ORIGNAL ARTICLE

EFFICACY OF RECTAL MISOPROSTOL WHEN COMBINED WITH STANDARD OXYTOCIN TO TREAT POSTPARTUM HEMORRHAGE

Fauzia Anbreen

DHQ Teaching Hospital, Gomal Medical College, D.I.Khan, Pakistan

ABSTRACT

Background: One of the commonest causes of maternal mortality in the developing world is post-partum hemorrhage. In Pakistan it accounts for nearly 25% of maternal deaths. This trial was conducted to study the effectiveness and safety of rectal misoprostol in the treatment of post-partum hemorrhage.

Material & Methods: This study was conducted at DHQ Teaching Hospital D.I.Khan from January 2007 to December 2007. Women with more than usual postpartum hemorrhage due to inadequate uterine contractions were enrolled after informed consent. Women having contra-indication to the use of oxytocin or misoprostol were excluded from the study. They were given tablet misoprostol 800 microgram rectally, and blood loss measured for at least one hour of postpartum hemorrhage. The primary outcome measure was total blood loss and blood transfusion while secondary outcome measure was medication side effects.

Results: During the study period 2011 deliveries occurred and 80 women were eligible for the study. Fifty-five of these were given rectal misoprostol and 25 were taken as controls. The demographic characteristics of both the groups were similar. There was a significant difference in blood loss of >1000 ml ($p<0.001$). Pyrexia was more common in misoprostol group 22% vs 16% $p>0.05$.

Conclusion: Misoprostol is an effective treatment for postpartum hemorrhage.

Key words: Postpartum hemorrhage, Misoprostol, Oxytocin.

INTRODUCTION

The rate of maternal mortality varies worldwide but these rates are higher in the developing countries.[1-3] One of the commonest cause of maternal mortality in the developing world is obstetric hemorrhage, particularity post-partum hemorrhage (PPH).[1-3] In the western word the incidence of fatal PPH has decreased because of active management of third stage of labour which includes controlled cord traction, uterine fundal massage and administration of a pharmacological uterotonic.[4] In Pakistan, PPH accounts for nearly 25% of maternal deaths,[5] and misoprostol which is easy to use is a suitable drug in such cases.[6]

Misoprostol was initially used to treat NSAID-induced peptic ulcer disease[7] and has been used for medical termination of pregnancy either alone or in combination with other abortifacients, like mife-pristone or methotrexate.[8] Misoprostol is a prostaglandin E_1 analogue easily available, low cost, stable at room temperature and can be given through oral, vaginal or rectal route.[9,10]

The objective of the current study was to evaluate the effectiveness and safety of rectal misoprostol along with parenteral oxytocin in the treatment of PPH.

MATERIAL AND METHODS

It was a comparative study conducted from January 2007 to December 2007 in DHQ Teaching Hospital, D.I.Khan.

Inclusion criteria was gestational age $\geq$28 weeks, anticipating a spontaneous vaginal delivery and had oxytocin infusion during the first stage of labour.

Patients having contraindication for the use of either misoprostol or oxytocin were excluded, like pre-eclampsia, cardiac disease and asthma. Women having risk factor for PPH like multiple gestations, previous PPH, precipitate labour, congenital abnormality, antepartum haemorrhage, previous caeserian section and genital tract trauma were also excluded.

All women had active management of 3rd stage of labour with 10 units of injection oxytocin plus one injection of methergine at the delivery of anterior shoulder of the baby. Women with PPH

were given tablet misoprostol 800 microgram (Four tablets of 200 microgram each) rectally. Blood loss was measured for one-hour post-partum.

Informed consent was obtained from the women in their own language using a standardized form after admission to the labour ward. Two groups were formed; a control group with routine management and the treatment group with additional rectal misoprostol.

All other management was according to the hospital routine for the management of PPH. This protocol included use of intravenous oxytocin, attention to lacerations, removal of retained placental tissues.

The primary outcome measures specified prior to commencing the study were: (1) Blood loss $\geq$1000 ml in an hour after enrolment (2) Haemoglobin level $\leq$7gm/dl or indication for blood transfusion (3) Hysterectomy, or maternal death. Secondary outcome measures were side effects.

Maternal pulse, blood pressure, and temperature were recorded after delivery and every 30 to 60 minutes.

Categorical data was analyzed with chi-square test and continuous data with t test.

Table 1: Demographic characteristics of the women.

Values	Misorprostol group (n=55)	Control group (n=25)
Maternal age in years (Mean+ SD)	38±1.7	26±3.3
Gestations age (Weeks)	38±1.5	39±1.52
Pre-delivery haemoglobin (Mean ± SD)	11±1.29	11±1.998

RESULTS

Out of 2011 deliveries 100 women had PPH; 80 were eligible for the study. Out of these, 25 were given routine treatment (Control group), while 55 were given additional treatment with misoprostol.

Table 3: Medication side effects.

Values Number (%)	Misorprostol group (n=55)	Control group (n=25)
Nausea	4 (7)	1 (4)
Vomiting	4 (7)	2 (8)
Shivering	9 (16)	1 (4)
Pyrexia	12 (22)	4 (16)

DISCUSSION

This study has confirmed the utility of rectal misoprostol for routine management of third stage of labour, as determined by blood transfusion or haemoglobin <7g/dl, which was 7.3% in Misoprostol group and 20% in Oxytocin group ($p<0.001$). In other such studies, the need for blood transfusion was also higher in the oxytocin group.[11-14]

A low rate of PPH (7%) was demonstrated in Misoprostol wing of our study. According to the 2000 Cochrane review, the rate of PPH $\geq$ 500ml was roughly 5% for women receiving prophylactic uterotonic and 12% for those not receiving it.[14]

In our study, no deaths occurred in misoprostol group. These results are comparable to a study, which also used the same route for misoprostol.[13]

As found in previous studies on misorpostol, the use of the drug in our study was significantly associated with fever (22% vs 16%) and shivering (16% vs 4%) as compared to control group.[15]

Table 2: Comparison of outcome of women who received misoprostol with those receiving only oxytocin.

Baseline Characteristics	Misoprostol Group	Control Group	p-value
Blood loss $\leq$500 ml	4 (7%)	7 (28%)	<0.001
Haemoglobin $\leq$7g/l or blood transfusion	4 (7.3%)	5 (20%)	<0.001
Blood loss > 1000ml	2 (4%)	5 (24%)	<0.001
Maternal Mortality	0	3 (12%)	<0.001
Hystrectomy	1 (1.8)	0	>0.05

CONCLUSION

Misoprostol is an effective treatment for postpartum hemorrhage. It might be an alternative to parenteral prostaglandins. Given that it is an inexpensive and stable drug, misoprostol has considerable potential to reduce maternal mortality from postpartum hemorrhage in developing countries.

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Address for correspondence:

Dr. Fauzia Anbreen
Zanana Hospital
D.I.Khan, Pakistan
E-mail: amingandapur@gmail.com