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Preoperative Misoprostol to Prevent Postpartum Haemorrhage Following Caeserean Section

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ABSTRACT

Postpartum haemorrhage is a major public health problem more so in developing countries like India. The active management of third stage of labour prescribed by the WHO has been used to successfully prevent PPH. These guidelines although universally followed following vaginal delivery could not be applied in all cases of LSCS, thereby increasing the prevalence of PPH following LSCS. Various modalities of treatment have been advocated for the prevention and treatment of PPH following LSCS of which medical therapy has largely been successful. Misoprostol has long been used for the control of PPH, but mainly in a postpartum setting. Here we try to evaluate the efficacy of misoprostol given pre-operatively just before placing the incision in patients undergoing LSCS in order to prevent PPH.

KEYWORDS : Postpartum haemorrhage, Misoprostol, caesarean section, haemoglobin

INTRODUCTION:

Postpartum haemorrhage (PPH) is one of the dreaded complications following vaginal delivery or LSCS (Lower Segment Caesarean Section). It accounts for about 30% of all maternal deaths in Asia and Africa and is the leading cause of maternal mortality worldwide. The prevalence rate of PPH is approximately 6% worldwide[1] and is continuing to rise owing to an increase in the prevalence of predisposing factors for PPH. Although PPH is responsible for a large number of maternal deaths, in the vast majority of cases PPH is preventable or can be effectively managed with proper medical care. The active management of third stage of labour,[2] prescribed by WHO, which includes administration of an uterotonic, controlled cord traction to deliver the placenta and uterine fundal massage, has largely reduced the incidence of PPH in institutional deliveries. This method widely practised following normal vaginal delivery to reduce PPH cannot be practised following all cases LSCS, thus causing a high incidence of PPH following LSCS.

Misoprostol, a synthetic prostaglandin E1 analogue has long been used in obstetric practice. It is a versatile drug with a lot of clinical uses and is one of the major uterotonics used in obstetrics. It is used in the induction of labour, for causing medical termination of pregnancy and also for the prevention and treatment of PPH. It is one of the drugs prescribed by the WHO as an alternative to oxytocin in the active management of third stage of labour.[3] It is available in a tablet form containing 100 to 200 micrograms if the active drug. Oral, sublingual, per rectal routes of delivery have been used following vaginal delivery/LSCS for the management of PPH.[4] There are few reports recently which demonstrate the efficacy of per rectal misoprostol in preventing PPH following LSCS. We report our experience in the prevention of PPH and thus decreasing the blood loss significantly following emergency/elective LSCS by using per rectal misoprostol.

MATERIALS AND METHODS:

This was a prospective study carried out in Vani Vilas hospital attached to BMC & RI for a period of 5 years from January 2011 to December 2015. A total of 266 patients were included in the study.

Inclusion Criteria:

1. All patients undergoing emergency and elective LSCS in our institute irrespective of the indication for LSCS.
2. All patients with singleton pregnancy.
3. Patients with full term pregnancy.
4. All patients who consented to be a part of the study.

Exclusion Criteria:

1. Patients with pre term labour.
2. Patients who did not give consent for the study.
3. Patients with coagulation disorders.
4. Patients with multiple pregnancy.

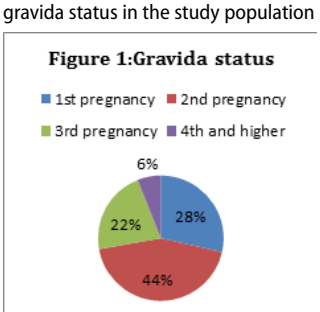
All patients were taken up for emergency/elective LSCS after explaining about the study and obtaining an informed consent. After spinal anaesthesia/ epidural analgesia/ general anaesthesia and after positioning the patient, 600 micrograms tablets of misoprostol were placed per rectally. Following this a LSCS was performed by placing a pfannensteil incision. Outcomes with respect to PPH, which included an objective evaluation of vaginal bleeding, post operative haemoglobin and heamatocrit levels, the number of vaginal pads used, were noted following the procedure.

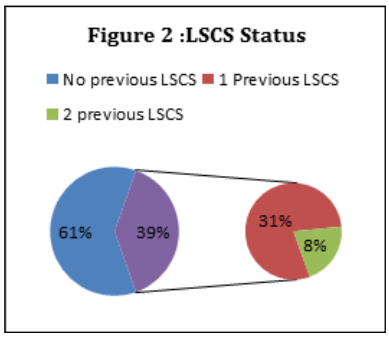
RESULTS:

This was a prospective trial carried out on a total of 266 patients in our institution. All the patients were explained about the proposed management plan and its complications and all patients consented for the procedure.

The age group of the patients ranged from 19 years to 34 years with a mean of 24.8 years. All patients had a singleton live intrauterine fetus as multiple pregnancies were excluded from our study.

Primipregnancy was seen in 76 patients (28.57%), 2nd pregnancy was seen in 116 patients (43.61%). 3rd pregnancy in 58 (21.8%) and fourth and higher pregnancies in 16 patients (6.02%). Figure 1 shows the gravida status in the study population



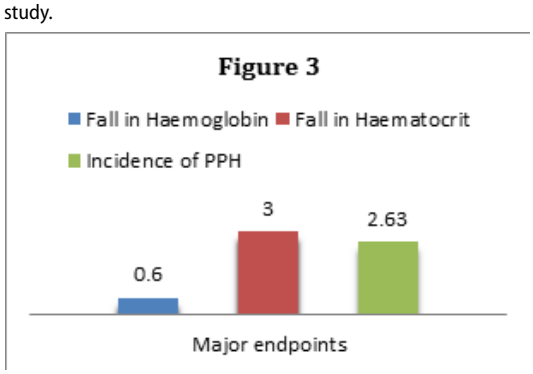


Previous LSCS was seen in 104 patients accounting for 39.1% of cases. Among this 22 patients (8.27%) had 2 previous LSCS and the rest of the patients had 1 previous LSCS. Figure 2 shows the LSCS status.

The average preoperative haemoglobin level was 10.8g/dL while that in the immediate post operative period, it had fallen to an average level of 10.2g/dL. This could be attributed the massive fluid shifts associated with delivery, the water retention associated with the use of oxytocin and due to the blood loss seen during pregnancy.

The haematocrit fell from about average of 42 percent preoperatively to 39 percent in the post operative period.

The incidence of PPH in our study was 2.63 percent (7 out of 266 patients), of which only 3 required surgical intervention (1.13 percent). 2 among these required uterine compression sutures while 1 required uterine artery ligation. The other 4 patients with PPH could be managed conservatively. Post operative blood transfusion was required in 5 patients (1.88 percent). Figure 3 shows the major endpoints in our study.



There were 2 deaths (0.75 percent) during the study period, one was due to preexisting which led to MODS and the other due to uncontrolled eclampsia.

DISCUSSION

266 patients were included in the study and all received per rectal misoprostol 600 micrograms before the LSCS incision. The average age in our study was 24.8 years. This was similar to the results obtained by Minoo Rajaei et al. who reported a mean age of 25.86 years in their study on 350 patients done to compare the efficacy of misoprostol over oxytocin in PPH.[5]

In our study women having second pregnancy were the commonest accounting for 43.61 percent. Primipregnancy was seen in 28.57 percent of patients while 3rd pregnancy was seen in 21.8% percent and fourth and higher pregnancies in 6.02 percent. In a study by Chandrika S. Kodla,[6] it was found that a large proportion of the patients (62%) were multipara and also that the occurrence of PPH increased with increasing parity.

Enid Simon Chiwanga et al.[7] had shown in their study comparing multiple and singleton pregnancy that the rate of PPH was higher among multiple pregnancies than among women with singleton pregnancy. We excluded multiple pregnancies in our study so as to avoid the bias associated with unequal distribution of multiple pregnancy in the population.

J Blum et al.[8] in their review of treatment of PPH with misoprostol concluded that the most effective dose of misoprostol was 600 microgram which is the dose used in our study. An 800 microgram dose of oral misoprostol has been known to cause life threatening hyperpyrexia in a few series and hence was not used in our study although found to be effective.

Masoumeh et al.[9] showed a mean decrease in the haemoglobin level of 0.61g/dl in the misoprostol group of their study and a mean fall in haematocrit of 1.3, while the fall in haemoglobin in our study was 0.6g/dL and the fall in haematocrit was 3 percent. The same in the study by Minoo Rajaei et al.[5] showed a fall of 0.7g/dL and 2.1 percent in haemoglobin and haematocrit.

The incidence of PPH in our study was 2.63 percent, which was much less when compared to the general population which was reported to be higher after caesarean section in a report by K Pratima Devi et al.[10] and to be 10.5 percent by Cynthia K P et al.[3] in their study on active management of third stage of labour in developing countries. In a meta-analysis by G Justus Hofmeyr et al.[11] fewer patients had a blood loss of ≥1000 ml with 600 micrograms of misoprostol than with placebo.

Vanessa A Mategrano et al.[12] in their analysis on the use of misoprostol in the prevention of postpartum haemorrhage concluded that use of misoprostol for the prevention of PPH reduces mean estimated blood loss compared with placebo. Similar results were obtained by Lokugamuge et al.[13] in their study in which they compared the effectiveness of misoprostol in controlling PPH with that of oxytocin and they concluded that misoprostol given per rectally is effective at controlling primary PPH.

CONCLUSION:

Preoperative treatment with 600 micrograms per rectal misoprostol significantly reduced blood loss related to emergency/elective cesarean delivery thereby preventing the occurrence of PPH and can be advocated in all cases provided there are no clear contraindications to its use warranted by the patient's medical conditions.

REFERENCES

1. Fawole B, Awolude OA, Adeniji AO, Onafowokan O. WHO recommendations for the prevention of postpartum haemorrhage: RHL guideline (last revised: 1 May 2010). The WHO Reproductive Health Library; Geneva: World Health Organization.
2. World Health Organization. WHO recommendations for the prevention and treatment of postpartum haemorrhage. 2012. WHO: Geneva, Switzerland.
3. Cynthia Stanton, Deborah Armbruster, Rod Knight et al. Use of active management of the third stage of labour in seven developing countries. Bulletin of the World Health Organization 2009;87:207-215. doi: 10.2471/BLT.08.052597
4. Janice M. Anderson, Duncan Etches. Prevention and Management of Postpartum Hemorrhage. Am Fam Physician. 2007 Mar 15;75(6):875-882.
5. Minoo Rajaei, Samieh Karimi, Zohreh Shahboodaghi et al. Safety and Efficacy of Misoprostol versus Oxytocin for the Prevention of Postpartum Hemorrhage. Journal of Pregnancy. 2014, Article ID 713879, 4 pages. doi:10.1155/2014/713879
6. Chandrika S. Kodla. A study of prevalence, causes, risk factors and outcome of severe obstetrics haemorrhage. Journal of Scientific and Innovative Research. 2015; 4(2): 83-87
7. Enid Simon Chiwanga, Gileard Massenga, Pendo Mlay et al. Maternal outcome in multiple versus singleton pregnancies in Northern Tanzania: A registry-based case control study. Asian Pacific Journal of Reproduction. 2014;3(1):46-52.
8. J. Blum, Z. Alfirevic, G. Walraven et al. Treatment of postpartum hemorrhage with misoprostol. International Journal of Gynecology and Obstetrics. 2007; 99: S202-S205.
9. Masoumeh Mirteimouri, Fatemeh Tara, Batool Teimouri et al. Efficacy of Rectal Misoprostol for Prevention of Postpartum Hemorrhage. Iran J Pharm Res. 2013 Spring; 12(2): 469–474.
10. Devi, K.P., Singh, L.R., Singh, L.B., Singh, M.R. and Singh, N.N. (2015) Postpartum Hemorrhage and Maternal Deaths in North East India. Open Journal of Obstetrics and Gynecology, 5, 635-638. http://dx.doi.org/10.4236/ojog.2015.511089
11. G Justus Hofmeyr, A Metin Gülmezoglu, Natalia Novikova et al. Misoprostol to prevent and treat postpartum haemorrhage: a systematic review and meta-analysis of maternal deaths and dose-related effects. Bulletin of the World Health Organization 2009;87:666-677. doi: 10.2471/BLT.08.055715
12. Vanessa A Mategrano and Michael P Gabay. Misoprostol in the Prevention of Postpartum Hemorrhage. The Annals of Pharmacotherapy.2001;35:1648-52.
13. Lokugamage AU, Sullivan KR, Niculescu I et al. A randomized study comparing rectally administered misoprostol versus Syntometrine combined with an oxytocin infusion for the cessation of primary post partum hemorrhage. Acta Obstet Gynecol Scand. 2001;80(9):835-9.