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Comparison of Efficacy of Oral Misoprostol with Oxytocin 10 Units Intramuscular Injection in the Active Management of Third Stage Of Labour

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Abstract
Aim: *A simple measure to prevent PPH is active management of third stage of labour. The aim of this study is to compare the efficacy of oral misoprostol with oxytocin 10 units intramuscular injection in the active management of third stage of labour.*
Materials and Method*: This prospective study is conducted in Coimbatore medical college hospital included 300 women with parity of <3, having singleton low risk pregnancy at or above 37 weeks of gestation, with spontaneous onset of labour and vaginal delivery. The women randomly allocated into two groups .one was given 10 units of oxytocin IM after delivery and the other group were given misoprostol 600mcgorally.the primary outcome studied were amount of blood loss , fall in hemoglobin, side effects.*
Results: *The mean duration of third stage of labour was 4.2 minutes in misoprostol groups and 3.8 minutes in oxytocin groups. The average blood loss noted were 148 ml and 127 ml in misoprostol and oxytocin group respectively. The fall in hemoglobin in misoprostol group was 0.67g/dl 0.54 g/dl.*
This study found that there was no statistical significance between the effectiveness of these drugs in AMTSL.
Conclusion: *Misoprostol is equally effective alternative to oxytocin especially in low resource settings*
Keywords: *Misoprostol, oxytocin, AMTSL, PPH*

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I. Introduction

Postpartum Hemarrhage is the leading cause of maternal mortality in low-income countries and is primary cause of nearly one quarter of all maternal deaths globally. Most deaths resulting from PPH occur during first 24 hours after birth and the majority of these could be avoided through the use of prophylactic uterotonics during the third stage of labour and by timely and appropriate management. Postpartum blood loss is difficult to evaluate in developing countries where most of the women are anemic with poor reserve. A simple measure to prevent PPH is active management of third stage of labour.

Misoprostol, PGE1 analog, have a longer shelf life, stability at high temperature, oral administration. Oxytocin is a peptide hormone normally produced in hypothalamus and released by the posterior pituitary. Administered oxytocin, is a powerful, time tested uterotonic in use till date. The aim of this study is to compare the efficacy of oral misoprostol with oxytocin 10 units intramuscular injection in the active management of third stage of labour**.**

II. Materials And Methods

This prospective study is conducted in Coimbatore medical college hospital between January 2019 to June 2019.

Three hundred women with parity of <3, having singleton low risk pregnancy at or above 37 weeks of gestation, with spontaneous onset of labour and vaginal delivery were included in the study. Women with obstetric complications or medical co morbidities were excluded from the study.

All the selected women were randomly allocated into two groups. In oxytocin group women were given 10 IU of oxytocin IM after delivery of the baby. Likewise in misoprostol group women were given 600 mcg of misoprostol orally. Deliveries were conducted in the lithotomy or dorsal position and allocated drug was administered immediately after the delivery of the baby. Clamping of the umbilical cord and controlled cord traction was done without waiting for the signs of placental separation in both the groups.

BP and pulse rate recorded for all women during third stage of labour. The primary outcome measured were the amount of blood loss in third stage of labour and incidence of PPH. The quantitative assessment of blood loss is

done with the calibrated plastic drape in which blood was collected after draining the liquor until the completion of the third stage of labour.

The secondary outcome measured were the mean duration of third stage of labour, fall in Hb, adverse effects. The duration of third stage in minutes were noted. Haemoglobin estimation was done at the admission as well as 24 hours postpartum .

Statistical analysis was done using Student t test and the $P<0.05$ were considered to be significant among the study groups.

III. Results

Since the women were randomly allocated the two groups were comparable in baseline characteristics like age, parity, antenatal care. Out of the three hundred women included in the study 150 received oral misoprostol and remaining 150 received oxytocin.

The mean duration of third stage of labour was 4.2 minutes in misoprostol groups and 3.8 minutes in oxytocin groups. The average blood loss noted were 148 ml and 127 ml in misoprostol and oxytocin group respectively. The fall in haemoglobin in misoprostol group was 0.67g/dl 0.54 g/dl.

The incidence of PPH were seen in 6 patients in misoprostol and 4 patients in oxytocin group. Of all the women delivered 2 in misoprostol group and 1 in oxytocin group required blood transfusion. Thirteen and 9 in misoprostol group and oxytocin group needed additional uterotonics

Out 150 women in the misoprostol group,93 developed side effects. Of which 68 women had shivering,14 had fever,11 had diarrhoea whereas 5 had shivering, 2 developed fever in oxytocin group. None of the patient in oxytocin group had diarrhoea.

Figure 1: Age profile

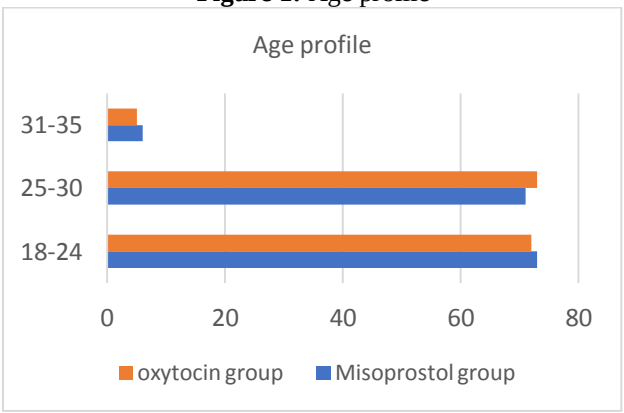


Table 1: Demographic characters of study group

Age	**Misoprostol group**	**oxytocin group**
18-24	73	72
25-30	71	73
31-35	6	5
parity		
primi	72	75
multigravida	72	75

Table: 2 Average blood loss and duration of third stage of labour

Assessment of blood loss	**misoprostol group**	**oxytocin group**
Mean amount of blood loss	148	127
Duration of third stage (in min)	4.2	3.8
Fall in HB (gm/dl)	0.67	0.54

Table:3 Incidence of PPH

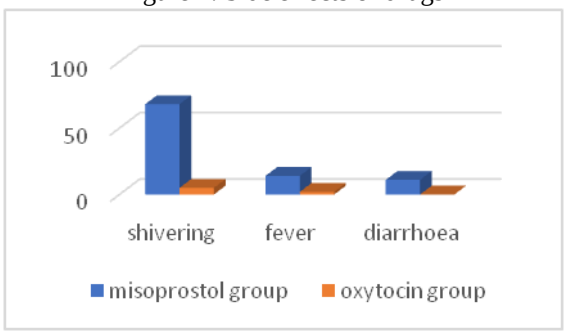
Complication	**misoprostol group**	**oxytocin group**
incidence of PPH	13	9

requirement of additional oxytocics	34	23
need for transfusion	3	2

Table 4: Side effects of drugs

Side effects	**misoprostol group**	**oxytocin group**
shivering	68	5
fever	14	2
diarrhoea	11	0

Figure 2: Side effects of drugs



IV. Discussion

Misoprostol in AMTSL has been reported to effectively reduce the incidence of primary PPH. Misoprostol has emerged as a promising treatment alternative in AMTSL. Despite the progress made in reducing morbidity and mortality due to postpartum hemorrhage (PPH), PPH is still the leading cause of maternal mortality in low-income countries and the primary cause of nearly one-quarter of all maternal deaths globally.

In our study the mean duration of third stage of labour was 4.2 min in misoprostol group and 3.8 min in oxytocin group. The average blood loss was 148ml and 127 ml in misoprostol and oxytocin group. The difference in mean duration of third stage and average blood loss were not statistically significant. similar results were seen in study conducted by Gulmezoglu AM et al[1] .

This study found that there was no statistical significance between the effectiveness of these drugs in AMTSL and same result was shown by Oboro et al.[2,3,4]

Some patients required additional uterotonics in both the groups. Three and two patients required transfusion in misoprostol group and oxytocin group respectively. It was not statistically significant.

The misoprostol group showed significantly more common side effects like fever, shivering and diarrhoea than oxytocin group. The side effects are transient and self-limiting. Misoprostol though a safe alternative in AMTSL, the dose needs to be titrated to maximize the effectiveness and reduce the side effects. Most of the studies were unable to find the statistical significance in the blood loss while comparing these drugs in AMTSL.

V. Conclusion

Through AMTSL, the third stage of labour is shortened by 50% and amount of blood loss by 20%, hence adopted as a worldwide wide strategy to reduce bleeding after delivery.[5] Misoprostol and oxytocin were equally effective and substantially reduce postpartum the blood loss. Oxytocin, though had no side effects, Misoprostol which is as effective as oxytocin can be adopted for the active management of third stage of labour, with minimal self-limiting side effects. Misoprostol has the advantage of long shelf life, safe in unskilled hands and useful in low resource settings. The use of misoprostol as an alternative uterotonic should not detract from the objective of making oxytocin widely available and accessible.

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