



## COMPARISON OF INTRAVENOUS TRANEXAMIC ACID AND SUBLINGUAL MISOPROSTOL ON BLOOD LOSS DURING CESAREAN SECTION

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### ABSTRACT

**Objectives:** Comparing intravenous Tranexamic acid (TA) and sublingual Misoprostol on blood loss during cesarean section. **Materials And Methods:** 100 women who underwent elective caesarean section were randomly divided into two groups. The first group received 400 µg sublingual misoprostol immediately after the delivery and the second group received tranexamic acid 1gm IV infusion 10 minutes before skin incision. **Results:** The misoprostol significantly reduced blood loss compared to Tranexamic acid (190.21 ± 86.64 ml vs 272.31 ± 102.17 ml) and it was statistically significant (P < 0.0001). **Conclusion:** Total bleeding was significantly lower in sublingual Misoprostol as compared to intravenous Tranexamic acid.

### KEYWORDS : Cesarean Section, Misoprostol, Tranexamic Acid

#### INTRODUCTION:

Obstetrical haemorrhages are the most common cause of morbidity and mortality of women<sup>1,2</sup>. Different causes have been proposed for cesarean related haemorrhage, such as uterine atony, trauma to the genital tract, and retained placenta<sup>3,4</sup>. oxytocin, has been routinely used to reduce the frequency of cesarean related haemorrhage<sup>5</sup>. However, 10 to 42% of women receiving oxytocin were found to require additional uterotonic agents, such as ergot alkaloids and prostaglandins. Misoprostol is a prostaglandin E1 analogue, which has strong uterotonic activity through selectively binding E-series prostanoid receptors and is also relatively inexpensive. World Health Organization has enlisted it as an essential medicine for primary PPH in 2011<sup>6</sup>. Tranexamic acid is a synthetic derivative of the amino acid lysine that exerts its antifibrinolytic effect through the reversible blockade of the lysine-binding sites on plasminogen molecules. There have been studies that showed that Tranexamic acid injection significantly reduced the blood loss from the placental delivery to 2 hours postpartum without complications of thrombosis. The present study was carried out to compare intravenous Tranexamic acid and sublingual Misoprostol on blood loss during cesarean section.

#### MATERIALS AND METHODS:

The present study was conducted at KAPV Govt medical college hospital from April 2019 to December 2019 after approval from the Medical Ethics Committee. One hundred pregnant women between 38 to 42 weeks of gestation posted for elective cesarean section were selected and Informed consent was obtained. Women with eclampsia, coagulation disorders, abnormal placenta and heart disease were excluded from the study. The participants were randomly allocated to two groups (50 patients in each group)

Group A - received sublingual Misoprostol 400 µg after delivery of the baby

Group B - received Tranexamic acid 1gm slowly intravenously 10 min before skin incision

Preoperative Hb was checked for all patients. Spinal anesthesia was performed using bupivacaine in L4 to L5 level. For all the subjects, CS was performed with lower segment incision. Group A received 400 µg misoprostol sublingually, while group B received intravenous injection of 1gm Tranexamic acid. Simultaneously, all subjects received an intravenous infusion of oxytocin 10 units in 500 ml of ringer lactate at 10 mL/min. The Primary Outcome measures were the determination of Intraoperative blood loss and change in Hb levels. At the end of the operation, the amount of bleeding was measured based on the number of mops used and the blood in the suction container. Hemodynamic variables were monitored. In addition, the patient's Hb was determined 24 h after surgery. Drug side effects, including nausea, vomiting, abdominal pain, diarrhoea, fever and chills were evaluated up to 24 h after surgery. Data are expressed as mean ± standard deviation. All outcomes were assessed using Chi-squared test and independent t-test, P < 0.05 was considered statistically significant. statistical analyses were done

using SPSS version 16.0 statistical software.

#### RESULTS:

The mean age, gestational age and preoperative Hb were comparable in both the groups (Table 1).

**Table 1 Demographic pattern**

	Group A (Misoprostol)	Group B (Tranexamic acid)	P value
Age(years)	23.50±4.8	23.70±6.20	>0.05
Gestational age	39.36±1.30	39.42±1.25	>0.05
Hb(g/dL)	11.20±0.57	11.17±1.22	>0.05

The mean blood loss in the misoprostol group was 190.21 ± 86.64 ml and in the Tranexamic acid group was 272.31 ± 102.17 ml. The difference was statistically significant (P > 0.0001). The mean haemoglobin levels reduction in the Tranexamic acid group was higher than the misoprostol group (- 2.64 ± 0.52 vs - 2.10 ± 0.42 g/dL) and was statistically significant (P > 0.0001) (Table 2).

**Table 2. Comparison of outcome parameters**

	Group A (Misoprostol)	Group B (Tranexamic acid)	P value
Mean blood loss(ml)	190.21 ± 86.64	272.31 ± 102.17	<0.0001
Mean Hb level reduction(g/dl)	-2.10 ± 0.42	-2.64 ± 0.52	<0.0001

Haemodynamic parameter changes were comparable in both the groups. The need for additional uterotonics was almost similar in both the groups. No major intraoperative or postoperative adverse effects were noted in any group.

#### DISCUSSION:

Despite routine use of oxytocin during cesarean delivery, a number of women, especially those at high risk, may develop uterine atony and hemorrhage either during surgery or in the immediate postoperative period<sup>7</sup>. Misoprostol is an evidence-based alternative to other uterotonic agents due to its wide availability, low cost, stability at room temperature, and ease of use<sup>8</sup>. Intravenous administration of TXA has been routinely used for many years to reduce hemorrhage during and after many surgical procedures. It has also been shown to be effective and safe in women undergoing LSCS<sup>9,10</sup>. In our study, total blood loss from placental delivery until end of cesarean section was significantly lower in misoprostol group than Tranexamic acid group. Pakniat and Khezri showed that the combination of misoprostol and oxytocin was more effective than combination of TA and oxytocin in reducing bleeding after CS<sup>11</sup>. Chaudhuri et al. showed that sublingual misoprostol as an adjunct to oxytocin seemed to more effectively reduce PPH than oxytocin alone<sup>12</sup>. Furthermore, Ugwu et al. reported that addition of sublingual misoprostol to intravenous oxytocin reduces blood loss after delivery and decreases the need for additional uterotonics<sup>13</sup>. Pakniat et al demonstrated that total bleeding was significantly lower after administration of sublingual misoprostol as compared to the TA during and after the lower segment CS<sup>14</sup>.

**CONCLUSION:**

This study concluded that total blood loss was significantly lower after administration of sublingual misoprostol as compared to the intravenous Tranexamic acid during and after cesarean section, without adverse hemodynamic effects.

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