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Original Research Paper

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USE OF TRANEXAMIC ACID IN PROPHYLAXIS OF POSTPARTUM HEMORRHAGE IN CAESAREAN AND VAGINAL DELIVERIES: A CASE STUDY IN TERTIARY CARE HOSPITAL

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ABSTRACT Postpartum hemorrhage (PPH) is a potential life-threatening complication of both vaginal and caesarean deliveries. It accounts for nearly 25% of maternal deaths and approximately 12% survivors suffer from severe postpartum anemia. For a normal woman undergoing Caesarean section, a blood loss of 1000 mL seems to be common and had a minimal effect on women's health status but for a woman with severe anemia or cardiovascular disease undergoing vaginal deliveries, a blood loss of as little as 200 mL may be life-threatening and need additional intervention. Here we have done a comparative study of amount of blood loss in patients who received tranexamic acid with the control group. In our study of 300 patients, 150 patients underwent caesarean delivery while the remaining 150 patients underwent vaginal delivery.

SUMMARY: Use of tranexamic acid was found to decrease the blood loss significantly.

KEYWORDS : Postpartum Hemorrhage, Tranexamic acid.

INTRODUCTION

Postpartum hemorrhage is defined as amount of blood loss in excess of 500 ml, following birth of the baby or as any amount of bleeding from or into the genital tract following birth of the baby up to the end of the puerperium, which adversely affects the general condition of the patient evidenced by rise in pulse rate and fall in blood pressure.

AIMS AND OBJECTIVES

To review and evaluate the use, efficacy and safety of tranexamic acid for prevention of postpartum hemorrhage following vaginal and caesarean deliveries

MATERIALS AND METHOD

Total no of study population: 300
Type of study: Prospective Randomised Case Control Study
Duration: January 2019 to October 2020
Place of Study: Nalanda Medical College and Hospital, Patna.
Sample size: 150 for Caesarean section group.
150 for Vaginal delivery group.

They were allocated in two groups:
1. STUDY GROUP: Subject who received Tranexamic acid.
Out of 150 patients-75 subjects belonged to caesarean section group and 75 patients belonged to vaginal delivery group

2. CONTROL GROUP: Subject who did not receive Tranexamic acid.

Out of 150 patients-75 patients belonged to caesarean section group and 75 patients belonged to vaginal delivery group.

Inclusion Criteria for vaginal delivery group
1. Term ≥ 37 weeks of gestation
2. Singleton pregnancy
3. Informed consent form signed
4. No contraindication to vaginal deliveries

Inclusion Criteria for caesarean deliveries:
Full term primigravida or multigravida with singleton pregnancy delivered by LSCS.

EXCLUSION CRITERIA:
1. History of venous (deep vein thrombosis and/or pulmonary embolism) or arterial (angina pectoris, myocardial infarction, stroke) thrombosis.
2. History of epilepsy or seizure
3. Any known cardiovascular, renal, liver disorders
4. Auto-immune disease
5. Sickle cell disease
6. Severe hemorrhagic disease
7. Placenta previa
8. Abnormally invasive placenta (placenta accreta/ increta/ percreta)
9. Abruptio placentae
10. Eclampsia; hemolysis, elevated liver enzymes, low platelet count (HELLP) syndrome
11. Administration of Low-Molecular-Weight Heparin or antiplatelet agents seven days before delivery.
12. Gravid state more than three were excluded in vaginal delivery group.

ADMINISTRATION OF TRANEXAMIC ACID

Tranexamic Acid is available in 500 mg/5 ml ampoules. The placebo comprised 10 ml distilled water ampoules. Hemoglobin and hematocrit levels were measured before and 12–24 h after delivery.

In cases of vaginal delivery, after delivery of the anterior shoulder, women in the intervention group were given one gram slow i.v Tranexamic acid and the control group were given one gram i.v placebo over 5 minutes. Immediately after birth of the baby, placenta was delivered by active management of third stage of labor. Duration of the third stage was measured and recorded in minutes.

In cases of caesarean delivery, 1 gram of Tranexamic acid were given 10-20 minutes before skin incision. After delivery of the baby, 10 units of oxytocin was administered i.m to both groups.

BLOOD LOSS MEASUREMENT IN VAGINAL DELIVERY :

Immediately after delivery of the baby when all the liquor was drained, a sterile disposable plastic cover of known weight was placed beneath the woman, and a graduated container with a plastic cover was placed under the delivery bed to collect blood loss which was then weighed .Then the patient was given a pre-weighed pads which was weighed 2 hours post partum. The dose of oxytocin received, and other medications administered were recorded for both groups.

In case of perineal tears or episiotomy after inserting a pre-weighed pad in vagina, all gauzes used during episiotomy and perineal repair were included in measurement of blood loss. . Maternal observations were recorded every 15 min in the first hour and every 30 min in the second hour after delivery, and these data were recorded.

Blood loss= (weight of used material-weight of material before delivery) + blood collected in plastic container

Blood Loss Measurement In Caesarean Deliveries :

Blood loss during caesarean section was calculated using suction canister and all used gauzes. Blood loss was measured during two periods of time. The first period was from delivery of the fetus to delivery of the placenta, and the second was from placental delivery to the end of the second hour after childbirth. Blood-soaked gauzes, gowns, sheets and tampons were all weighed before and after use (when they were blood-soaked), and blood loss was estimated.

Quantity of blood loss = (weight of used material + weight of unused material) - (weight of all material prior to surgery) + volume collected in the suction container after placental delivery.

P value < 0.05 is considered significant.

RESULTS:

Table 1: Caesarean Delivery Group

Blood loss	cases (median)	control (median)	Mean difference	P value
Total(ml)	340	450	110	<0.001

The blood loss right from the end of placental delivery to that of two hours postpartum showed median blood loss of 340 ml in cases and 450 ml blood loss in control group. The p value was <0.001. Thus patients who received tranexamic acid before surgery had 110ml less blood loss compared to the patients who did not receive tranexamic acid.

Table 2: Vaginal Delivery Group

Blood loss in ml	Study group		Control group		P value
	Mean	S.D.	Mean	S.D.	
Time of delivery to 30 mins	81.01	50.387	191.65	49.884	0.0001
30 mins to 2 hrs postpartum	27.27	6.17	51.72	9.78	0.0001
Time of delivery to 2 hrs postpartum	108.27	58.570	247.37	58.070	0.0001

The mean blood loss at the end of 2 hrs was 108.27 ml in study group and 247.37 ml in the control group.

DISCUSSION:

Table 1

In our study, there was statistically significant reduction of blood loss.The blood loss from the end of placental delivery to two hours postpartum was 340 ml in study group and was 450 ml in control group. The mean difference in blood loss was 110 ml which gave the p value of <0.001 which was highly statistically significant difference. Thus, the blood loss was nearly 35 % less than in the control group which was significant. The blood loss from the time of placental delivery to end of caesarean section was 350 ml in study group and 380 ml in control group giving p value as <0.001 which was statistically significant.

Table 2

In our study, there was a statistically significant reduction of blood loss in both periods that is from time of delivery to 30 mins and also from 30 mins to 2 hrs postpartum. Mean blood loss from time of delivery to 30 mins was 81.01 ml in study group and was 191.65 ml in control group. Mean blood loss from 30 mins to 2 hour post partum was 27.27 ml in study group and 51.72 ml in control group. Mean total blood loss was 108.27 ml in study group and 247.37 ml in control group. In a study conducted at the Centre Hospitalier Regional Universitaire, France in 2010, the mean total blood loss in the study group was 120ml compared to 232.45ml in the control group.

CONCLUSION:

- Tranexamic acid appears to reduce the blood loss effectively.
- Tranexamic acid administration is not associated with any significant drug reaction.
- To conclude, Tranexamic acid can be safely used in prophylaxis of postpartum hemorrhage in both vaginal and caesarean deliveries without any adverse maternal and fetal outcome.

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