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ORIGINAL ARTICLE

Association of Primary Postpartum Haemorrhage with Some Sociodemographic Factors Observed at a Tertiary Care Hospital

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ABSTRACT

Background: Postpartum haemorrhage (PPH) is a leading cause of maternal death worldwide. This study was aimed at observing the association of some risk factors with primary postpartum haemorrhage**.**

Methods: This cross-sectional observational study was conducted from July 2023 to June 2024 at the Department of Obstetrics & Gynaecology, Rangpur Medical College Hospital, Rangpur. Total 100 women at postpartum period were included. Among them 50 were with primary PPH (Group A) and 50 were without primary PPH (Group B).

Result: Among Group A (n=50), 54% were <30 years and 46% were ≥30 years whereas in Group B (n=50), 66% of the women were <30 years and 34% were ≥30 years (p=0.021); mean age was 27.5±4.9 years and 25.6±4.7 years respectively (p=0.043). In both Group A and Group B majority had normal vaginal delivery (52% vs 82%) but caesarean section was found significantly higher among PPH cases than without PPH (48% vs 18%) (p=0.003). Multiparity (p=0.013) and obesity (p=0.032) were also found significantly associated with PPH. And blood pressure was significantly lower with PPH (p<0.001).

No difference was observed between Group A and Group B for working status (p=0.766), educational status (p=0.375) or socioeconomic status (p=0.391). Regarding home vs hospital delivery, the difference was also insignificant (p=0.554).

Conclusion: Age at pregnancy of ≥30 years, LSCS as mode of delivery, high body weight and higher parity was found to be associated with increase rate of postpartum haemorrhage (PPH).

Key Words: PPH, ≥30 years at pregnancy, LSCS, obesity, higher parity

INTRODUCTION

Primary postpartum haemorrhage is a major cause of maternal morbidity and one of the five major causes of maternal mortality worldwide. There is a lot of reasons to think that the rate of PPH is going up around the world. The main reason for this rise is that uterine atony is becoming more common. With a frequency of between 3%-8% of all deliveries, postpartum haemorrhage (PPH) is the primary cause of maternal morbidity and mortality globally[1, 2, 3].

Maternal mortality linked to PPH is most prevalent in low- and middle-income countries; in northern Africa, it accounted for 480000 (32%) of all deaths, but just 1200 (8%) in industrialized nations [4, 5]. In Bangladesh PPH is the cause of 31% of maternal fatalities [6].

Primary PPH refers to postpartum haemorrhage that happens within the first twenty-four hours following birth. Either estimated blood loss of ≥500 ml during vaginal birth or ≥1000 ml following caesarean delivery is the most often used definition of primary PPH. Many issues with this definition have been brought to light, and the American College of Obstetricians and Gynaecologists (ACOG) updated its definition in 2017 to include bleeding connected to signs or symptoms of hypovolemia within 24 hours of delivery, regardless of delivery method, or cumulative blood loss of ≥1000 ml [7, 8, 9, 10].

It is caused by the five Ts: tone (uterine atony; 80% of cases), tissue (retained placenta), trauma (lacerations or genital tract trauma), and turned inside out (uterine inversion), thrombin (coagulopathies). Maternal obesity, numerous gestations, advanced maternal age, an increase in labour inductions, and an increase in

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caesarean sections (CS) are factors that are contributing to the incidence of uterine atony [11, 12, 13, 14].

The postpartum period divides into three arbitrary phases, i.e., acute phase- the first 24 hours after delivery of the placenta, early – up to 7 days, and late – up to 6 weeks to 6 months. Each phase has its unique clinical considerations and challenges [15].

Postpartum bleeding is physiologically controlled by constriction of interlacing myometrial fibers that surround the blood vessels supplying the placental implantation site. Uterine atony exists when the myometrium cannot contract. Predisposing causes include excessive manipulation of the uterus, uterine overdistention (twins or polyhydramnios), prolonged labour, grand multiparity, uterine leiomyomas, operative delivery, induction or augmentation of labour [16].

This study was planned to have a look into the association of primary postpartum haemorrhage with some sociodemographic factors that would be observed at a tertiary care hospital.

MATERIAL AND METHODS

Type of study: Cross sectional observational study.
Place & time of study: Department of Gynaecology & Obstetrics, Rangpur Medical College Hospital, Rangpur; July 2023 to June 2024.
Sampling technique: Purposive sampling method.
Sample size: Total 100 cases; 50 patients with PPH were included as group-A and 50 patients without PPH were included as group-B by purposive sampling technique.

Inclusion criteria:

1. Women at postpartum period with or without primary postpartum haemorrhage.
2. Those who had consented

Exclusion criteria:

1. Other than cephalic presentation
2. Multiple pregnancy
3. Polyhydramnios
4. Prolonged labour
5. Grand multiparity
6. Uterine leiomyomas
7. Women with primary PPH due to other than uterine atony
8. Oxytocin induction or augmentation of labour
9. Previous haemorrhage in third stage of labour
10. Any bleeding disorder or having drug causing bleeding disorder
11. Refusal to give consent

Ethical clearance was obtained. Informed written consent was taken from each participant. Detailed clinical history was taken and thorough physical examination was carried out for each subject. Their symptoms and clinical examination findings were recorded on a predesigned questionnaire form. After the baby is born the third stage of labour was "actively managed". Over the next 24 hours, the participants was watched for signs of primary PPH. Primary PPH is defined as the excessive bleeding following delivery (>500ml in vaginal delivery or >1000ml in cesarean delivery) accompanied by signs and symptoms of hypovolemia within 24 hours after delivery [17]. The amount of postpartum blood loss in the first 24 hours after delivery was estimated by the usual clinical visual assessment, the number and weight of soaked pads and any blood transfusion that were given. Loss of tone in the uterine muscle or the inability of the myometrium to contract after the placenta has been delivered, along with bleeding from the placental site, are signs of uterine atony.

Data were collected using a pre-structured case record form. Data analysis was done using SPSS for windows version 26.0. Chi-square test & independent sample t-test was used to compare variables. Univariate and multivariate logistic regression to detect odds ratio of Risk factors analysis of PPH. A 'p' value <0.05 was considered as statistically significant.

RESULTS

Among the Group A cases (n=50), 54% were below 30 years and 46% were 30 or above years whereas in Group B (n=50), 66% of the women were below 30 years and 34% were 30 or above years with mean age was 27.5±4.9 years and 25.6±4.7 years respectively. Age was significantly higher among the women who had primary PPH.

Table-I: Distribution of the participants according to Age group (n=100)

Age group (years)	Group A (n=50) n (%)	Group B (n=50) n (%)	p-value
<30	27 (54%)	38 (66%)	0.021*
≥30	23 (46%)	12 (34%)	
Mean±SD	27.5±4.9	25.6±4.7	0.043**

*Chi-square test, **Independent sample t test.
Group A= with PPH & Group B=without PPH

In both Group A and Group B majority of the women were housewife (86% vs 88%) followed by working women (14% vs 12%). Besides, in Both Group A and Group B majority had educational status HSC and above (52% vs 58%) followed by SSC (36% vs 24%) and below SSC (12% vs 18%). In Group A, 72% of the

women and in Group B, 64% of the women had socioeconomic status middle class and 28% and 36% had lower class respectively.

Table II: Distribution of the study participants according to socio-demographic factors (n=100)

Variables	Group A (n=50) n (%)	Group B (n=50) n (%)	p-value*
Occupation			
Housewife	43 (86)	44 (88)	0.766
Working Women	7 (14)	6 (12)	
Educational Status			
HSC & above	26 (52)	29 (58)	
SSC	18 (36)	12 (24)	0.375
Below SSC	6 (12)	9 (18)	
Socio-Economic Condition			
Middle Class	36 (72)	32 (64)	0.391
Lower Class	14 (28)	18 (36)	

*Chi-square test.
Group A= with PPH & Group B= without PPH

In Group A and In Group B 10% and 16% of the women had delivery at home respectively and rest of the women had delivery in hospital. In both Group A and Group B majority

had normal vaginal delivery (52% vs 82%) but caesarean section was found significantly higher among the women with PPH than without PPH (48% vs 18%).

Table-III: Delivery related information among the study participants (n=100)

Variables	Group A (n=50) n (%)	Group B (n=50) n (%)	p-value*
Place of delivery			
Home	5 (10%)	8 (16%)	0.554
Hospital	45 (90%)	42 (84%)	
Mode of delivery			
Normal VD	26 (52%)	41 (82%)	0.003
LSCS	24 (48%)	9 (18%)	

*Chi-square test.
Group A= with PPH & Group B= without PPH

Parity 2 or 3 was found significantly associated with post-partum hemorrhage.

Table-IV: Distribution of the study participants according to pregnancy related information (n=100)

Variables	Group A (n=50)	Group B (n=50)	p-value
Age at marriage	21.7±2.4	21.1±2.3	0.178*
Para			
1	25 (50)	37 (74)	0.013**
2-3	25 (50)	13 (26)	

*Independent sample "t" test & **Chi-square test.
Group A= with PPH & Group B= without PPH

Mean systolic blood pressure and diastolic blood pressure was significantly lower among the women with PPH besides, overweight or obesity was found significantly associated the women with PPH than without PPH.

Table-V: Distribution of the study participants according to physical examination findings (n=100)

Variables	Group A (n=50)	Group B (n=50)	p-value
Blood Pressure			
SBP (mm of Hg)	103±9.1	110±7.8	<0.001*
DBP (mm of Hg)	66±9.2	76±8.1	<0.001*
BMI (kg/m^2)			
Underweight	5 (10%)	8 (16%)	
Normal weight	20 (40%)	30 (60%)	0.032**
Overweight or obese	25 (50%)	12 (24%)	

*Independent sample t test & **Chi-square test.
Group A= with PPH & Group B= without PPH.

DISCUSSION

This study was conducted among 50 post-partum women with PPH (Group A) and 50 Post-partum women without PPH (Group B). In Group A, 54% of the women were below 30 years whereas in Group B, 66% of the women was below 30 years with mean age was 27.5±4.9 years and 25.6±4.7 years respectively. Age was significantly higher among the women who had primary PPH. In a previous study mean age of the women with PPH was 27.33 ± 4.78 years which was consistent with current study [18]. Previous study by Amanuel et al. revealed that maternal age 35 years or above was significantly associated risk factor for PPH [19]. Previous study by Lao et al. suggested that advanced maternal age only served as a surrogate factor for PPH due to the associated increased risk factors, obstetric complications and interventions [20].

In both Group A and Group B majority had normal vaginal delivery (52% vs 82%) but caesarean section

was found significantly higher among the women with PPH than without PPH (48% vs 18%) (p=0.003). Previous study by Sharma et al. among 550 mothers, 408 (74.2%) had vaginal delivery and 142 (25.8%) had cesarean delivery. The common maternal complications were postpartum hemorrhage (21.1%) which was higher among LSCS compared to vaginal delivery [21]. Another studies also revealed that compared with normal

birth, cesarean section (CS) remain a common risk factor for severe PPH [22, 23].

Overweight or obesity was found significantly associated with post-partum hemorrhage. Davey et al. revealed that women with overweight or obesity has higher risk of PPH than the normal weight pregnant women [23]. Another study unveiled that maternal obesity has a modest effect on postpartum hemorrhage risk [24]. Lower blood pressure in PPH group was most likely due to haemorrhage induced fall of blood pressure.

Parity 2 or 3 was found significantly associated with post-partum hemorrhage. Amanuel et al. observed in the study that multipara was a risk factor for the development of PPH [19]. Ekin et al. revealed that multiparity was a major risk factor for the development of primary post-partum hemorrhage [22, 24].

CONCLUSION

The study concludes that age >30 years at pregnancy, LSCS as mode of delivery, high body weight and higher parity was been found to be associated with increase rate of primary postpartum hemorrhage (PPH).

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