ORIGINAL RESEARCH

Tranexamic acid in controlling bleeding in cesarean section

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ABSTRACT

Background: Healthcare providers keep a careful eye out for bleeding during or after a cesarean section (C-section). While some bleeding during surgery is acceptable, excessive bleeding might cause problems.The present study was conducted to assess the role of tranexamic acid in controlling bleeding in cesarean section. **Materials & Methods:** 70 females undergoing cesarean section between 37 and 40 weekswere divided into two groups. Group I received 1 gm IV of tranexamic acid before 15 min of cesarean and group II didn't get tranexamic acid. Blood loss in both groups was compared. **Results:** The age group based on gestation age was 37 weeks in 9 in group I and 13 in group II, 38 weeks in 14 in group I and 9 in group II, 39 weeks in 8 in group I and 7 in group II and 40 weeks in 4 in group I and 6 in group II. The difference was significant (P< 0.05). The mean blood loss from placental delivery till the end of LSCS was 115 ml in group I and 140 ml in group II and from end of LSCS to 2 hours postpartum was 75 ml in group I and 115 ml in group II. The difference was significant (P< 0.05). Blood loss <500 ml was seen in 22 in group I and 15 in group II and >500 ml in 13 in group I and 20 in group II. The difference was significant (P< 0.05). **Conclusion:** Tranexamic acid was found to be effective in controlling bleeding in cesarean section. Hence, it can be utilized in such cases.

Keywords: Bleeding, cesarean section, placental delivery

INTRODUCTION

Healthcare providers keep a careful eye out for bleeding during or after a cesarean section (C-section). While some bleeding during surgery is acceptable, excessive bleeding might cause problems.[1]Because of the incision and the nature of the procedure, some bleeding is to be expected during a C-section. During the surgery, surgeons cauterize blood arteries to reduce bleeding. Postpartum hemorrhage is frequently caused by uterine atony.[2] Increased bleeding results from the uterus's inability to contract properly after delivery. Medication is frequently used by medical professionals to induce uterine contractions and stop bleeding. Bleeding may result if the placenta is not delivered fully or if there are problems with its attachment. It is essential to properly examine and remove the placenta.[3,4]

Despite numerous attempts to stop bleeding during a cesarean section, PPH is the most frequent problem, occurring in 20% of instances and leading to the mother's death and grimness.[5] To stop bleeding before and after interventional treatments such scoliosis, liver transplants, hip or knee replacements, cardiac surgeries, and urinary tract operations, intravenous tranexamic acid (TXA) is frequently utilized. It was quite beneficial in these mediations in lowering blood loss and the requirement for repeated transfusions.[6] The present study was conducted to assess the role of tranexamic acid in controlling bleeding in cesarean section.

MATERIALS & METHODS

The present study consisted of 70 females undergoing cesarean section. All gave their written consent to participate in the study.

Data such as name, age, etc. was recorded. All were divided into two groups of 35 each. Group I received 1 gm IV of tranexamic acid before 15 min of cesarean and group II didn't get tranexamic acid. Intraoperative blood loss (ml) was calculated as follows: (weight of wipes used during activity - weight of wipes prior to procedure) + volume of blood moved into the adsorption holder during placenta transfer. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

RESULTS

Table I Gestation age (weeks) wise distribution of subjects

Age group (weeks)	Group I (35)	Group II(35)	P value
37	9	13	0.05
38	14	9	
39	8	7	
40	4	6	

Table I, graph I shows that the age group based on gestation age was 37 weeks in 9 in group I and 13 in group II, 38 weeks in 14 in group I and 9 in group II, 39 weeks in 8 in group I and 7 in group II and 40 weeks in 4 in group I and 6 in group II. The difference was significant (P< 0.05).

Graph I Gestation age (weeks) wise distribution of subjects

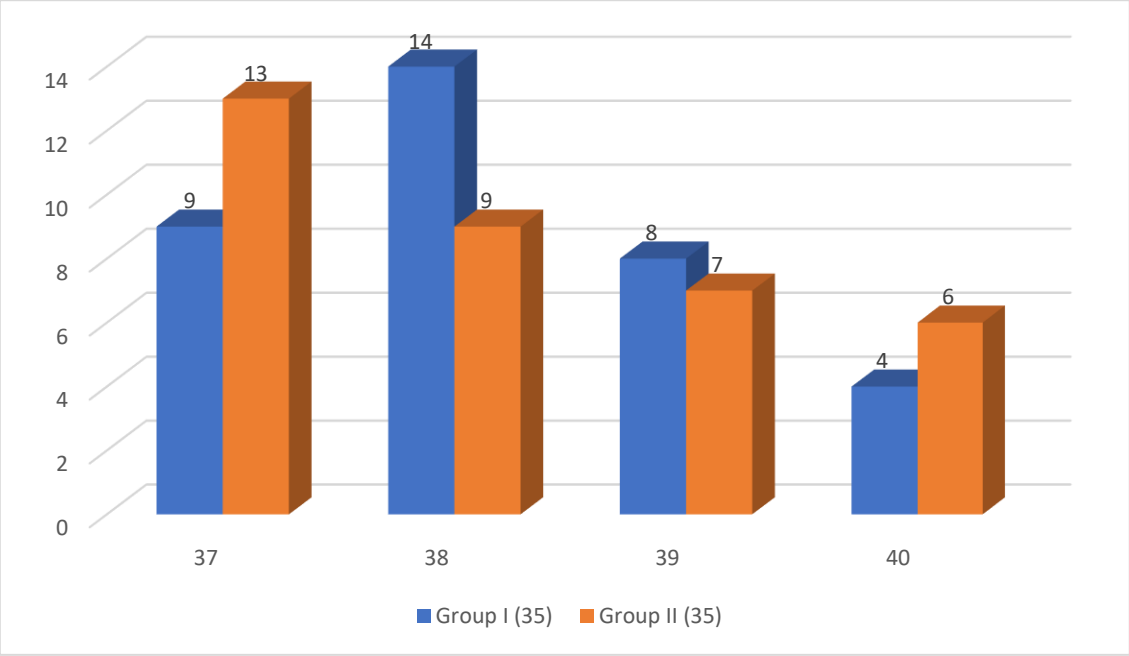

Table II Postpartum hemorrhage

Period	Group I	Group II	P value
Placental delivery till the end of LSCS (ml)	115	140	0.03
End of LSCS to 2 hours postpartum (ml)	75	115	0.05

Table II shows that the mean blood loss from placental delivery till the end of LSCS was 115 ml in group I and 140 ml in group II and from end of LSCS to 2 hours postpartum was 75 ml in group I and 115 ml in group II. The difference was significant (P< 0.05).

Table III Incidence of PPH

Blood loss (ml)	Group I	Group II	P value
<500	22	15	0.04
>500	13	20	0.03

Table III shows that blood loss <500 ml was seen in 22 in group I and 15 in group II and >500 ml in 13 in group I and 20 in group II. The difference was significant (P< 0.05).

DISCUSSION

Bleeding may result from unintentional damage to blood vessels during surgery. Surgeons are taught to recognize injuries and treat them right away.[7] Excessive bleeding during a C-section may be caused by pre-existing blood coagulation abnormalities in certain women. Prior to surgery, medical professionals typically perform screenings for these diseases.[8] Postpartum hemorrhage may result from incomplete removal of placental or fetal tissue. A thorough inspection and verification of a full delivery are crucial.[9,10] A variety of methods, including uterine massage, drugs that encourage uterine contractions, and, in extreme situations, blood transfusions, are used to control bleeding during a C-section. To avoid difficulties, careful observation and timely action are essential.[11]The present study was conducted to assess the role of tranexamic acid in controlling bleeding in cesarean section.

We found that the age group based on gestation age was 37 weeks in 9 in group I and 13 in group II, 38 weeks in 14 in group I and 9 in group II, 39 weeks in 8 in group I and 7 in group II and 40 weeks in 4 in group I and 6 in group II. The effectiveness and safety of tranexamic acid (TA) in lowering blood loss during elective cesarean sections (CS) in 660 women were assessed by Gungorduk et al.[12] Prior to surgery, the patients were chosen at random to receive an intravenous infusion of either 30 mL of 5% glucose or TA (1 g/10 mL in 20 mL of 5% glucose; N = 330). The estimated blood loss after CS was the main consequence. There was no discernible demographic difference between the groups. The percentage of women in the TA group who experienced an estimated blood loss greater than 1000 milliliters was significantly lower than in the placebo group, and the mean estimated blood loss was significantly lower in the TA group than in the placebo group (499.9 ± 206.4 mL versus 600.7 ± 215.7 mL, respectively; P < 0.001).Additionally, the number of women who needed additional uterotonic medications was higher in the placebo group than in the TA group (48 [14.5%] against 28 [8.5%], respectively; P = 0.02). There was no discernible difference between maternal and newborn outcomes. TA dramatically decreased the requirement for extra uterotonic medications, the percentage of patients with blood loss greater than 1000 mL, and bleeding during CS. Moreover, there was no rise in the frequency of thromboembolic incidents. According to our findings, TA can be utilized to lessen CS bleeding in a safe and efficient manner.

We observed that the mean blood loss from placental delivery till the end of LSCS was 115 ml in group I and 140 ml in group II and from end of LSCS to 2 hours postpartum was 75 ml in group I and 115 ml in group II. The safety and efficacy of tranexamic acid (TXA) in minimizing blood loss during and following cesarean sections (CS) were established by Shahid et al.[13] Prior to surgery, the patients were randomly assigned to receive either distilled water or an injection of TXA. The amount of blood lost was measured and recorded. first from the moment of placental delivery to the conclusion of LSCS, and then from the conclusion of LSCS until two hours after giving birth. Both groups underwent tests for liver and kidney function, hemoglobin, and urine analysis. The amount of blood lost from placental birth to the conclusion of LSCS was dramatically decreased by tranexamic acid; it was 356.44 ± 143.2 ml in the TXA group and 710.22 ± 216.72 ml in the placebo group (p < 0.001). Additionally, it decreased the amount of blood loss from the conclusion of LSCS to two hours after delivery, which was no longer significant and was 35.68 ± 23.29 ml in the TXA group compared to 43.63 ± 28.04 ml in the placebo group (p = 0.188). Neither group experienced any adverse effects or difficulties.

We observed that blood loss <500 ml was seen in 22 in group I and 15 in group II and >500 ml in 13 in group I and 20 in group II. Simmonazi et al[14]evaluated the effectiveness of TXA in reducing blood loss when given prior to cesarean delivery. Nine trials with 2365 women were included in the analysis. Women who received TXA had significantly less postpartum blood loss, a lower drop in hemoglobin and a lower incidence of postpartum hemorrhage and severe postpartum hemorrhage compared with controls. Moreover, the number of women who needed additional uterotonic agents was significantly lower in the TXA group than in controls. The percentage of women who required blood transfusions at, or immediately after, cesareans was significantly lower in the intervention group than in the controls. There was no difference in the incidence of thromboembolic events in the two groups.

The limitation of the study is the small sample size.

CONCLUSION

Authors found that tranexamic acid was found to be effective in controlling bleeding in cesarean section. Hence, it can be utilized in such cases.

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