

# Maternity outcome of primary post-partum hemorrhage cases in El-Minia Maternity Hospital 2016-2017 : 2 years study

Original  
Article

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## ABSTRACT

**Abstract :** 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. It can be a devastating outcome to many young families. Women giving birth in low-resource settings are at a higher risk of death than their counterparts in resource-rich environments. PPH is a leading cause of maternal deaths globally, contributing to a quarter of the deaths annually.

**Methods:** This was a descriptive study carried out at El-Minia Maternity Hospital, a tertiary referral government hospital in a low-resource setting in El-Minia. Data were obtained from the labor ward birth registers for patients who had a diagnosis of PPH during the period from January 1<sup>st</sup>, 2016 to December 31<sup>th</sup>, 2017. The cases notes were retrieved and the demographic, clinical and outcome data were gathered. Blood loss was estimated post-delivery by the attending clinician; either a midwife or a doctor. At this maternity unit, blood loss is not measured but estimated owing to prevailing resource constraints. The SPSS Version 21 statistical tool was used to calculate probability values between 2 years. Simple statistical tests were used on absolute numbers to calculate percentages.

**Results:** There were 11057 deliveries at 2016 and 11146 deliveries at 2017 admitted to El-Minia University Maternity Hospital. In the studied groups of patients, there were 201 (1.88%) cases of PPH at 2016 and 189 cases (1.69%) at 2017. About 67.5% at 2016 and 67.7% at 2017 of the cases had NVD. The majority of the cases (77.0%) had an identifiable risk factor for developing primary PPH. The most identifiable risk factor for primary PPH was anemia. As regards lines of management, the study noticed that more cases had been explored and undergone hysterectomy in 2017 than in 2016 and this may be according to the severity of cases, general conditions of the patient and other failed medical interventions that pushed decision in this way resulting in decreasing the mortality ratio in 2017 (3.2%) than in 2016 (8.5%) with high significance ( $P$  value = 0.027) and survival of most of the cases.

**Conclusion:** The incidence of PPH at El-Minia University Maternity Hospital was (1.88 %) in 2016 and 189 cases (1.69%) in 2017 during the study period, lower than that reported elsewhere in similar setting in the literature. Therefore, this study is important, as it documented for the first time the incidence of the most important causes of global maternal deaths in cases admitted to Maternity Unit, El-Minia University. Future studies should involve the effect on maternal outcomes of PPH. This data can help in mobilizing global efforts to improve women's health.

**Key Words:** Avoidable deaths, causes, low-resource settings, maternal outcomes, uterotonics

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## INTRODUCTION

An estimated 287, 000 maternal deaths occurred worldwide in 2010.<sup>1</sup> The major causes were primary postpartum hemorrhage (PPH), hypertensive disorders and sepsis. 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 delivery. Globally, it is the leading cause

of maternal deaths and is responsible for 25% of deaths annually.<sup>2,3</sup> It is the leading cause of maternal mortality in Africa.<sup>4,5</sup> The region has poor health care facilities that are inadequate and inaccessible due to financial constraints. Most of the maternal deaths in this region are avoidable. Women giving birth in these regions face a far greater risk of dying in childbirth than their counterparts in resource-rich regions. The incidence of PPH for this unit or that for Egypt has not been documented before in the literature. The incidence of PPH in a low-resource tertiary

hospital in Egypt was found to be 5%,"6" in Uganda, (an African country) it was 9%,"7" and it was 6.4% in the high-resource country of the Netherlands in Europe."8"

**PATIENTS AND METHODS**

This was a retrospective descriptive study carried out at El-Minia Maternity Hospital, a tertiary referral government hospital in a low-resource setting in El-Minia .There is no formal ethics committee at the hospital, but a waiver for all nonintervention studies was obtained from the Hospital Executive. No ethical issues arose during this study and no consent was necessary as the study was one and all the data were anonymous. Data were obtained from the labor ward birth registers for patients who had a diagnosis of PPH during the period from January 1, 2016 to December 31, 2017. The case notes were retrieved and the demographic, clinical, and outcome data were gathered. Blood loss was estimated post-delivery by the attending clinician either a midwife or a doctor. At this maternity unit, blood loss is not measured but estimated owing to prevailing resource constraints. The SPSS Version 21 statistical tool was used to calculate probability values between 2 years. Simple statistical tests were used on absolute numbers to calculate percentages.

**RESULTS**

There were 11057 deliveries in 2016, 11146 deliveries in 2017 admitted to Minia University Maternity Hospital, there were 201 cases of PPH with incidence (1.88 %)at 2016, 189 cases(1.69%) in 2017 for the studied group of patients about 67.5% (67.5% in 2016 and 67.7% in 2017 of the cases had NVD. The majority of the cases (77.0%) had an identifiable risk factor for developing primary PPH. The most identifiable risk factor for primary PPH was anemia. Uterine atony was the most common cause of PPH (58.2% ). Traumatic PPH appears as 2<sup>nd</sup> common cause in 2017 than with high significance as regards lines of management, we noticed that more cases had been explored and undergone hysterectomy in 2017 than 2016 and this may be accordingly to severity of cases, general conditions of PT and failed other medical interventions that pushed decision in this way resulting in decreasing in mortality ratio in 2017 (3.2%) than 2016 (8.5%) with high significance (P value = 0.027) and survival of major part of cases.

**DISCUSSION**

The incidence of PPH was 1.88 % in 2016 and 189 cases (1.69%) in 2017 in El-Minia University Maternity Hospital during the study period which was lower than that reported elsewhere in similar setting in the literature. This study showed that the majority of the cases had an identifiable risk factor for developing primary PPH. The most identifiable risk factor for primary PPH was anemia. Uterine atony was the most common cause of PPH

followed by traumatic PPH. Uterine atony is the primary direct cause of maternal morbidity globally".9 "The active management of the third stage of labor with uterotonics reduces the risk of postpartum hemorrhage".10 " Oxytocin and ergometrine are the drugs used for this purpose widely. At this maternity unit, the third stage of labor is managed with oxytocin as the main uterotonic agent actively. All the cases of primary PPH diagnosed during the study period received additional uterotonic doses as treatment for PPH with significant decreases in rates of acute cases of PPH

**Table 1:** Causes of PPH during study

	At 2016 (n=201)	At 2017 (n=189)	P value
<b>Causes of PPH</b>			
Atony	117(58.2%)	111(58.7%)	<0.001*
Traumatic	62(30.8%)	38(20.1%)	
Combined	8(4%)	22(11.8%)	
Pl. site	10(5%)	12(6.3%)	
bleeding(tissue)	4(2%)	6(3.1%)	
Coagulation defect(thrombin)			

**Table 2:** Management of primary postpartum hemorrhage during the study period

	At 2016 (n=201)	At 2017 (n=189)	P value
<b>Treatment of PPH</b>			
Vaginal packs	72(35.8%)	58(30.7%)	<0.001*
Ecbolic and repair	62(20.8%)	28(14.8%)	
Intrauterine catheter	57(28.4%)	81(42.9%)	
Exploration and	10(5%)	22(11.6%)	
hysterectomy			

**Table 3:** Showing type of morbidity of cases

	At 2016 (n=201)	At 2017 (n=189)	P value
<b>Type of morbidity</b>			
No	145(72.1%)	139(73.5%)	0.964
Coagulation affection	22(10.9%)	21(11.1%)	
Hysterectomy	8(3.98%)	9(4.8%)	
Organ failure	7(3.57%)	9(4.8%)	
Massive blood transfusion	19(9.45%)	11(5.8%)	

**Table 4:** Showing mortality cases during study

	At 2016 (n=201)	At 2017 (n=189)	P value
<b>Mortality</b>			
No	17(8.5%)	6(3.2%)	0.027*
Yes	184(91.5%)	183(96.8%)	

The patients with combined risk factors were included in the "others/combined" group as they constituted a minority. Nearly 1 in 4 had no identifiable risk factor for PPH. This information showed that the health personnel should always be well prepared to act swiftly to prevent maternal deaths, as the condition may develop even where there are no identifiable risk factors. In this maternity unit, there has been an introduction of regular obstetric emergency drills. There are clearly marked and regularly stocked PPH boxes to deal with such emergency cases. This could have been contributed to the low incidence of PPH. The majority of cases at the unit are due to uterine atony, and hence very rapid administration of extra uterotonic doses once the condition develops appeared to prevent women from losing too much blood, thereby preventing deaths (Table 4). Most of the cases of PPH seemed to be rapidly arrested soon after diagnosis, before the patients lost too much blood. Seventeen women underwent hysterectomy during the period of the study ; 91.5% in 2016 and 96.8% in 2017 of those diagnosed with a PPH survived.

Therefore, this study is considered important, as the incidence of one of the most important causes of global maternal deaths was documented for the first time in this maternity unit and El-Minia Setting. Future studies should involve the effect of maternal outcomes of PPH. Clinical awareness and regular obstetric drills can improve these figures and save more lives. This data could help in mobilizing global efforts to improve women's health. This helps in decision-making and prioritization of health policies, programs, and funding to reduce maternal deaths at local, regional and global levels."1" Multinational financial institutions could help with debt cancellation so that funds are channeled to maternal health issues. Such data may help to inform policies to improve maternal health.

### STUDY LIMITATIONS:

The limitations of this study included the fact that diagnosis of PPH was based on estimated rather than measured blood loss methods. It is very difficult to estimate blood loss. Unfortunately in low-resource countries, this is the only available method to be used. There may also be observer variations as different clinicians with differences in their grade, training and experience made the diagnosis.

### CONCLUSION

The incidence of PPH was 1.88 % in 2016 and 189 cases 1.69% in 2017 in El-Minia University Maternity Hospital during the study period which was lower than that reported elsewhere in similar setting in the literature. This study showed that majority of the cases had an identifiable risk factor for developing primary PPH. The most identifiable risk factor for primary PPH was anemia.

It is very important to note that 74% of women had no identifiable risk factor for developing PPH, necessitating that the attending clinicians must always be well prepared to deal with this condition that can cost so many precious lives. With current knowledge on the effectiveness of misoprostol, its concurrent use with uterotonics can only reduce these mortality figures. The provision of safe and effective delivery care for all women in poor countries"14" remains difficult resulting in the continuation of avoidable maternal deaths from PPH.

### CONFLICT OF INTEREST

There are no conflicts of interest.

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