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# A Comparative Study of Misoprostol/Methylergometrine for Active Management of the Third Stage of Labour In Siddhartha Medical College, Govt General Hospital, Vijayawada.Ap

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***ABSTRACT***
***OBJECTIVES****- To compare misoprostol, methyl ergometrine for active management of the third stage of labour.*
***MATERIALS AND METHODS***
*A total of 200 women of 37 weeks to 42 weeks of gestation delivering vaginally in Siddhartha Medical College, Govt. General Hospital,Vijayawada, Andhra Pradesh.200 women allocated into 2 groups of 100 each to receive 600 mcg sublingual misoprostol, or 200 mcg I.M. methyl ergometrine respectively. Primary outcome measure was blood loss in the third stage of labour; secondary measures were duration of the third stage, side effects, and complications.*
***RESULTS***
*Subjects who received 600 mcg of misoprostol had the least blood loss (113 ml), in I.M methyl ergometrine blood loss was 173ml. The shortest mean duration of the third stage was with misoprostol (4.34 min) ,with methyl ergometrine [5.13min] and Shivering and pyrexia were observed in misoprostol group, and raised blood pressure in methyl ergometrine group.*
***CONCLUSION***
*Misoprostol is more effective than Methylergometrine in active management of the third stage of labour. Misoprostol therefore can be used in places where facilities of storage and parenteral administration of Methylergometrine is limited.*
***KEYWORDS***
*Postpartum Haemorrhage, Misoprostol, Methylergometrine, Methergine.*

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## I. Introduction

PPH has been a nightmare for obstetricians since centuries. In developing countries, PPH continues to be a leading cause accounting for 25- 43% of maternal deaths.1 Atonic PPH is the most common of PPH and the leading cause of maternal death.2 One intervention that has been promoted as an effective method in preventing atonic PPH is the active management of the third stage of labour.2 By various studies conducted it has been proved the prevention of PPH can be achieved by active management of the third stage of labour in almost 40% of cases. Several drugs reduce PPH by stimulating the uterus to contract. ergot derivatives have been used for decades, although oxytocin is the drug of choice, in some centers, Methylergometrine is still being used. Several prostaglandins are used as the second or third line agents. These drugs, however, must be refrigerated to remain effective. moreover most uterotonics must be administrated by injection; which requires sterile equipment and training in safe administration, prerequisites which are unavailable for most women delivering in poor underdeveloped countries. Misoprostol, a prostaglandin E 1 analog, is heat stable and can be administered orally, rectally, or sublingually. Most of the randomized studies of prophylactic misoprostol have used oral and rectal administration, though a recent pharmacokinetic study showed that sublingual administration achieves the highest peak concentration and the best bioavailability. The purpose of this study was to compare these most frequently used uterotonic agents in terms of their efficacy and side effects.

**Aims and Objectives**

A comparative study of misoprostol, methyl ergometrine for active management of the third stage of labour with regards to their influence on-

1. Duration of the third stage of labour.

2. Amount of blood loss.
3. Adverse effects.
4. Need for additional uterotonics in each group.

## II. Materials And Methods

Source of data Source- 200 patients admitted to labour ward of OBG Dept of Siddhartha Medical College, Govt. General Hospital,Vijayawada.

200 pregnant women undergoing spontaneous or induced labour with intended vaginal delivery were included .Sampling method is systematic random sampling .study type is prospective randomzised controlled trail. the women were selected according to the following criteria;

**Inclusion Criteria**

Women between 37–42 weeks of gestation, Deliveries through vaginal route were scheduled, Singleton foetus, Cephalic presentation. Consent of the patient and relatives will be taken after explaining the procedure,

**Exclusion Criteria**

Pregnant women with Any high risk pregnancy, Previous cesarean section, or any previous surgery of the uterus, Instrumental delivery, History of manual removal of placenta in previous pregnancy, Anaemia, Twins, polyhydramnios, Malpresentation, Intrauterine death, Fetal anomaly ,Contraindications for induction of labour.

**Method of Collection of Data**

The cases were divided into two groups of 100 each. Group I, 100 subjects were given 600 mcg misoprostol sublingually, group II, 100 subjects were given 0.2 mg of methyl ergometrine I.M. after the delivery of the baby but before separation of the placenta. Placenta was delivered by controlled cord traction (brandtandrew's method) After the delivery of the placenta duration of the third stage was noted in minutes. The placenta was inspected for its completeness and the total amount of bleeding measured after breaking the clots and cleansing the whole vagina and cervix of the clots. The amount of blood loss was measured with number of equal sized pads soaked. One full soaked pad = 20 ml of blood loss. Comparison will be made in terms of quantitative assessment of blood loss, duration of third stage, incidence of PPH, additional requirements of drugs, side effects and efficacy. The results observed were subjected to statistical analysis by students't' test, odds ratio, chi-square test and a 'p' value of $< 0.05$ was considered as significant.

Patients were monitored for 6 hours post partum, to see for developmental side effects like abdominal pain, nausea, vomiting, shivering and pyrexia. Vitals like blood pressure and pulse rate are monitored. In case of excessive blood loss, other uterotonics were given immediately. Hb% was measured before and 24 hours after delivery, to quantify the blood loss.

## III. Results

This study was done in Siddhartha Medical College, Govt. General Hospital, Vijayawada, Andhra Pradesh. 200 women undergoing full term vaginal delivery with or without episiotomy were enrolled to compare to efficacy and side effects of Misoprostol with IM methyl ergometrine for management of III stage of labor. Study was done over a period 1 years and source of data being 200 women enrolled and randomly distributed to two groups. 100 women in group I received misoprostol, group II received Methylergometrine.

Table 1- Age Comparison- The majority of patients were in age group of 20 -24 years. group I (misoprostol) 24.07 ± 4.01 yrs. group II (methyl ergometrine) 23.71 ± 3.51 yrs. The majority of the patients are nulliparous. Table 2:In group II (misoprostol) 55% nulliparous, in group III methyl ergometrine 62% are nulliparous. The results were not statistically significant. Table 3: mean duration of third stage of labour- The mean duration group I (misoprostol) is 4.34 ± 1.08 minutes, group II (methyl ergometrine) is 5.13 ± 1.41 minutes. Table 4: mean blood loss during third stage of labour- The mean blood loss in group I (misoprostol) is 113.33 ± 27.28 ml and in group II (methyl ergometrine) 173.35 ± 90.17ml. Table 5: Requirement For Additional Uterotonics- The need for additional requirements in group I (misoprostol) is 1% and in group II (methyl ergometrine) is 7%. Table 6- Side Effects- The side effects observed in group I (misoprostol) are shivering (in 23% of cases) and fever (in 11% of cases), in group II are nausea (in 22% of cases) and vomiting (in 10 % of cases). Table 7: The complications observed in group I (misoprostol) are PPH 1%, in group II (methyl ergometrine) are PPH 1%, retained placenta 2%.

| **Age (Years) (n=100)** | **Group I (Misoprostol)** | **Group II (Methyl Ergometrine)** |
|---|---|---|
| < 20 yrs. | 20 | 6 |
| 21-25 | 46 | 34 |
| 26-30 | 34 | 60 |

| | | |
|---|---|---|
| >30 | 0 | 0 |

***Table 1. Age Comparison between Two Groups***

| **Parity (n= 100)** | **Group I (Misoprostol)** | **Group II Methyl Ergometrine)** |
|---|---|---|
| Nulliparous | 55 | 62 |
| Multiparous | 45 | 38 |

***Table 2. Parity Comparison between Two Groups***

| | **Group I** | **Group II** |
|---|---|---|
| Range | 3-6 | 3-9 |
| Mean duration of Third Stage of Labor (Mins) | 4.34 ± 1.08 | 5.13 ± 1.41 |

***Table 3. Comparison of Mean Duration of Third Stage of Labour***

| | **Group I** | **Group II** |
|---|---|---|
| Mean Blood Loss (ml) | 113.33 ± 27.2 | 173.35 ± 90.17 |

***Table 4. Comparison Mean Blood Loss During Third Stage of Labour***

| | **Group I** | **Group II** |
|---|---|---|
| Need for Additional Uterotonics | 1% | 7% |

***Table 5. Comparison for Requirement for Additional Uterotonics***

| **Side Effects** | **Group I** | **Group II** |
|---|---|---|
| Headache | 0 | 1% |
| Shivering | 23% | 3% |
| Fever | 11% | 0 |
| Nausea | 0 | 22% |
| Vomiting | 0 | 10% |

***Table 6. Comparison of Side Effects***

| **Complications** | **Group I** | **Group II** |
|---|---|---|
| PPH | 1% | 1% |
| Retained Placenta | 0 | 2% |

***Table 7. Comparison of Complications***

## IV. Discussion

According to who recommendations for prevention of PPH "active management of third stage of labour " should include administration of an uterotonic soon after birth of the baby, delayed cord clamping and delivery of the placenta by controlled cord traction, followed by uterine massage.[2] Adequate storage and parenteral administration of an oxytocic by a trained health worker is not feasible in many developing countries including india. misoprostol offers distinct advantages because it is stable at room temperature, affordable and easy to administer.

The present study compared the duration of the third stage of labour, blood loss and adverse effects of two regimes. The sublingual route of administarion of misoprostol was chosen in the present study because of better pharmamokinetics compared with oral or vaginal routes.[3] Sublingual tablets were easy to administer and well accepted by women.

In this present study the mean age in group I (misoprostol) 23.92 ± 3.19 years and in group II (methyl ergometrine) is 25.89 ± 2.79. The difference between the age groups is not statistically significant. By comparing the parity, the nulliparous cases in group I (misoprostol) 55%, in group II (methyl ergometrine) 62%. The multiparous cases in group I (misoprostol) are 45%, group II (methyl ergometrine) are 38%. There was no significant difference regarding parity. In the present study mean duration of third stage was 4.34 ± 1.08 minutes, 5.13 ± 1.41 minutes in methyl ergometrine group. The difference between the mean of three groups is significant (p= 0.00004)

In the present study the side effects observed in group I (misoprostol) are shivering (in 23% of cases) and fever (in 11% of cases), in group II are nausea (in 22% of cases) and vomiting (in 10 % of cases). In the present study complications occurred in the oxytocin group are nil, in misoprostol group are PPH in 1% cases, in methyl ergometrine group are PPH are 1%, in retained placenta 2%.

## V. Conclusion

Postpartum hemorrhage is a major obstetrical complication and is one of the prime causes of maternal morbidity and mortality. We concluded that misoprostol is more effective than Methylergometrine in the active management of third stage of labor. Methylergometrine has special storage requirements with temperature between 2 and 8 degree centigrade and have to be given parentally; whereas misoprostol is stable at high temperature, has a shelf life of several years, and can be administered orally or sublingually . Whereas with misoprostol we observed side effects which settled with time without any treatment. Hence if misoprostol is made available to the trained birth attendants, who supervise majority of the births in India, the lives of many women dying of atonic PPH can be saved. In low income countries maternal anemia compounds the problem of PPH; therefore administration of sublingual misoprostol could reduce maternal morbidity and mortality. Avoiding the intravenous or intramuscular route allows easier administration and this could lead to widespread acceptance of active management of the third stage of labor. Any attempt to keep blood loss less than 100ml would be a substantial intervention in low-resource settings where most women are anemic, and a blood loss of even 500ml may have adverse effects. These advantages of misoprostol make it a feasible drug to be used in the routine management of the third stage of labor.

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