weight was 3.136(SD ±0.6037) for the studied group of patients.

Regarding the age 13(30%) patients were less than 20 years of age, 14 (32.5 %) patients belonged to age group of 20-30 years, and 11 (25.5%) patients belonged to 31-40 year age group, while 5 (12.5%) patients were more than 41 years of age.

Table 1: distribution of age and types of PPH in patient study

Age categories	Number	Percentage %	Primary PPH	Secondary PPH
<20	13	30%	11	2
20-30	14	32.5%	13	1
31-40	11	25.5%	9	2
>40	5	12%	4	1

Regarding types of PPH the primary PPH predominant as figure 8

37 (86%) had primary PPH while6 (14%) had secondary PPH.

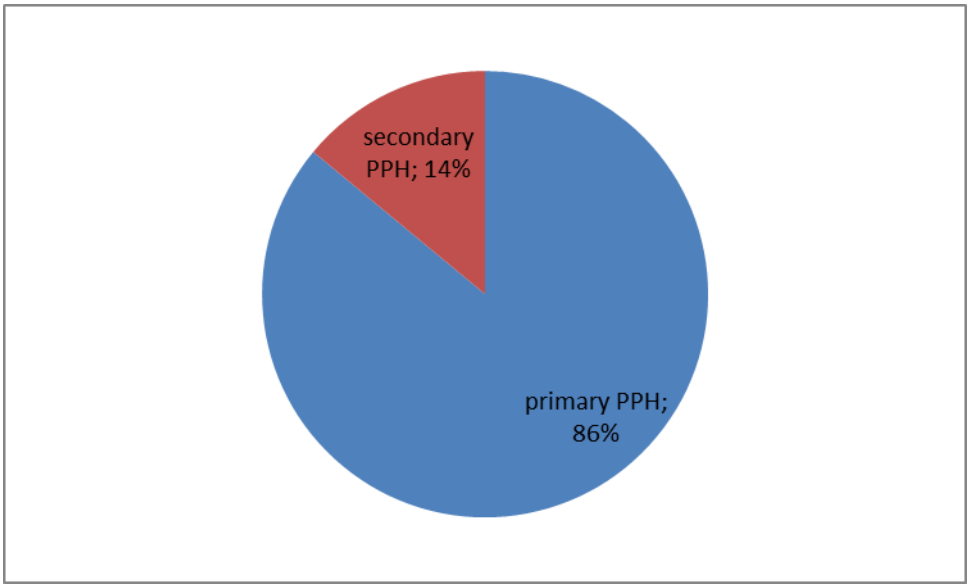

Figure 8: types of PPH; 1: primary PPH, 2: secondary PPH

Regarding parity in our study grand multiparas was predominant.

11 (25.5%) patients were primiparas, 14(32.5%) were multipara while 18(42%) patients were grand multiparas. As showing in figure 9

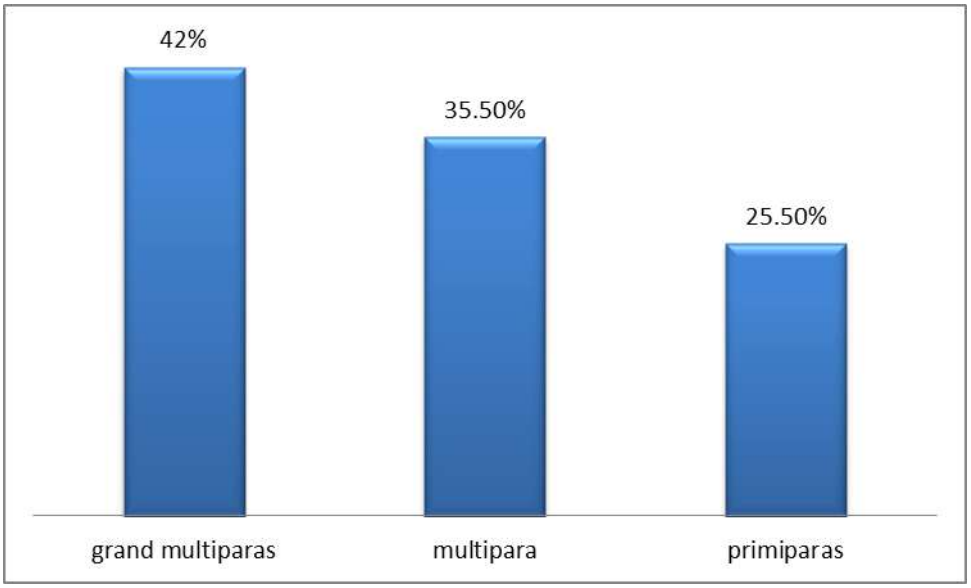

Figure 9: parity in study population

Regarding socioeconomic condition 17(39.5%)) patients belonged to poor class, 21(48.8%) patients belonged to middle class while, 5(11.6%) patients were of upper class.

Regarding place of delivery 5(11.6%) patients delivered at home, 38(88.4) delivered in hospital.

Regarding mode of delivery 18(42%) were delivered by vaginal delivery, while 25(58) delivered by cesarean section. As showing in figure 10

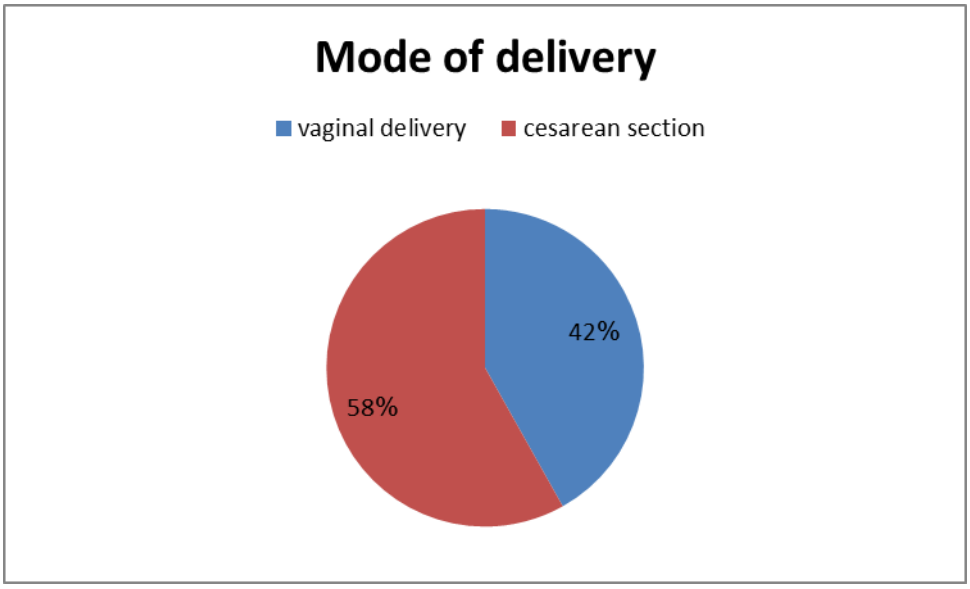

Figure 10: Mode of Delivery

11(25.5%) were delivered by spontaneous (SVD), 7(16.5%) were delivered by induction labor, 11(25.5%) were delivered by emergency C/S , while 14 (32.5%) were delivered by elective cesarean section.

Regarding causes of PPH Uterine a tony was the most common cause of postpartum hemorrhage (67.5%) followed by perineal trauma (21%). As showing in table 2

Table 2: cause of postpartum hemorrhage

Causes of postpartum hemorrhage		
Causes	**Primary %**	**Secondary %**
Uterine a tony	29 (67.5%)	0 %
Perineal/vaginal tears	8 (18.5%)	1 (2.3%)
Retained placenta	1 (2.3%)	3 (7%)
Disseminated Intravascular Coagulation	1 (2.3%)	0%
Inversion of uterus	0%	0%
Rupture uterus	0%	0%

Regarding risk factor The majority of the cases had an identifiable risk factor for developing PPH, most identifiable risk factor for primary PPH was pregnancy-induced hypertension/ or preeclampsia (25.5%) as showing in table 3

Table 3: risk factor frequency

Risk factor	(%)
PIH/Preeclampsia	11(25.5%)
Prolonged labor	6(14%)
large for gestational age	5 (12%)
Previous lscs	7(17.2%)
APH/IUD	5(12%)
Pregnancy diabetes	6 (14%)
Previous CS	9 (21%)
Placenta previa / low lying placenta	4 (9%)

Regarding management Blood transfusion was done in sever cases. Uterine massage was done in 26(60%) patients, B-Lynch sutures were applied in 1(2.3%) .as shwing in table 4

Table4 : management of PPH (n=43)

Treatment	Frequency	Percentage
Misoprostol	25	58%
Oxytocics	27	62.5%
Uterine massage	26	60%
Manual removal of placenta	4	9%
Repair of tears	9	21%
Uterine packing	0	0%
B-Lynch suture	1	2%
Manual correction of uterine inversion	0	0%
Blood transfusion	13	30%
Fresh Frozen Plasma	3	7%
Hysterectomy	0	0%

Regarding out come all patient are survive as table 5

Table 5: maternal outcome

Outcome	N=40	Percentage %
Survived	43	100%
Died	0	0%

DISCUSSION:

The frequency of PPH in our study was 3.1 %, this is higher than figures reported from a tertiary center Mpilo Central Hospital, a tertiary referral government hospital in a low-resource setting in Bulawayo, Zimbabwe was 1.6. [12]

And lower than figures reported from tertiary center in Uganda in 2017 in the Department of Obstetrics and Gynecology at was 9 % [13]

Also lower than percent 6 % by Carroli et al [14]

The variation in rate between other studies and our study could be as a result of different methods used in those studies, majority of patients who developed PHH were UN booked, the little sample size and short duration of data collection.

Important preventive measure therefore is the identification of cases at risk of developing PPH during labor by experienced persons and active management of third stage. Active management of third stage of labor is the key to reducing incidence of PPH due to uterine a tony Early Oxytocic therapy reduces the incidence and severity of PPH and postpartum anemia and the need for blood transfusion as well [11,17]

Regarding the age distribution it is found that mean age 27.5years(SD 9± 33) which approximate to mean age of Solwayo Ngwenya etal study done at Mpilo Central Hospital & Royal Women's Clinic & National University of Science & Technology Medical School Zimbabwe in 2016 which equal to 27.7 years (SD ±6.9) [15]

Mean gestational age was 38.5 weeks gestation and mean birth weight was 3.136 ±0.6037 SD which nearly to other studies in Uganda 2017 and Pakistan 2009 [13, 14, and 15]

Regarding types of PPH the primary PPH that occur during first 24 hours was most common type of PPH due to predominant causes of PPH was uterine a tony that occur in early hours so primary type was predominant .

Commonest mode of delivery in Our result shows delivery by S/C higher than vaginal delivery which is different to other previous studies that vaginal delivery was higher rate than C/S [12,13,15] The variation in rate between other studies and our study could be as a result of rising caesarean section rate in our country during last decade that suggested half of the increase was attributable to a rise in repeat cesarean delivery in women with a prior cesarean birth and didn't try normal vaginal delivery, stopped use forceps or vacuum during failure to progress and maternal request.

Most important and major finding in our study was that the most common cause of Post-partum hemorrhage was uterine a tony, which is loss of tone in the uterine musculature. Normally, contraction of the uterine muscle compresses the vessels and reduces flow. This increases the likelihood of coagulation and prevents bleeds. Thus, lack of uterine muscle contraction can cause an acute hemorrhage. These findings were evident by the studies conducted in America and Pakistan [12, 13, 15, 18]

Most common cause of secondary post-partum hemorrhage was retained uterine product same as found in past studies [18, 19, 20]

Active management of third stage of labor is the key to reducing incidence of PPH due to uterine atony.[10, 15, and 16]

This study shows that the majority of the cases of PPH at Al-immamain Al-kadhimain medical city had an identifiable risk factor for developing PPH.

Risk factors mentioned in literature for uterine a tony include: induction of labor, prolonged labor, retained Placenta, general anesthesia, over-distended uterus due to multiparty large fetus or hydramnion [2.4] .Injury of soft tissue Can result from delivery of Large fetus or laceration of vagina and perineum. Failure of the uterus to contract when labor Ends is a well-known risk factor for PPH.

At the last Stages of pregnancy the blood supply to the uterus reaches up to 500–600 ml of maternal blood per Minute.

This volume is 10% of maternal cardiac Output At this stage once the spiral blood vessels Located in the area of the placental insertion fail to Contract there is a rapid loss of blood.

Our results showed a significant association between PPH and pregnancy-induced hypertension/ Preeclampsia, Preeclampsia is a definite risk factor for PPH, especially for severe bleeding which requires blood transfusion. A similar correlation was observed in the studies[4, 16]

Where women with severe preeclampsia had a 5-fold increased risk for PPH and 4-fold risk for blood transfusion. Perhaps the association between preeclampsia and coagulopathy may worsen PPH.

Preeclampsia can result in thrombocytopenia, platelet dysfunction, and disseminated intravascular coagulation, which may also contribute to the observed association.[16]

Magnesium sulfate, used routinely in patients with preeclampsia and eclampsia , has the side effect of compromising post-delivery uterine

Contractility; this may contribute to the observed association of hypertensive disease of pregnancy with severe PPH caused by a tony.

Retained placenta can also result in a tony by rendering focal areas of uterine myometrium unable to contract. [16, 17]

Oxytocin and ergometrine are the drugs widely used for this purpose. At this maternity unit, the third stage of labor is actively managed with oxytocin as the main uterotonic agent. All the cases of primary PPH diagnosed during the study period received additional uterotonic doses as treatment for PPH. Currently, the use of oral misoprostol has been associated with significant decreases in rates of acute cases of PPH and mean blood loss[10, 21] ·Misoprostol has been found to be an effective therapy for primary PPH and can be used after exposure to uterotonic agents.[22] , Misoprostol 800 micrograms per rectally is valuable in the treatment of PPH in low resource setups because of its low cost a, easy storage and had fewer side effect.[23]

No women underwent hysterectomy during this period of study. 100% of those diagnoses with a PPH survived.

Post-partum hemorrhage is one of the top most causes of maternal mortality in our setup and it is very necessary to take steps to reduce the morbidity and mortality. It's also necessary for every health care setup to correctly asses the blood loss following delivery and then manage the patient accordingly.

Limitations:

The limitations of the study include the fact that the diagnosis of PPH was based on estimated rather than measured blood loss methods. It is very difficult to estimate blood loss, a little sample size and short duration of data collection.

CONCLUSIONS

Majority of patients developed primary PPH and the commonest cause was uterine a tony. PPH was commonly seen in un booked patients, induced augmented labor and grand multiparous women. PPH can be prevented by avoiding unnecessary induction augmentation, risk factor assessment and active management of third stage of labour. PPH is serious obstetrical emergency. It is necessary to take the preventable measures and in case of lack of facilities timely referral to appropriate health facility is necessary.

Recommendations:

Active management of third stage of labor should be offered by skilled attendants to all women, use of uterotonics for the prevention of PPH during the third stage of labour is recommended for all birth, Oxytocin (10 IU, IV/IM) is the recommended uterotonic drug for the prevention of PPH if oxytocin is unavailable, the administration of misoprostol (600 ug PO) and CCT is recommended for vaginal births.

References:

1. World Health Organization. World Health Report. Geneva: 2005

2.Norris CT. Management of postpartum hemorrhage. Am Fam Physician 1997;55:635–640

3. Shaheen B, Hassan L. Postpartum hemorrhage a preventable cause of maternal mortality J Coll Physicians Surg Pak. 2007;17:607-1

4. American College of Obstetrics and Gynecology. Quality assurance in obstetrics and gynecology. Washington, DC: American College of Obstetricians and Gynecologists; 1989

5. Combs CA, Murphy EL, Laros RK. Factors associated with postpartum hemorrhage with vaginal birth. Obstet Gynecol 1991;77:69–76

6. Magon N, Babu K; Recombinant Factor VIIa in Post-partum Hemorrhage: A New Weapon in Obstetrician's Armamentarium. N Am J Med Sci. 2012 Apr4(4):157-62. doi: 10.4103/1947-2714.94938

7. Mousa HA, Blum J, Abou El Senoun G, et al; Treatment for primary postpartum haemorrhage. Cochrane Database Syst Rev. 2014 Feb 132:CD003249

8. C Kenny, Louise . Opstetrics By Ten Teacher . 20th ed., vol. 6000, 2017

9. Prata N, Bell S, Weidert K; Prevention of postpartum hemorrhage in low-resource settings: current perspectives. Int J Womens Health. 2013 Nov 135:737-52. doi: 10.2147/IJWH.S51661. eCollection 2013

10.Derman RJ, Kodkany BS, Goudar SS, et al. Oral misoprostol in preventing postpartum haemorrhage in resource-poor communities: a randomised controlled trial. Lancet. 2006;368(9543):1248–1253

11. French LM, Smaill FM; Antibiotic regimens for endometritis after delivery. Cochrane Database Syst Rev. 2004 Oct 18(4):CD001067

12. Nawerenya, Solwayo. "Postpartum Hemorrhage: incidence ,risk Factor ,and Out Comes In Low Resource Siting ." International Journal Of Women's Health, 2017, p. .648

13. Ononge, Sam, and Julus Wandabaw. "Incidence and Risk Factor For Postpartum Hemorrhage In Uganda." Reproductive Health, 2017, p. 4

14. Carroli G, Cuesta C, Abalos E, Gulmezoglu AM. Epidemiology of postpartum hemorrhage: a systematic review. Best Pract Res Clin Obstetric Gynaecol. 2008;22:999–1012.

15.Youssef, Farahana. "Postpartum Hemorrhage: an Experience At Teritiry Care Hospital." Journal Of Surgery Pakistan , 2009, p. 81

16.Wong, Cynth A . "The Epidemology Of Postpartum Hemorrhage In Larg,nationwide Sample Of Deliveries ." Society Fo Obstetric Anasthesia And Preinatology, vol. 110, no. 5, 2010, p. 1370.

17.Prendivilli WJ, Elbourne D, Mc Donald S. Active versus expectant management in the third stage of the labor. Cochrane Database Syst Rev 2000; 2:CD000007

18. Sheikh L, Najmi N, Khalid U, Saleem T. Evaluation of compliance and outcomes of a management protocol for massive postpartum hemorrhage at a tertiary care hospital in Pakistan. BMC Pregnancy Childbirth. 2011;11(1):28. doi: 10.1186/1471-2393-11-28.

19. Hoveyda F, MacKenzie I. Secondary postpartum haemorrhage: incidence, [morbidity and current management. Br J Obstet Gynaecol. 2001;108(9):927–930

20. Muzzammil Edhi, Muhammad, and Hafiz Muhammad Aslam. "Post Partum Hemmorrhge Causes And Managment." Boi Med Central , vol. 6, no. 236, 2013.

21. van Stralen G, von Schmidt Auf Altenstadt JF, Bloemenkamp KW, van Roosmalen J, Hukkelhoven CW. Increasing incidence of postpartum hemorrhage: the Dutch piece of the puzzle. Acta Obstet Gynaecol Scand. 2016;95(10):1104–1110. doi:10.101111/aogs.12950.

22. Prata N, Weidert K. Efficacy of misoprostol for the treatment of postpartum hemorrhage: current knowledge and implications for health care planning. Int J Womens Health. 2016;2016:341–349

23. Memon GU, Hakeem N, Ahmed G. Rectally administered misoprostol for the treatment of postpartum haemorrhage. Pak J Surg 2005;21:97-101