Original article

Indian Journal of Obstetrics and Gynecology
Volume 4 Number 2, May - August 2016
DOI: http://dx.doi.org/10.21088/ijog.2321.1636.4216.6

Rectal Misoprostol Versus Intramuscular Oxytocin for Prevention of Postpartum Hemorrhage

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Abstract

Introduction: Post partum haemorrhage (PPH) is an important cause of maternal morbidity and mortality especially in the developing countries. Compared to expectant management, active management decreases the incidence of PPH. Objective of study is to compare the effectiveness of rectal Misoprostol against Intramuscular Oxytocin in prevention of postpartum haemorrhage. *Material and Methods:* This is a prospective, randomized and analytical study at department of obstetrics and gynecology, katihar medical college and hospital , katihar. A total of 25 women were included to receive 800 micrograms rectal misoprostol tablets and another 25 women received 10 units of oxytocin intramuscularly. Primary outcome measures were incidence of postpartum hemorrhage or a change in hemoglobin from admission to day two post delivery. Secondary outcome measures including duration of third stage of labor and side effects of both drugs were recorded. *Results:* With Misoprostol there was reduced blood loss as compared to oxytocin however there was no significant difference among groups in drop of hemoglobin. Secondary outcome measure – duration of third stage of labor was similar in both groups. However the side effects were less in the misoprostol group. *Conclusion:* Rectal misoprostol is as effective as intramuscular oxytocin in preventing postpartum hemorrhage but with lesser side effects and is worth while to be used as a ureteronic agent for the routine management of third stage of labor.

Keywords: Misoprostol; Postpartum Hemorrhage; Oxytocin.

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Introduction

Postpartum hemorrhage is defined as the loss of more than 500 mL of blood after delivery, occurs in upto 18 percent of births [1,2]. Blood loss exceeding 1,000 mL is considered physiologically significant and can result in hemodynamic instability [3]. Even with appropriate management, approximately 3 percent of vaginal deliveries will result in severe postpartum hemorrhage [4]. It is the most common maternal morbidity in developed countries and a major cause of death world wide. Complications from postpartum hemorrhage include orthostatic hypotension, anemia, and fatigue, which may make maternal care of the newborn more difficult. Postpartum anemia increases the risk of postpartum depression [5]. Blood transfusion may be necessary and carries associated risks [6].

The best preventive strategy is active management of the third stage of labor.

Compared with expectant management, in which the placenta is allowed to separate spontaneously aided only by gravity or nipple stimulation, active management decreases the incidence of postpartum hemorrhage by 68 percent [7] .

Early cord clamping is no longer included in the International Federation of Gynecology and Obstetrics (FIGO) definition

of active management of the third stage of labor, and uterine massage after delivery of the placenta has been added [8]. Delaying cord clamping for about 60 seconds has the benefit of increasing iron stores and decreasing anemia, which is especially important in preterm infants and in low-resource settings [9]. The delay has not been shown to increase neonatal morbidity or maternal blood loss [9, 10].

Prophylactic administration of oxytocin reduces rates of postpartum hemorrhage by 40 percent [11]; this reduction also occurs if oxytocin is given after placental delivery. Oxytocin is the drug of choice for preventing postpartum hemorrhage because it is at least as effective as ergot alkaloids or prostaglandins and has fewer side effects [12, 13]. Misoprostol has a role in the prevention of postpartum hemorrhage ; this agent has more side effects but is inexpensive, heat and light-stable, and requires no syringes [14].

Many studies have been performed to evaluate the efficacy of rectal misoprostol for prevention of postpartum hemorrhage [15,16] . The study performed in 2004 reported that the use of rectal misoprostol was shown to be an effective first and second-line treatment for the management of postpartum hemorrhage unresponsive to oxytocin [17] . On the other hand, Chong et al. concluded that the drug was not as successful as expected [18] .

Since different studies have reported contradictory results about the efficacy of rectal misoprostol for prevention of postpartum hemorrhage, we aimed to perform this study to compare efficacy and safety of intramuscular oxytocin with rectal misoprostol for preventing the postpartum hemorrhage.

Material and Methods

This is a randomized , prospective and analytical study at department of obstetrics and gynaecology, katihar medical college and hospital, katihar, bihar , India. A total of 50 women having low risk vaginal delivery were included in the study. Women with chorioamnionitis, preterm labor, Polyhydramnios, and lower segment cesarean section in previous pregnancy were excluded from the study along with the conditions which were a contraindication to the use of prostaglandin and uterotonics .

Informed consent and purpose of study was explained at the time of admission. Randomization was carried out when the vaginal delivery was imminent. Hemoglobin was measured at the time of admission. At the time of delivery of anterior shoulder, either IM oxytocin or rectal misoprostol was administered depending on the group. A total of 25 women were included to receive 800 micrograms rectal misoprostol tablets and another 25 women received 10 units of oxytocin intramuscularly. Placenta was delivered by controlled cord traction . The woman was encouraged to breast feed the baby.

Strict record of her vital signs was maintained and uterine contractility was noted every thirty minutes for first four hours. Any heavy bleeding was noted for next 48 hours. Hemoglobin values were carried out after 48 hours of delivery.

In our study, difference in pre and post delivery hemoglobin was estimated to calculate the blood loss. Side effects of uterotonics i.e. fever, shivering and abdominal pain were noted.

The key result measures were incidence of postpartum hemorrhage or a change in hemoglobin from admission to day two post delivery .Other measures include duration of third stage of labor and side effects of both drugs .

Results

The total number of patients enrolled during the study period was 50. Out of the study population 50% received rectal misoprostol and 50% received IM oxytocin for the active management of third stage of labor. None of the women withdrew from the study.

The comparison of estimated blood loss between rectal misoprostol and intramuscular oxytocin is shown in table 1. Post partum hemorrhage happened in 4 % of misoprostol group while in oxytocin group it was 6 %.

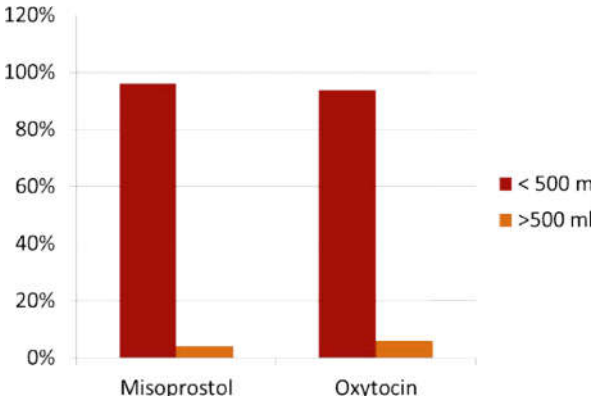

Fig. 1:

The pre and post delivery hemoglobin levels within misoprostol and oxytocin groups have been shown in Table 2 . The mean pre-delivery values for misoprostol and oxytocin groups were 11.7 gm/dl and 11.5 gm/dl respectively whereas the mean post-delivery values were 10.8 gm/dl and 10.6 gm/dl respectively.

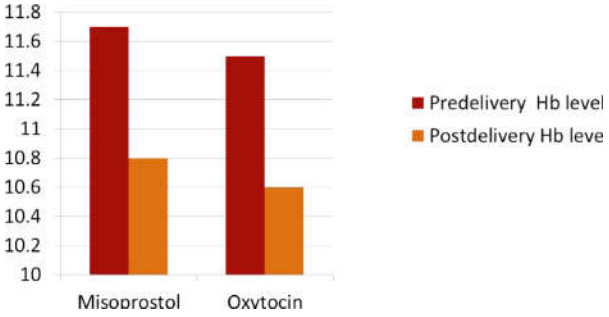

Fig. 2:

The duration of third stage of labor is depicted in Table 3. The mean duration was 5.7 minutes in misoprostol group while in oxytocin group it was 5.6 minutes .

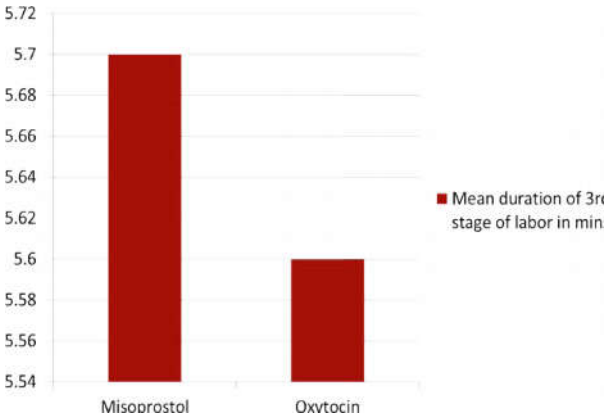

Fig. 3:

Table 4: Showed that fever with shivering was more in misoprostol group than as compared to oxytocin group

Side effects	Misoprostol group	Oxytocin group
No side effects	73%	87%
Fever with shivering	25%	10%
Pain abdomen	2%	3%

Discussion

The active management of the third stage of labor is traditionally performed with the routine use of intravenous oxytocin [19]. Rectal misoprostol has minimal side effects, low shelf life, inexpensive and easily available. It is easy to use and does not require special storage conditions (i.e., can be stored easily at room temperature; is thermostable and light stable; does not require specific conditions for transfer) and has a shelf life of several years [20,21].

These advantages make it a useful drug in reducing the incidence of postpartum hemorrhage in developing countries. The rectal administration of misoprostol skips the gastrointestinal side effects of nausea, vomiting, and makes it useable in nauseated women . The findings of our study are quite similar to various other studies [22-25]. Another study evaluating rectally administered misoprostol as a prophylaxis versus conventional intramuscular oxytocin in post partum hemorrhage reported that rectally administered misoprostol may be effective in the prevention of PPH as an alternative to conventional intramuscular oxytocin [26].

So to conclude rectal misoprostol seems to be safe and effective in preventing postpartum haemorrhage and is recommended for use in managing the third stage of labour especially in developing countires where often inadequate storage facilities severly restricts use of oxytocin .

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