Original Research Paper Gynaecology

A study on efficacy of tranexemic acid in reducing cesarean section blood loss.

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ABSTRACT

Aim: To find whether tranexamic acid is effective in reducing per -operative and post-operative blood loss in lower segment caesarean section and to find out the adverse reactions associated with tranexeminc acid.

Materials and method: This study is randomized control study including 200 antenatal patients admitted for elective and emergency LSCS during the study period between November 2013 to August 2014 in The Institute of Obstretrics and Gynecology, Egmore, Chennai. The patients were randomized by block randomization into a study group (Group A) and control group (Group B). The study group received injection tranexamic acid 15mg/kg dose in 100 ml ringers lactate solution and control group received plain ringer lactate. Quantification of blood loss after delivery of the baby was done.

Results: Tranexamic acid significantly reduced the quantity of blood loss from the end of LSCS to 2 hours postpartum: 40.93 ml in the study group versus 73.7 mL in the control group (p=0.00). It also significantly reduced the quantity of blood loss from placental delivery to 2 hours post-partum: 307.33 mL in the study group, versus 454,5 ml in the control group. (P=0.00). No complications or side effects were reported in either group.

Conclusion: Tranexamic acid significantly reduces the amount of blood loss during and after the LSCS and its use was not associated with any side effects or complication like thrombosis. Tranexamic acid can be used safely and effectively in women undergoing LSCS.

KEYWORDS | Tranexemic acid, TXA, LSCS, Blood loss

Introduction

Obstetric hemorrhage remains one of the major determinants of maternal death in both developed and developing countries. Because of its weight as a leading cause of maternal mortality and morbidity, obstetric hemorrhage (ante-partum and postpartum hemorrhages) must be investigated for national guideline development [1] Haemostatic drugs are not usually used as first-line treatment in post-partum hemorrhage (PPH) [2]. It was authenticated that extensive tissue injury can direct the haemostatic equilibrium toward increased fibrinolysis, leading to coagulopathy and bleeding [3]. Antifibrinolytic drugs, namely tranexamic acid (TXA) have been recognized to decrease blood loss and transfusion needs in various elective surgeries [4]. Furthermore, the Clinical Randomization of an Anti-fibrinolytic in Significant Hemorrhage (CRASH-2) study concluded that tranexamic acid decreases the risk of death in bleeding trauma patients. [5]

Methods and material

This study is randomized control study including 200 antenatal patients admitted for elective and emergency LSCS during the study period between November 2013 to August 2014 in The Institute of Obstretrics and Gynecology, Egmore, Chennai. The patients were randomized by block randomization into a study group (Group A) and control group (Group B). The study group received injection tranexamic acid 15mg/kg dose in 100 ml ringers lactate solution over 10 to 15 minutes prior to skin incision whereas the control group received plain ringer lactate. Both groups received 10 units of oxytocin injection intramusculary after delivery of the baby.

Detailed obstetric and Medical History was taken in all patients. Their weight and Height were recorded. Vital parameters were checked. General, systemic and obstetric examination was done. USG was done to confirm gestational age, fetal wellbeing, liquor status. Complete blood count at the time of admission and on 3rd postoperative period was done. Bleeding Time, Clotting Time at the time of admission. Renal and Liver function test at the time of admission and on 3rd postoperative day.

Quantification of blood loss after delivery of the baby was done. The quantity of blood loss estimation was started after placental delivery. Following the uterine incision the amniotic fluid was fully suctioned in a suction container that has measurement's in milliliters. After the placental delivery the blood loss is suctioned in a separate container and measured. The pad used to weighted before and after surgery following placental delivery 1 gram weight =1 milliliter blood loss volume. Total blood loss (ml) = weight of pad after surgery (gm)-weight of pad before surgery (gm) + amount of blood in suction container. So amniotic fluid and the amount of blood loss before placental delivery was not included in measuring blood loss in study

Results and Discussion

There is no significance difference in age, BMI, parity indication and duration of cesarean section and birth weight of baby between the study group and control group. Both groups are comparable.

Table 1 shows the Mean blood loss from time of placental delivery to completion of skin closure was 266.4 ml in the Study Group and it was 380.8 ml in the Control Group (P= 0.00), suggesting that there was statistically highly significant difference in blood loss in both the groups. Patients who had received tranexamic acid had 114.4 ml less blood loss than patients who did not receive tranexamic acid. Mean blood loss from time of completion of skin closure to 2 hours postpartum was 40.93 ml in the Study Group and it was 73.7 ml in the Control Group (P= 0.00), suggesting that there was statistically highly significant difference in blood loss in both the groups. Patients who received tranexamic acid had 32.77 ml less blood loss than patients who did not receive tranexamic acid. Mean total blood loss from placental delivery to 2 hours postpartum was 307.33 ml in the Study Group and it was 454.5 ml in the Control Group (p=0.00) suggesting that there was statistically highly significant difference in blood loss in both the groups. Patients who received tranexamic acid had 147.17 ml less blood loss than patients who did not receive tranexamic acid. Hence from the above result it is obvious that tranexamic acid is a potent antifibrinolytic drug that influences the blood loss in

cesarean section and its therapeutic efficacy can be used in minimizing caesarean section blood loss. Similar results were obtained by the study conducted by Cemal ark et all and Sekhvat et all [6,7] regarding the mean blood loos with use of TXA.

Table 1 -Comparison of blood loss

Blood loss	Study group		Control group		T value	P valve
	mean	sd	mean	sd		
Placental delivery to Completion of skin closure	266.4	54.46	308.8	75.62	12.275	o.oo
Time of completion Of skin closure to 2 hours postpartum	40.93	8.3	73.7	16.81	17.47	0.00
Total blood loss	307.33	58.86	454.5	82.74	14.49	0.00

Per-operative Hb% was compared to Hb% in 3rd postoperative day in both study and control group. There was a fall of 0.74gm% in study group while the fall in control group was much higher at 1.02 gm%. The mean difference is 0.28 gm% which is highly significant (P=0.001) (Table 2). Abdelazim et al (2014) reported that there was no significant difference regarding per-operative hemoglobin value was found, but the 24 hours post-operative hemoglobin was significantly higher in study group (11.2± 1.5 mg/dl) compared to control group (9.6 ± 1.2 mg/dl (P<0.05) [8]

Table 2 Comparison of fall in hemoglobin

Hb %(gm %)	Study group		Control group		T value	P valve
	mean	SD	mean	SD		
Per operative	10.358	0.596	10.6	0.6	5.183	0.001
Post-operative	9.61	0.516	9.63	0.778		
Fall in Hb	0.74	0.328	1.02	0.384		

Use of Tranaxemic acid significantly leads to reduction of PPH. In the study group the need for additional uterotonics was significantly reduced. Yang HX, et al showed similar results. [9]

Tranaxemic acid does not produce adverse reaction like nausea, vomiting, diarrhea in a significant number. It was not associated with any thrombotic complication.

There are were a few limitations in our study blood Loss from Skin Incision till delivery of Placenta is not included in our study High Risk Population for PPH was is not included in this study

Conclusion

Tranexamic acid significantly reduces the amount of blood loss during and after the LSCS and its use was not associated with any side effects or complication like thrombosis. Tranexamic acid can be used safely and effectively in women undergoing LSCS.

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