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Risk Factors and Outcome of Women with Post Partum Hemorrhage

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Abstract

Background: *Postpartum hemorrhage is defined as blood loss more than 500 ml following normal vaginal delivery and 1000 ml following cesarean section. It is associated with significant maternal morbidity and mortality in developing world. The risk factors associated with PPH include obesity, multiparity, fetal macrosomia, preeclampsia, polyhydramnios, retained placenta, uterine atony and instrumental deliveries. Unless managed aggressively PPH has all the potential to prove fatal. Appropriate resuscitative measures, blood transfusions and sometimes surgical interventions are required. With proper management the maternal mortality due to PPH can be lowered to a significant level.*

Aims and Objectives: *(1) To study the risk factors associated with postpartum hemorrhage.*
(2) To study the outcome of women with postpartum hemorrhage.

Materials and Methods: *This was a prospective study of 30 women with postpartum hemorrhage who were admitted in our hospital. Patients were included in the study on the basis of predefined inclusion criteria. Patient having any exclusion criteria were excluded from this study. The risk factors associated with postpartum hemorrhage and outcome of pregnant women having PPH were studied. The data was tabulated and analyzed using SPSS 16.0 version software.*

Results: *Out of 450 deliveries which have taken place in our hospital during study period there were 30 patients who were diagnosed with PPH hence the incidence of PPH in our study was found to be 6.66 %. It was found 12 (40 %) women had BMI ≥30 while 18 (60 %) women had BMI less than 30. Amongst the studied cases 18 (60 %) were primipara, 10 (33.33%) were multipara and 2 (6.66 %) women were grand multipara. Multiparity, Large for gestational age babies, h/o PPH, Antepartum hemorrhage, preeclampsia, instrumental deliveries and LSCS were some of the factors associated with PPH. There was no maternal mortality amongst the studied cases. 2 (6.66%) patients had to be referred to higher centre for further management.*

Conclusion: *Postpartum hemorrhage is one of the important causes of maternal morbidity and mortality in developing world. Identification and modification of known risk factors and proper management of PPH can significantly reduce maternal morbidity and mortality.*

Keywords: *Postpartum hemorrhage, Maternal morbidity and mortality, Risk factors, Outcome.*

Introduction

Postpartum hemorrhage is one of the leading causes of maternal mortality. Though with the improvements in maternal health services the maternal mortality rates secondary to PPH has declined in developed world it still remains a

significant problem in developing world including India[1]. According to World health organization postpartum hemorrhage remains the single most common cause of maternal mortality accounting for more than 50% maternal deaths in developing world[2]. In developed countries it is one of the 3 leading causes of maternal mortality along with hypertension and embolism. PPH is generally defined as blood loss more than 500 ml following normal vaginal delivery and 1000 ml following cesarean section[3]. It's difficult to accurately diagnose PPH because the amount of blood loss is subjective and it's not easy to accurately estimate the amount of blood loss following delivery. One of the important considerations while managing a patient with PPH is that different patients respond differently to blood loss[4]. For example a patient who is already anemic may rapidly go in shock as compared to a healthy young woman with adequate hemoglobin levels who may tolerate the blood loss without significant hemodynamic changes[5]. For this reason many researchers have recommended that the definition of PPH should be suitably changed to incorporate changes or deterioration of hemodynamic status as a criterion to define PPH. The diagnosis of PPH is usually reserved for pregnancies which have progressed beyond 20 weeks of pregnancy[6].

The common factors associated with PPH include retained placenta, failure in progress of second stage of labor, placenta accrete, lacerations during childbirth, instrumentation, preeclampsia, multigravida and obese females[7]. Irrespective of the associated factors one of the common causes of postpartum hemorrhage is failure of proper contraction of uterus and inability of myometrial fibers to retract[8]. These factors are commonly seen in over distension of uterus caused by factors like twin pregnancy, fetal macrosomia, large for gestational age babies and polyhydramnios. Other factors like halogenated anesthetic agents, NSAIDs, nitrates and magnesium sulfate can also impair uterine contractions causing post partum hemorrhage[9].

The incidence of PPH can be decreased by active management of third stage of labor including use of uterotonic drugs, early cord clamping and gentle cord traction when the uterus is well contracted. Many randomized controlled trials comparing the incidence of PPH in women in whom active management versus expectant management in the third stage of labor was done found that there is definite decreased incidence of PPH in women in whom active management of third stage was done. Use of oxytocin after the delivery is also associated with decreased risk of PPH. Despite all the precautions, active management of third stage of labor and administration of oxytocin after delivery there are many patients who land up into PPH. Management of these patients is crucial and any delay in management of these patients can prove fatal. The management consists of resuscitation, management of hypovolumic shock (IV fluids and blood transfusions) and identification and treatment of underlying cause (removal of retained placenta etc). Outcome of patients with PPH largely depends upon immediate intervention and proper management[10]. We conducted this prospective study to analyze risk factors associated with PPH and their outcome.

Materials and Methods

We conducted a prospective study of 30 women with postpartum hemorrhage who were admitted in our hospital. The patients were explained in detail about the study and only those patients who gave consent were included in this study. Patients were included in the study on the basis of predefined inclusion criteria. Patient having any exclusion criteria were excluded from this study. Detailed history was taken in all the patients. Special emphasis was given to elicit the history pointing towards possibility of the factors like gestational diabetes or presence of preeclampsia. General and systemic examination was done. Investigations like complete blood count, Blood grouping and Rh typing, Ultrasound imaging, thyroid profile and HbsAg and HIV were done in

all the cases. Type of delivery was noted. The risk factors associated with postpartum hemorrhage and outcome of pregnant women having PPH was analyzed. P value of < 0.05 was considered as significant. The data was tabulated and analyzed using SPSS 16.0 version software.

Inclusion Criteria

- Patient in whom there was blood loss of 500 ml or more after normal delivery.
- Patient in whom there was blood loss of 1000 ml or more after caesarean section.

Exclusion Criteria

- Patient on anticoagulant medications.
- Patients on antiplatelet medications.
- Patients with known deficiency of clotting factors.
- Patients with qualitative defects of platelet function.

Results

In this prospective study of risk factors and outcome of women with postpartum hemorrhage 30 patients were included depending upon the inclusion criteria. Out of a total 450 deliveries which have taken place in our hospital during study period there were 30 patients who were diagnosed with PPH hence the incidence of PPH in our study was found to be 6.66 %. Incidence of postpartum hemorrhage was found to be highest in patients more than 30 years of age (40%) followed by in patients of 26-30 (26.66%), 21-25 (20 %) and less than 20 (13.33 %) years of age.

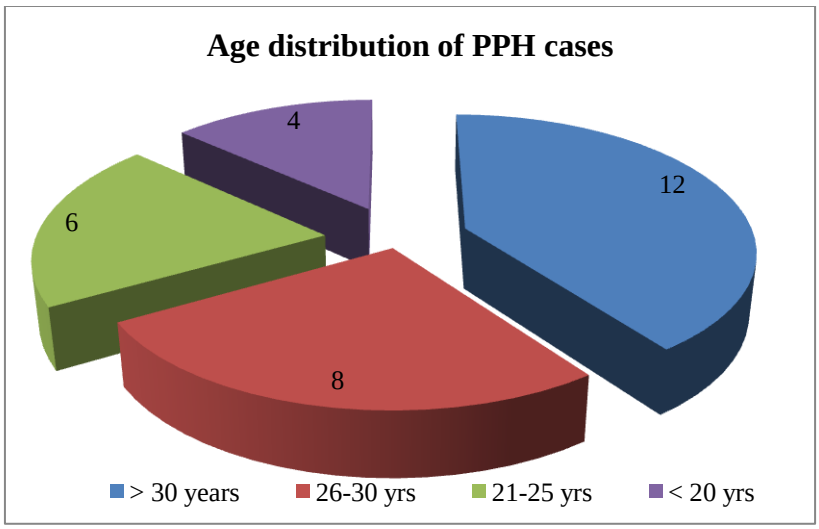

Figure 1: Age distribution of the cases with PPH.

Since increased BMI is reported to be a risk factor for development of PPH we studied body mass index of all pregnant women who were part of this study. It was found 12 (40 %) women had BMI ≥30 while 18 (60 %) women had BMI less than 30.

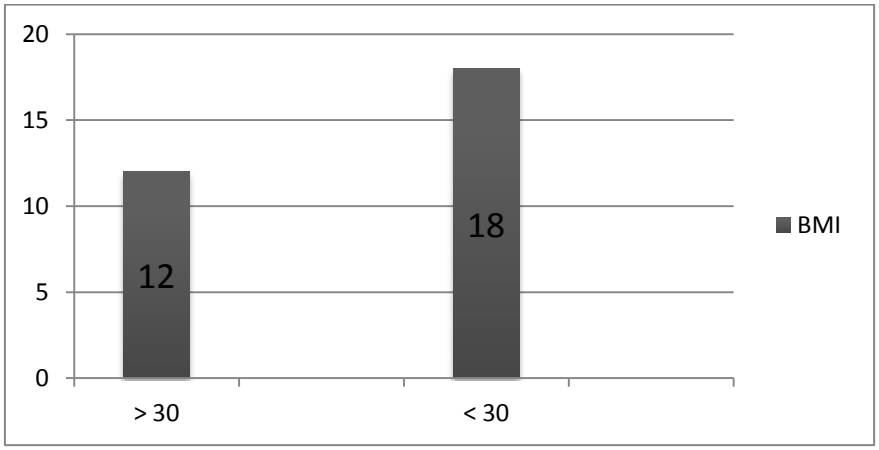

Figure 2: Distribution according to BMI in cases with PPH.

The analyses of the parity of the patients showed that out of 30 studied cases 18 (60 %) were primipara, 10 (33.33%) were multipara and 2 (6.66 %) women were grand multipara.

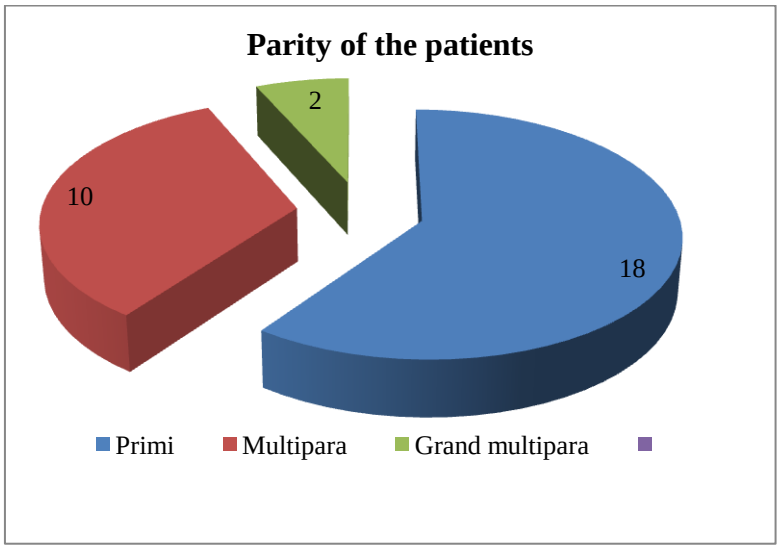

Figure 3: Parity of the patients with PPH.

The analysis of mode of delivery showed that 5 (16.66 %) patients were delivered by LSCS (3 emergency and 2 elective LSCS). Labor was induced in 5 (16.66 %) patients and 4 (13.33 %) patients required instrumental delivery. Remaining 16 patients delivered vaginally without any instrumentation (53.33 %)

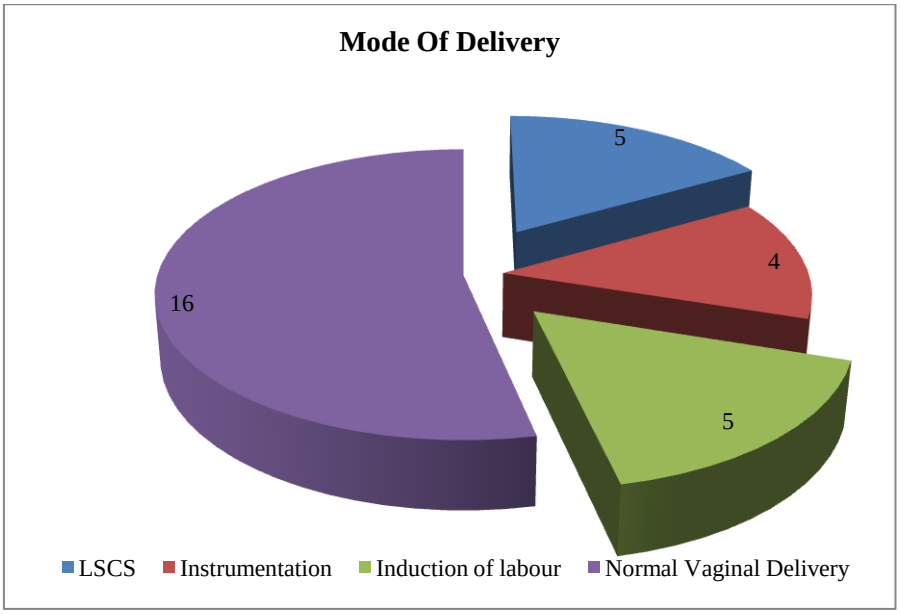

Figure 4: Mode of Delivery in the patients with PPH.

The analysis of other risk factors in the studied cases revealed that h/o Antepartum hemorrhage was present in 4 (13.33 %) patients, multiple pregnancy in 2 (6.66 %) patients and preeclampsia in 5 (16.66 %) patients. 2 (6.66 %) patients were grand multipara. There were 3(10 %) patients who had history of PPH in past pregnancies. Anemia was present in 14 (46.66 %) patients. There were 3 (10 %) patients who had gestational diabetes in present pregnancy.

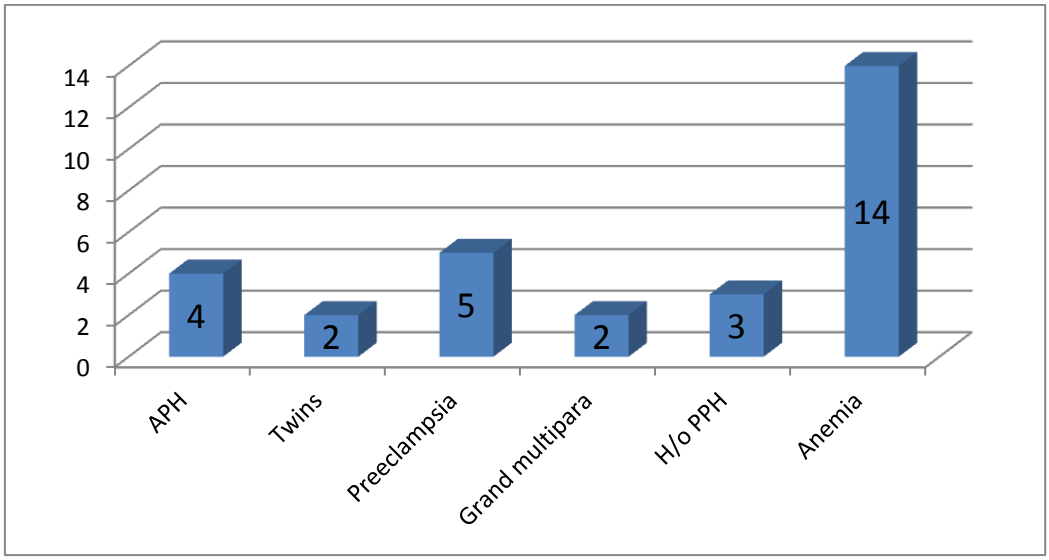

Figure 5: Risk Factors for PPH.

Risk factors related to delivery for development of PPH were also studied. It was found that 3 (10%) patients underwent emergency caesarian section and 2 (6.66 %) patients underwent elective LSCS. 3 (10%) patients had retained placenta and labor was induced in 5 (16.66 %) patients. There were 6 (20 %) large for gestational age babies, instrumental delivery and mediolateral episiotomy were done in 4 (13.33 %) patients.

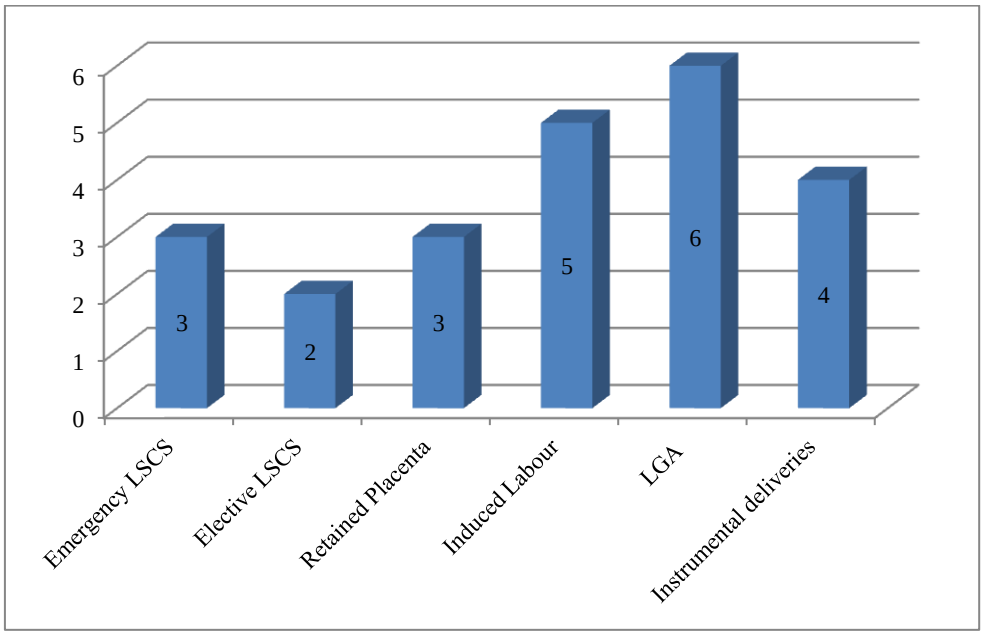

Figure 6: Risk Factors for PPH related to delivery.

Out of the women who delivered babies vaginally 20 (66.66 %) patients had a blood loss between 500-1000 ml 4 (13.33 %) patients had a blood loss in between 1000-1500 ml and 1 (3.33 %) patient had blood loss of more than 1500 ml. Out of the 5 women in whom LSCS was done 3 (10%) patients had blood loss between 1000-1500 ml and 2 (6.66%) patients had blood loss more than 1500 ml.

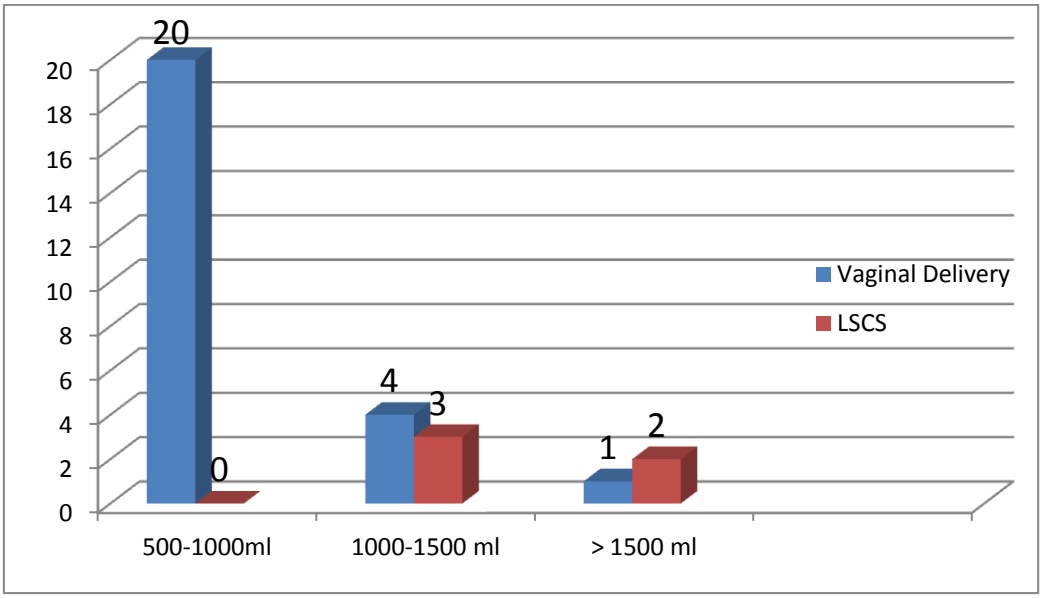

Figure 7: Amount of Blood loss in Patients with PPH.

The analysis of outcome of the women revealed that out of 30 patients 28 patients survived. 2 patients were referred to higher centre for further management after primary treatment and blood transfusion.

Table 1: Outcome of the cases with PPH

Outcome	No of cases	Percentage
Recovered	28	93. 33 %
Referred to higher centre	2	6.66 %
Mortality	0	0

Discussion

In this prospective study of risk factors and outcome of women with postpartum hemorrhage the incidence of PPH was found to be 6.66 %. This incidence rate was similar to the incidence rates found in various studies done by Indian as well as authors from developed world. Jane B Ford et al in their study of trends and outcomes of PPH over a period of 9 years (2003-2011) found a significant increase in the PPH rate from 6.1 % in 2003 to 8.3 % in 2011[11]. They further found that the transfusion rates increased from 0.75 % to 1.21%. Certain other studies have reported a slightly higher incidence of PPH like a study conducted by Sam Ononge et al found the overall incidence of postpartum hemorrhage to be 9.0 %[11]. The higher incidence of PPH in developing countries may be due to the factors like home deliveries, multiple pregnancies at short intervals and prolonged labor. Not only the incidence of PPH is more in developing countries but also there are increased chances of "near miss" cases. Consequently PPH is usually considered as a marker to assess the quality of maternal health care[12].

In our study a High BMI was found in 12 (40%) patients. Increased BMI is considered a risk factor for PPH secondary to uterine atony. Blomberg et al in their study of 1,114,071 women with singleton pregnancies found that there was an increased risk for atonic postpartum hemorrhage in the obese group. Based upon the findings of this study the authors concluded that administ-ration of prophylactic postpartum uterotonic drugs should be considered in women having BMI more than 30 to prevent PPH in this group[13].

In our study 18 (60 %) patients were primipara, 10 (33.33%) were multipara and 2 (6.66 %) women were grand multipara. The effect of parity on incidence of PPH has been the subject of many studies. Jaleel R in their study of risk factors for PPH found that factors like age more than 35 years, high parity, moderate to severe anemia, PPH in a previous pregnancy, polyhydramnios,

placenta praevia, morbidly adherent placenta and home birth as significant risks[14]. The authors found high parity to be one of the risk factors for development of PPH. High parity was found to be associated with increased risk of PPH in the studies conducted by MA Alsammani et al and CG Sosa et al as well[15, 16].

In our study 5 (16.66 %) patients were delivered by LSCS (3 emergency and 2 elective LSCS). Labor was induced in 5 (16.66 %) patients and 4 (13.33 %) patients required instrumental delivery. Muhammad Muzzammil Edhi et al in their cross sectional study of 1493 deliveries found that most common mode of delivery in patients of post partum hemorrhage were Spontaneous vaginal delivery followed by C-section and episiotomy with spontaneous vaginal delivery[17]. Similar findings were reported by authors like C Holm et al and Al-Zirqi et al[18, 19].

Finally the outcome of patients with PPH revealed that with appropriate management 28 (93.33 %) patients could be successfully managed in our hospital and 2 (6.66%) patients were referred to higher centers in view of severe PPH in these patients. Various authors have put forward different maternal mortality rates due to PPH. Chhabra S et al reported maternal mortality due to PPH to be 17.5%[20].

Our study suggests that there is a lot of scope in preventing mortality due to postpartum hemorrhage. Prevention of postpartum hemorrhage by modifying risk factors (prevention of obesity, management of gestational diabetes and prevention of fetal macrosomia) and managing PPH (active management of 3rd stage of labor, blood transfusions, appropriate resuscitative measures, management of shock and in time referral) can reduce maternal mortality due to PPH to considerably low levels.

Conclusion

Postpartum hemorrhage is one of the common causes of maternal mortality. Risk factors predisposing a woman for development of PPH should be identified and treated. Proper management of PPH can reduce maternal morbidity and mortality to a significantly low level.

Conflict of Interest: None

References

1. Snelgrove JW. Postpartum Haemorrhage in the Developing World A Review of Clinical Management Strategies . *McGill Journal of Medicine : MJM*. 2009;12 (2):61.
2. WHO Guidelines for the Management of Postpartum Haemorrhage and Retained Placenta. Geneva: World Health Organization; 2009.
3. RCOG . 2009. RCOG Green-top Guideline No 52: prevention and management of postpartum haemorrhage. updated 2011.
4. Buzaglo N, Harlev A, Sergienko R, Sheiner E. Risk factors for early postpartum hemorrhage (PPH) in the first vaginal delivery, and obstetrical outcomes in subsequent pregnancy. J Matern Fetal Neonatal Med. 2015 May;28(8):932-7.
5. Nyfløt LT, Sandven I, Stray-Pedersen B, et al. Risk factors for severe postpartum hemorrhage: a case-control study. *BMC Pregnancy and Childbirth*. 2017;17:17.
6. Kerr R, Eckert LO, Winikoff B, et al. Postpartum haemorrhage: Case definition and guidelines for data collection, analysis, and presentation of immunization safety data. *Vaccine*. 2016;34(49):6102-6109.
7. Kramer MS, Dahhou M, Vallerand D, Liston R, Joseph KS. Risk factors for postpartum hemorrhage: can we explain the recent temporal increase? J Obstet Gynaecol Can. 2011 Aug;33(8):810-819.
8. Driessen M, Bouvier-Colle M-H, Dupont C, Khoshnood B, Rudigoz R-C, Deneux-Tharaux C. Postpartum hemorrhage resulting from uterine atony after vaginal

delivery: factors associated with severity. *Obstetrics and Gynecology*. 2011;117(1):21-31.
9. Bain ES, Middleton PF, Crowther CA. Maternal adverse effects of different antenatal magnesium sulphate regimens for improving maternal and infant outcomes: a systematic review. *BMC Pregnancy and Childbirth*. 2013;13:195.
10. Varatharajan L, Chandraharan E, Sutton J, Lowe V, Arulkumaran S. Outcome of the management of massive postpartum hemorrhage using the algorithm "HEMOSTASIS". Int J Gynaecol Obstet. 2011 May;113(2):152-4.
11. Ford JB, Patterson JA, Seeho SKM, Roberts CL. Trends and outcomes of postpartum haemorrhage, 2003-2011. *BMC Pregnancy and Childbirth*. 2015;15:334.
12. Snelgrove JW. Postpartum Haemorrhage in the Developing World A Review of Clinical Management Strategies . *McGill Journal of Medicine : MJM*. 2009;12(2):61.
13. Blomberg M. Maternal obesity and risk of postpartum hemorrhage. Obstet Gynecol. 2011 Sep;118(3):561-8.
14. Jaleel R, Khan A. Post-partum haemorrhage--a risk factor analysis. Mymensingh Med J. 2010 Apr;19(2):282-9.
15. Alsammani MA, Ahmed SR. Grand Multiparity: Risk Factors and Outcome in a Tertiary Hospital: a Comparative Study. *Materia Socio-Medica*. 2015;27 (4):244-247.
16. Sosa CG, Althabe F, Belizán JM, Buekens P. Risk factors for postpartum hemorrhage in vaginal deliveries in a Latin-American population. Obstet Gynecol. 2009 Jun;113(6):1313-9.
17. Edhi MM, Aslam HM, Naqvi Z, Hashmi H. "Post partum hemorrhage: causes and management." *BMC Research Notes*. 2013;6:236. doi:10.1186/1756-0500-6-236.
18. Holm C, Langhoff-Roos J, Petersen KB, Norgaard A, Diness BR. Severe postpartum haemorrhage and mode of delivery: a retrospective cohort study. BJOG. 2012 Apr;119(5):596-604.
19. Al-Zirqi I, Vangen S, Forsen L, Stray-Pedersen B. Prevalence and risk factors of severe obstetric haemorrhage. BJOG. 2008;115:1265–1272.
20. Chhabra S, Sirohi R. Trends in maternal mortality due to haemorrhage: two decades of Indian rural observations. J Obstet Gynaecol. 2004 Jan;24(1):40-3.