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# Role of Rectal Misoprostol Versus Intramuscular Oxytocin In The Active Management Of Third Stage Of Labour.

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***Abstract:***
***Objectives:*** *Atonic postpartum hemorrhage accounts for 80% of cases of postpartum hemorrhage and active management of third stage of labour has become a central component of postpartum hemorrhage reduction strategies. This study is conducted*

- *To assess and compare the blood loss at delivery between the rectal misoprostol and intramuscular oxytocin groups.*
- *To evaluate the change in haemoglobin levels in each group.*
- *To estimate the incidence of adverse effects of rectal misoprostol and intramuscular oxytocin groups.*

***Materials And Methods:*** *This study was a prospective non randomized controlled study in which 100 primigravida at term who had vaginal delivery were divided into two groups. Rectal Misoprostol (600 mcg) versus intramuscular Oxytocin(10 international units) at the time of delivery of anterior shoulder .*
*Blood loss was estimated, Haemoglobin and PCV levels were estimated pre and post delivery.*
***Results:*** *Mean blood loss was 175 ml in misoprostol group 212 ml in oxytocin group.*
*There was a mean difference of 1.08 g/dl and 1.24 g/dl between predelivery and postdelivery haemoglobin levels noted in misoprostol and oxytocin groups respectively.*
***Conclusions:*** *Administration of rectal misoprostol is as effective as intramuscular oxytocin in terms of reduction in haemoglobin concentration and PCV 24 hours after delivery when compared to predelivery levels. Misoprostol offers the advantage of administration by unskilled health workers and is thermostable and cheap and hence can be used in poor resourse settings.*
***Keywords:*** *Rectal misoprostol, intramuscular oxytocin, blood loss.*

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## I. Introduction

Atonic postpartum hemorrhage(PPH) accounts for a mortality rate of 1,40,000 per year and 80% of causes of PPH. Active management of third stage of labour(AMTSL) is a prophylactic deliberate effective and central component of PPH reduction strategies.
Uterotonic administration, controlled cord traction and uterine massage constitute the primary components of AMTSL.

This study is conducted to compare the effectiveness of rectal misoprostol and its safety profile versus intramuscular oxytocin in AMTSL to prevent postpartum haemorrhage.

## II. Materials And Methods

This study was a prospective non randomized controlled study, conducted in 100 primigravida in department of obstetrics and Gynaecology, Gandhi Medical College, during the study period September 2013 to August 2014.

**Inclusion criteria:**

- Primi gravida with singleton pregnancy
- Term gestation with vertex presentation
- Spontaneous labour
- Prelabour HB more than 8g/dL

**Exclusion criteria:**

- Multi gravida
- Multiple gestation
- Coagulation abnormalities
- Medical comorbidities
- Traumatic post partum hemorrhage

All primigravida admitted to the labour room were assessed with detailed clinical history, general physical examination and obstetric examination. Admission tests like amniotic fluid index and non stress test were performed. Informed written consent was obtained after explicit explanation and counselling regarding the study. All parturients were draped with brass V drapes. Graduated measuring jar and calibrated weighing scale to weigh the blood soaked mops was laid out. Out of the 100 parturients recruited into the study, 93 completed the study as per the protocol. 7 parturients were excluded from the study and 3 parturients developed cervical tears and 4 parturients required foreceps application for delivery.

At the time of delivery of anterior shoulder, parturients alternatively received either intramuscular oxytocin (10IU) or rectal misoprostol (600 mcg). Under buttock drapes were used to collect the blood following vaginal delivery. Pre and post delivery mops were weighed to estimate the blood loss.

100 gms of increasing weights of mops = 100 ml of blood loss. Blood loss in third stage of labour was the sum of blood volume (ml) measured using graduated jar and blood loss from weighing the blood soaked mops. Hemoglobin and PCV levels were estimated pre and post delivery.

**PICTURES:**

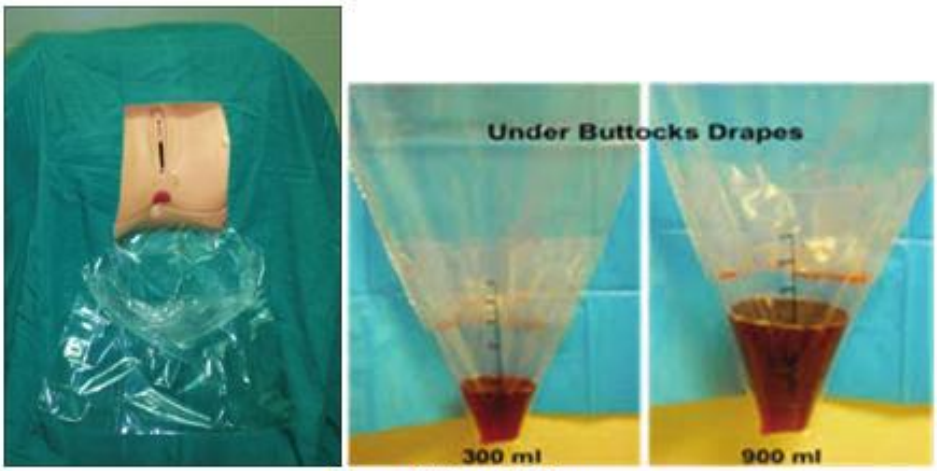


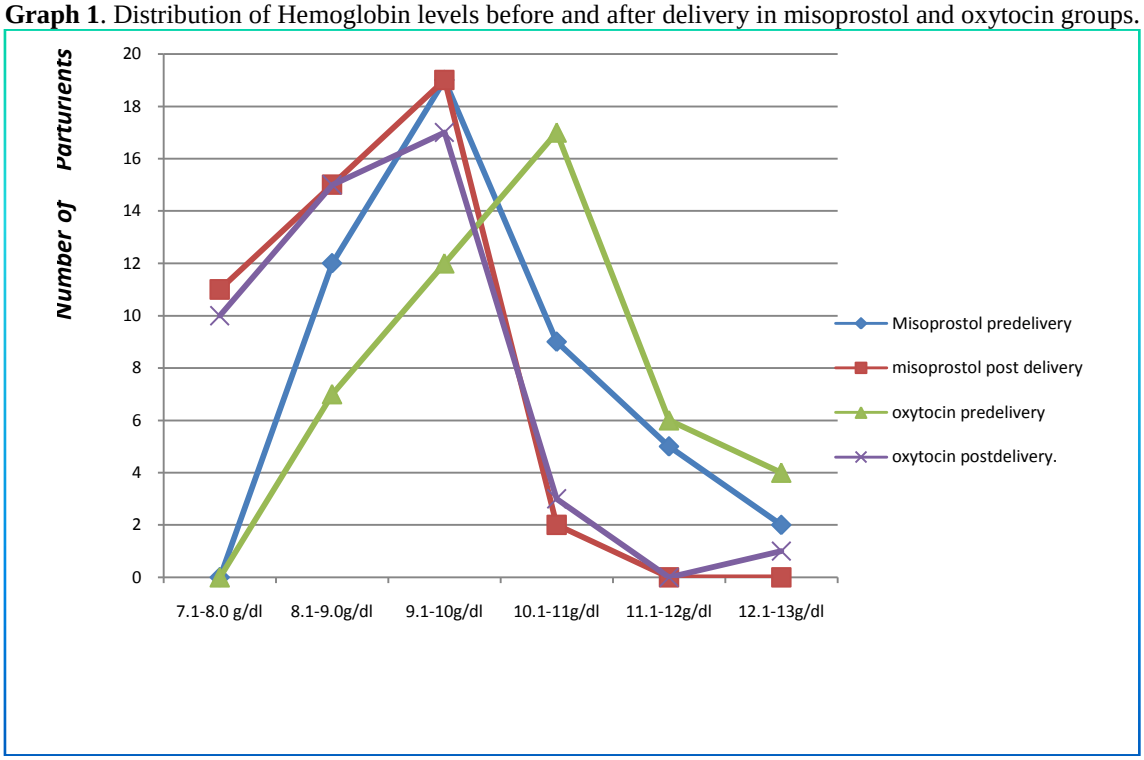

**Figure 1 Brass V drape**

**Figure 2: weighing Scale**

**Figure 3: Measuring jar**

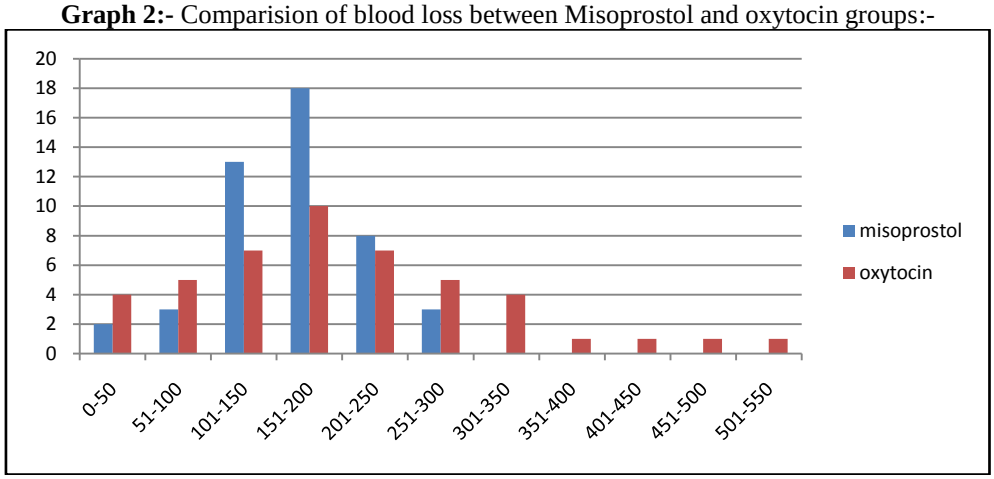
## III. Results

**Graph 1**. Distribution of Hemoglobin levels before and after delivery in misoprostol and oxytocin groups.

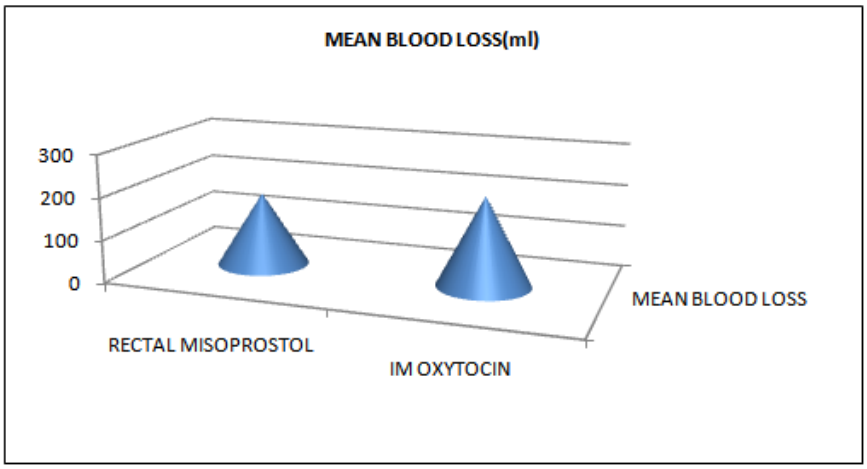



Majority of the patients in this study were noted to have a blood loss between 100 to 250 ml in both of the Misoprostol and Oxytocin groups.Mean blood loss was 175ml in Misoprostol group and 212 ml in the Oxytocin group.

**Graph 2:-** Comparision of blood loss between Misoprostol and oxytocin groups:-




**Graph3**. Mean blood loss (ml).




There was a mean difference of 1.08 g/dL and 1.24 g/dL between the pre delivery and post delivery hemoglobin levels noted in the misoprostol and oxytocin groups respectively. These particular differences were not statistically significant (Chi square value – 0.004, P value 0.49)

**Table 1**:-Mean Hemoglobin levels (g/dL) before and after delivery:

| | Predelivery | Postdelivery | Mean difference | Chi square | P-value |
|---|---|---|---|---|---|
| Rectal misoprostol | 10.13 | 9.05 | 1.08 | 0.004 | 0.49 |
| IM oxytocin | 10.48 | 9.24 | 1.24 | | |

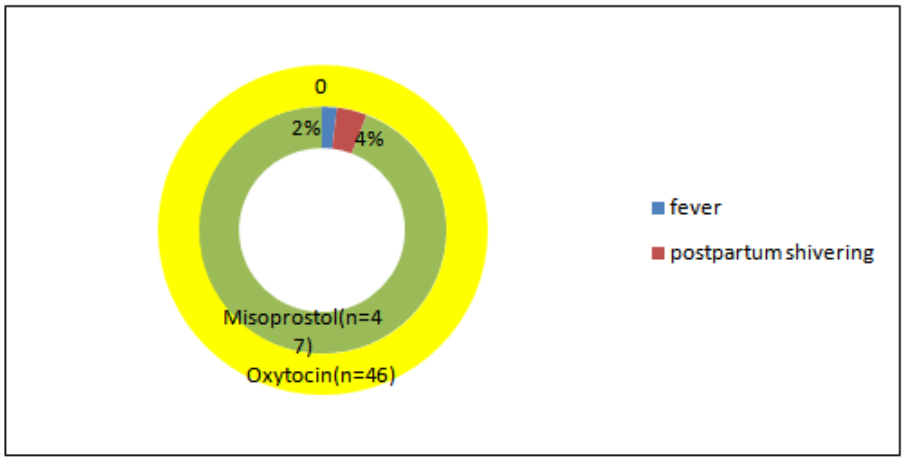
There was a mean difference of 3.17 and 3.6 between the pre delivery and post delivery Packed Cell Volumes (PCV) noted in the misoprostol and oxytocin groups respectively. These particular differences were not statistically significant. (Chi square value – 0.001, P value 0.48)

**Table 2:**-Mean PCV values before and after delivery.

| | Predelivery | Postdelivery | Mean difference | Chi square | P-value |
|---|---|---|---|---|---|
| Rectal misoprostol | 30.38 | 27.21 | 3.17 | 0.001 | 0.48 |
| IM oxytocin | 31.33 | 27.73 | 3.6 | | |

6 % of patients in the Misoprostol group developed adverse affects which were not life threatening. 2% of patients developed fever, while 4 % of patients developed post partum shivering in the Misoprostol group. None of the parturients in the oxytocin group had any side effects.

**Graph 4:-** Adverse affects.



## IV. Discussion

Prophylactic administration of utertonics to reduce blood loss from atonic PPH in the active management of third stage of labour is rising day by day, significantly, universally. Misoprostol use in AMTSL is increasing enormously especially in poor resource settings.

Average blood loss in misoprostol group was approximately 175 ml where as the oxytocin group parturients had a blood loss of 212 ml. The mean differences in Hemoglobin and Packed Cell Volumes before and after delivery in both misoprostol and oxytocin groups were statistically not significant.

No adverse reactions were noted in the oxytocin group while 6% of the parturients in the misoprostol group had non life threatening side effects.

## V. Conclusions

Administration of rectal misoprostol in the active management of third stage of labour in primigravida parturients is as effective as intramuscular oxytocin in terms of reduction in Hemoglobin concentration in Packed Cell Volume, 24 hours after delivery when compare with before delivery levels.

Rectal route of administration of misoprostol offers the advantage of administration by unskilled health workers making it an important medication in the underserved regions to prevent PPH. No requirement for refrigeration for storage of Misoprostol adds to its potential use in poor resource settings.

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