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Secondary postpartum haemorrhage in a tertiary care hospital: A retrospective study

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Abstract
Introduction: Postpartum haemorrhage is one of the leading causes of maternal mortality both in developing and developed countries. Although primary PPH is studied a lot but data regarding secondary PPH is sparse.
Aims and objectives: Objective of our study was to find the incidence, causes and outcome of patients of secondary PPH.
Methods: A retrospective study was carried out in SMGS Hospital, GMC Jammu over a period of 2 years from January 2017 to December 2019.
Results: sixty two patients with secondary PPH were studied out of whom 72% were delivered vaginally. Maximum patients belong to age group of 20-28 years and 43% were P1. Retained products of conception was the leading cause in 68% of patients followed by endometritis in 21%. Mean haemoglobin concentration was 8.2±1.5g. curettage was done in 61% of patients. 18 patients required blood transfusion. Hysterectomy was done in 1 patient. None of the patient died.
Conclusions: Secondary PPH is an important cause of maternal morbidity and mortality. Basic resuscitation followed by investigation and treatment of the specific cause can reduce the morbidity and mortality. Retained products of conception were a leading cause of secondary PPH in our study which is probably related to poor management of third stage of labour. It signifies that there is crucial role of active management of third stage of labour in preventing secondary PPH. Our study confirms that primary PPH is a risk factor for secondary PPH, so every effort should be made to prevent primary PPH. If medical intervention is sought early prognosis can be improved.

Keywords: Secondary postpartum haemorrhage, risk factors, outcome, maternal morbidity, management

Introduction

Pregnancy and childbirth are natural process from which most of the women recover without any complications. But obstetric haemorrhage is one of the most common physiologic complications. Postpartum haemorrhage (PPH) is one of the leading causes of death in women who deliver after 20 weeks of gestation [1]. According to WHO, it is defined as postpartum blood loss in excess of 500 ml, it is a clinical diagnosis that encompasses excessive blood loss after delivery of the baby from different sites: uterus, cervix, vagina and perineum. The incidence of PPH is 2%-4% after vaginal delivery and 6 % after caesarean section [2]. About 28% of all maternal deaths in developing countries and 13% maternal deaths in high income countries are caused by PPH [3]. Blood loss during the first 24 hours after delivery is known as primary PPH, whereas blood loss from 24 hours upto 6 weeks after delivery is termed late or secondary PPH [4]. Unlike the definition of primary PPH, there is no clear or standard definition for quantity of the blood loss associated with secondary PPH, and clinical expressions of this definition varies from 'increased lochia' to massive bleeding. The diagnosis is therefore all too often subjective, which may account for the numerous variations in reported incidence. Overall, the reported incidence of secondary PPH in developed countries varies from 0.47% to 1.44% [5, 6].

The etiology of secondary PPH is diverse, and management is dependent on identifying the cause and tailoring treatment appropriately. While uterine atony is the predominant cause of primary PPH, retained products of conception is the leading cause of secondary PPH [2, 7-9]. Other causes of secondary PPH are primary subinvolution of placental bed, endometritis, pseudoanuerysm of the uterine artery, non union of uterine incision etc [10-13]. In contrast to primary PPH, the published work on the management of secondary PPH is limited [14]. However, with declining maternal mortality rates in many parts of the world, interest in and attention to

maternal morbidity and the important topic of management of secondary PPH is increasing. The majority of cases are associated with minor morbidities but may still require re-admission to hospital, use of antibiotics and surgical intervention. In more extreme cases, major morbidity may require hysterectomy, arterial ligation or radiological intervention [15]. Despite the use of all available interventions, maternal death may still result from massive secondary PPH.

Aims and Objectives

Aim of our study is to find out the incidence, causes and outcome of patients who presented to our hospital with secondary PPH.

Material and Methods

A retrospective study was carried out in SMGS Hospital, GMC Jammu over a period of 2 years from January 2017 to December 2019. Data was collected from medical record section. A total of 62 patients with a diagnosis of secondary PPH were admitted in our hospital.

Inclusion criteria: patient with secondary PPH

Information regarding obstetric history, antenatal course, intranatal course, mode of delivery, immediate postpartum period, day of presentation after delivery, total hospital stay, treatment given and outcome viv-a-vis discharge or death was recorded. History of manual removal of placenta and primary PPH were also noted. Results were tabulated in form of number and percentage.

Results

Out of total 57600 patients admitted in our hospital (including both booked and referral) in the same time period for various obstetric complications, 200 patients were admitted because of PPH. Out of 200 patients of PPH, 138 patients came with primary PPH while 62 patients came with secondary PPH. Table 1 shows that 15 patients (24.19%) belong to the age group of 20-27 years, 35 (56.45%) belong to 28-34 years and about 12 patients (19.35%) were more than 35 years of age. Majority of the patients were P1 about 43.54%, P2 27.41%, 20.96% were P3 and only 8.06% were P4 and more.

Table 1: Demographic characteristics of patients with secondary postpartum haemorrhage.

Parameters	No.(%)
Age (years)	
20-27	35(56.45)
28-34	15(24.19)
>35	12(19.35)
Parity	
P1	27(43.54)
P2	17(27.41)
P3	13(20.96)
>P4	5(8.06)

Baseline characteristics of the patients are given in Table 2. Forty five (72.58%) patients were vaginal deliveries and 17 (27.41%) were caessarean. 15(24.19%) patients had fever on presentation. Five (8.06%) patients were in shock. History of manual removal of placenta was found in 5 cases (8.06%) while 6 (9.67%) had history of primary PPH. Mean haemoglobin concentration was 8.2±1.5 g/dl ranging from 4 grams to 10.8 grams.

Table 2: Baseline variables of patients with secondary postpartum haemorrhage.

Variables	No.
Mode of delivery (%)	
-Vaginal delivery	45(72.58%)
-LSCS	17(27.41%)
Fever (%)	15(24.19%)
Shock (%)	5(8.06%)
H/o manual removal of placenta	5(8.06%)
H/o primary PPH	6(9.67%)
Haemoglobin (mean±SD) gram/dl	8.2±1.5

About 46 (74.19%) patients came to hospital within 14 days after delivery (table 3). 12 (19.35%) patients visited our hospital between 15 and 29 days and only 4 patients (6.45%) reported after 1 month.

Table 3: Distribution of patients according to time to presentation to hospital after delivery.

Days	No.(%)
1-14	46(74.19)
15-29	12(19.35)
30-42	4(6.45)

Cause of secondary PPH are shown in Table 4. Retained products of conception was the main cause in 42 (67.74%) patients followed by endometritis in 13 (20.96%). In seven patients cause could not be found.

Table 4: Distribution of patients according to causes of secondary postpartum haemorrhage.

Causes	No.(%)
Retained products of conception	42(67.74)
Endometritis	13(20.96)
Cause not found	7(11.29)

Table 5 shows the management of these patients. Antibiotics were given in all the patients as a policy of the hospital. Curettage was done in 38 patients having RPOCs. 18 (29.03%) patients required blood transfusion. Overall about 30 units of blood were transfused in these patients ranging from 1 unit to 3 units per patient as per requirement. 3 (4.83%) patients required ionotropic support. In one patient, emergency hysterectomy was done because she started bleeding profusely after check curettage and other supportive measures could not controlled her bleeding and she landed into haemorrhagic shock.

Table 5: Intervention recquired.

Intervention	No.(%)
Dilatation & curettage/ suction & evacuation	38(61.29)
Antibiotics	62(100)
Blood transfusion	18(29.03)
Ionotropic support	3(4.83)
Hysterectomy	1(1.61)

Discussion

Sixty two patients of secondary PPH were admitted to our hospital in 2 years which is 0.1% of total admissions. The percentage is significant and implies that it contribute significantly to the morbidity of post partum patients. Almost similar rates were reported by Nigeen *et al.* [16] and Hoveyda *et al.* [17] in their study 0.5% and 0.8% respectively. The maximum number of cases about 35(56.45%) in present study were among

age group of 20-27 years followed by 28-34 years 15(24.19%). Singh *et al.* [18] and Lao *et al.* [19] also showed in their study that aging was associated with decreasing PPH, the risk decreasing progressively from those aged 25-29 years to those aged ≥ 40 years compared with the 20-24 years group. While study by Ijaiya MA [20] showed that the risk of PPH in advanced maternal age over 35 years was twofold higher than low maternal age <25 years.

Most of the cases of PPH were P1 and P2, 27(43.54%) and 17(27.41%) respectively. 5(8.06%) cases were more than P4. Singh *et al.* [18] also reported similar rates. However Adetoro [21] reported that PPH was higher in both primipara and multiparas. 72.58% of our patients had vaginal delivery, however it cannot be said that vaginal delivery predisposes to secondary PPH as the overall vaginal deliveries are more as compared to caesarean deliveries. Singh *et al.* [18] also reported that majority of their patients delivered by vaginal delivery about 55.55% and 37.03% delivered by LSCS. In study by Nigeen *et al.* [16], 68% patients had vaginal delivery. However, incidence following vaginal delivery vis a vis caesarean delivery could not be ascertained because maximum of our patients were referred patients who had come from outside and we did not know the actual number of vaginal or caesarean deliveries from among whom these patients had developed PPH and how many of these patients were managed in peripheral hospitals and not referred.

Manual removal of placenta and history of PPH was found in 8% and 10% of our patients. Similar findings were found in study by Nigeen *et al.* [16]. There is fourfold increase risk with a history of manual removal of placenta and sevenfold increase risk with history of primary PPH. Majority of the women 46(74.19%) in our study were reported to our hospital within two weeks, followed by 12(19.35%) in third week. Similar findings were reported by Hoveyda *et al.* [17] and Dewhurst CJ [22] in their study.

Retained products of conception was documented as a possible cause in maximum number of patients (67.74%) which is consistent with studies by Nigeen *et al.* [16], Ajenifuja KO *et al.* [9] and Dossou M *et al.* [10]. It signifies the role of unskilled and unhealthy delivery practices as a leading risk factor for secondary PPH.

Fifteen (24.19%) patients had fever but endometritis or infection was documented in only 13 patients (20.96%) on the basis of recorded clinically foul smelling lochia. Cause could not be found in 7 patients (11.29%). Similar pattern of etiology has been reported in studies by Nigeen *et al.* [16], Ajenifuja KO *et al.* [9] and Dossou M *et al.* [10]. All of the patients were given antibiotics (100%) as per policy of our hospital. Antibiotics are commonly given to treat superimposed infection, thought to precipitate the haemorrhage, but evidence to support this thesis is limited. Dilatation curettage/ suction evacuation was done in 62% as most of our patients had RPOCs. Hysterectomy was done in one patient in whom bleeding did not stop even after curettage. Similar findings were reported by Nigeen *et al.* [16].

Amount of bleeding varied with each patient. Mean haemoglobin was 8.2±1.5g. Blood transfusion was done in 18 (29%) patients in our study. Five patients were in haemorrhagic shock at time of presentation and required fluid resuscitation. Three of these patients required ionotropic support also. Nigeen *et al.* [16] also reported similar findings in their study.

Conclusion

The dearth of publications on this topic indicates that it has attracted little attention during the past years. Secondary PPH is an important cause of maternal morbidity and mortality. Basic resuscitation followed by investigation and treatment of the specific cause can reduce the morbidity and mortality. Retained products of conception were a leading cause of secondary PPH in our study which is probably related to poor management of third stage of labour. It signifies that there is crucial role of active management of third stage of labour in preventing secondary PPH. Our study confirms that primary PPH is a risk factor for secondary PPH, so every effort should be made to prevent primary PPH. If medical intervention is sought early prognosis can be improved.

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