

## ROLE OF INTRAUMBILICAL INJECTION OF OXYTOCIN VERSUS MISOPROSTOL IN THE MANAGEMENT OF THIRD STAGE OF LABOUR: A COMPARATIVE STUDY OF 80 CASES AT A TERTIARY HEALTH CARE CENTRE IN WESTERN INDIA

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### ABSTRACT

**Introduction:** PPH is a leading cause of maternal mortality and morbidity worldwide. Many deaths associated with PPH could be prevented with prompt recognition and more timely and aggressive treatment. The medications most commonly used in PPH management are uterotonic agents.

**Aims and Objectives:** The aim of the study is to compare intraumbilical vein injection of oxytocin versus misoprostol in management of third stage of labour and to assess the effectiveness of drugs for prevention of blood loss during third stage of labour by reducing the duration of third stage of labour.

**Methodology:** This is the prospective study of randomized cases attending the hospital named SHETH LG HOSPITAL AND NARENDRA MODI MEDICAL COLLEGE. The study was conducted during on the cases attending the labour room for 1st May 2022 to 30th April 2023.

**Conclusion:** Misoprostol is as effective as oxytocin in reducing blood loss and duration of third stage of labour.

**Keywords:** Postpartum haemorrhage, Oxytocin, Misoprostol

### INTRODUCTION:

Postpartum haemorrhage (PPH) is commonly defined as blood loss exceeding 500 millilitres (mL) following vaginal birth and 1000 mL following caesarean section.<sup>1</sup> Severe

bleeding after childbirth - postpartum haemorrhage (PPH) - is the leading cause of maternal mortality world-wide. Each year, about 14 million women experience PPH resulting in about 70,000 maternal deaths globally. Even when women survive, they often need urgent surgical interventions to control the bleeding and may be left with lifelong reproductive disability.<sup>2</sup> It can be prevented by proper management of third stage of labour.

Third stage of labour is more crucial stage of labour than other two stages. Various drugs can be used by various routes for management of third stage of labour. Two commonly used drugs are oxytocin and ergometrine.

Retained placenta is a major cause of postpartum haemorrhage. Reducing the time of delivery of placenta through active management of third stage of labour prevent uterine atony and postpartum haemorrhage. Intraumbilical injection of oxytocin or misoprostol helps in early delivery of placenta and reducing the time of third stage of labour.

### **AIMS AND OBJECTIVES:**

#### **AIMS:**

The aim of the study is to compare intraumbilical vein injection of oxytocin versus misoprostol in

1. Reducing duration of third stage of labour.
2. Reducing the amount of the blood loss in third stage of labour.

#### **OBJECTIVES:**

The objective is to assess the effectiveness of drugs for prevention of blood loss during third stage of labour by reducing the duration of third stage of labour.

#### **METHODOLOGY:**

This is the prospective study of randomized cases attending the hospital named SHETH LG HOSPITAL AND NARENDRA MODI MEDICAL COLLEGE.

The study was conducted during on the cases attending the labour room from 1st May 2022 to 30th April 2023.

Total of 80 cases were studied during the study period.

The cases were randomly divided into two groups:

- Group A (oxytocin group)
- Group B (misoprostol group)

#### **INCLUSION CRITERIA**

- Full term pregnancy delivered vaginally
- Single alive fetus with cephalic presentation
- Primigravida and multigravida

#### **EXCLUSION CRITERIA**

- Premature delivery less than 36 weeks
- Blood loss more than 500 ml
- High risk pregnancy (hypertension, diabetes, previous LSCS)

- Blood loss due to secondary post-partum haemorrhage (traumatic postpartum haemorrhage, postpartum haemorrhage due to coagulation disorder)
- Cases of abruption placenta and placenta previa
- Contraindication of misoprostol
- Polyhydramnios
- History of caesarean delivery or uterine scar
- Known uterine anomaly
- Instrumental delivery
- Chorioamnionitis
- Multiple gestation
- 3rd and 4th degree of perineal tear

After the delivery of the baby and clamping and cutting the cord oxytocin or misoprostol was given intraumbilical in respective study groups.

Group A: After the delivery of the baby and clamping the cord and cutting it, 10 IU of oxytocin in 30ml of normal saline was injected in umbilical vein.

Group B: After the delivery of the baby and clamping the cord and cutting it, 800 mcg of misoprostol dissolved in 30 ml of normal saline was injected in umbilical vein.

Placental delivery time, bleeding after parturition and haemoglobin drop or any other complication, if any were compared in both the groups.

Placental delivery time after the administration of the oxytocin and misoprostol was compared. Placental delivery time was considered when complete placenta is visible outside the introitus.

Blood loss was measured using a semi-quantative method by weighing the blood soaked pads against the dry pads.

Haemoglobin drop was compared by doing complete blood count at the time of admission and repeating it after 24 hours of delivery of placenta.

## RESULTS:

In this study the total of 80 cases were studied which were equally divided into two groups.

- Group A (Oxytocin group)
- Group B (Misoprostol group)

Majority of subjects were in the age group of 19-29 years.

The mean age group in Group A was 22 years and Group B was 22.5 years. Majority of them were parity one and two. Mean gestational age in Group A was 37.5 weeks and Group B was 38 weeks.

Table 1: Placental Separation Time in Both Group

Time (minutes)	Group A	Group B
3:00-5:59	36	34
6:00-8:59	3	6
9:00-11:59	1	0
12:00-14:59	0	0

≥15	0	0
TOTAL	40	40
Mean Placental Separation Time	4.86 minutes	4.95 minutes

Table 2: Comparison of Amount of Blood Loss in Both Groups

Amount of blood loss (mL)	Group A	Group B
151-200	10	8
201-250	29	30
251-300	1	2
Total	40	40
Mean amount of blood loss	214.25 mL	218 mL

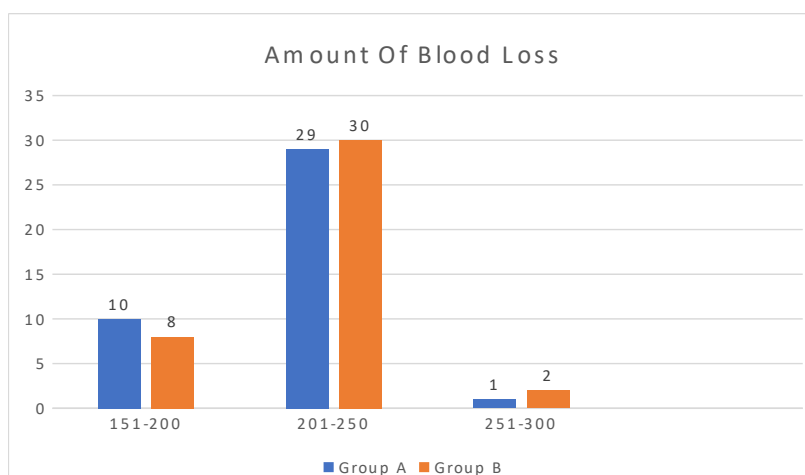


Table 3: Mean Haemoglobin Level in Both Groups

Haemoglobin level	Group A	Group B
On admission (gm/dL)	10.8	10.5
After 24 hours (gm/dL)	10.1	9.7
Difference	0.7	0.8

Table 4: Side Effects in Both Groups

Side Effects	Group A	Group B
Shivering	2	3
Nausea	1	1
Vomiting	1	1
Fever	0	2
Diarrhoea	0	1
Headache	1	0
<b>Total</b>	<b>5</b>	<b>8</b>

There was no significant difference in placental separation time between two groups. The mean separation time in oxytocin group was 4.86 minutes and misoprostol group was 4.95 minutes.

The amount of blood loss in both groups were comparable. There was no need for post-partum blood transfusion in any group.

There was no significant difference in decrease in haemoglobin levels between both groups. The mean decrease was 0.7 gm/dL for oxytocin group and 0.8 gm/dL for misoprostol group.

Both groups had similar incidence in side effects like shivering, nausea, vomiting, diarrhoea, headache. There was significantly more incidence of fever in misoprostol group and headache in oxytocin group.

## **DISCUSSION:**

The active management of the third stage of labour is traditionally performed with the routine use of intravenous oxytocin.<sup>3</sup> Misoprostol was chosen as the substitute for oxytocin because it has similar advantages with minimal side effects, low shelf life, easy availability, cost effective and easy to use. It doesn't require special storage conditions.

Our study showed that average blood loss was 214.25 mL with use of oxytocin and 218 mL with misoprostol. There was no need for blood transfusion in either group after delivery.

The average duration of placental separation time with oxytocin was 4.86 minutes and with misoprostol was 4.95 minutes. This was not statistically significant. The findings are comparable with several other studies comparing misoprostol with oxytocin.

Parson et al.<sup>4</sup> compared rectal misoprostol 800 µg versus oxytocin 10 IU intramuscular with delivery of anterior shoulder. The results were comparable in terms of change in haemoglobin concentration before and after delivery, need for additional oxytocic, estimated blood loss and mediation side effects. The results were comparable in both groups.

Puri et al.<sup>5</sup> concluded that intra-umbilical injection was a simple, effective, and non-invasive method for actively managing the third stage of labor.

The fever rate was higher in misoprostol group in our study, but there were no significant differences in other side effects between two groups. These are similar findings that confirmed by Haqueet al.<sup>6</sup> and Blum et al.<sup>7</sup> Parson et al.<sup>4</sup> found higher rates of shivering and fever with misoprostol than oxytocin. (Shivering 80.7% vs. 3.6%, fever 11.4% vs. 0% respectively) This is due to central effect of prostaglandin E on thermoregulatory centres. However, none of the side effects required additional treatment to alleviate them and none of them were life threatening. Lumbiganon et al.<sup>8</sup> have reported that these symptoms may be of limited clinical concern.

## **CONCLUSION:**

We concluded from our study that misoprostol is as effective as oxytocin in reducing blood loss and duration of third stage of labour. Intraumbilical misoprostol is well tolerated with advantage of ease of storage at room temperature. It is more cost effective. Therefore, it will contribute in reducing maternal morbidity and mortality due to atonic PPH and blood loss.

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