

# Role of Tranexamic Acid In Reducing Blood Loss After Cesarean Section

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## ABSTRACT

**Objective** To evaluate the effectiveness of tranexamic acid in reducing blood loss following cesarean section.

**Study design** Descriptive cross-sectional study.

**Place & Duration of study** Department of Obstetrics & Gynaecology, Jinnah Postgraduate Medical Center (JPMC) Karachi, from June 2019 to December 2019.

**Methodology** Women irrespective of age and parity with singleton pregnancy, cephalic presentation, who underwent lower segment cesarean section, were selected. Women who had major medical illness like renal failure, liver failure, and severe pre-eclampsia, required blood transfusion due to anemia, multiple pregnancy, coagulation disorders and polyhydramnios were excluded. One-gm (10ml) tranexamic acid (TXA) injection diluted in 20 ml of 5% dextrose was given intravenously 20 minutes before proceeding to skin incision. Patients observed from surgery till 24 hours postoperatively and blood loss calculated.

**Results** A total of 130 women between 18 year - 30year were include. The mean age of study subjects was  $24.75 \pm 2.41$  year. Of the total 79 (59.85%) women belonged to 18 year - 25year age group. The mean gestational age was  $38.84 \pm 1.23$  weeks. In 51(40.15%) patients tranexamic acid was found effective in reducing blood loss following cesarean section.

**Conclusion** In large number of patients effectiveness of tranexamic acid was noted in lowering blood loss following cesarean section.

**Key words** Cesarean section, Tranexamic acid, Efficacy, Postpartum hemorrhage.

## INTRODUCTION:

Attributed to pregnancy and child birth over 500,000 women die every year worldwide.<sup>1</sup> Postpartum hemorrhage (PPH) is still major contributor to mortality as well as high morbidity like severe anemia, requirement of blood transfusion, acute renal failure and infection.<sup>2</sup> In most of the patients morbidity and mortality take place without having predisposing factors for PPH, hence unpredictable. In developing as well as developed countries obstetric hemorrhage is still mainly responsible for maternal deaths.

A 25% to 30% cesarean section rate is reported from many countries across the world.<sup>3</sup> Cesarean section rate in Pakistan is reported to be 25%.<sup>4</sup> In contrast to vaginal delivery, cesarean delivery is associated with more complications; postpartum hemorrhage is commonest and devastating among them. Hence reduction of amount of blood loss is important to reduce maternal morbidity and mortality.<sup>5,6</sup>

Tranexamic acid acts on plasminogen and blocks the binding of lysine, with the added advantage of potentiating hemostatic mechanism of the patients. As a result inhibition of clot breakdown occurs and hence bleeding is reduced.<sup>7</sup> Less blood loss with TXA is established during complicated and uncomplicated surgeries related to other organ systems like cardiac, liver, urinary tract, and orthopedics. The risk of re-bleeding associated with trauma is also reduced.<sup>8</sup> Use of tranexamic acid during surgery to reduce intraoperative and postoperative bleeding is helpful in countries like Pakistan especially with rising cesarean section rate.

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This study was conducted to find out effectiveness of TXA in reducing blood loss after cesarean section.

#### **METHODOLOGY:**

A descriptive cross sectional study was conducted on women who underwent cesarean section either admitted from OPD or emergency to the Department of Obstetrics and Gynaecology JPMC Karachi, from June 2019 to December 2019. Informed consent was taken from all subjects and institutional review board permission was obtained to conduct the study.

Patients between 18 year - 30 year of age, with gestational age 37-42 weeks (calculated by last menstrual period/ultrasound), singleton pregnancy, cephalic presentation were included. Women with major medical illness, liver failure, renal failure, respiratory failure, severe pre-eclampsia, anemia, multiple gestation, coagulation disorders and polyhydramnios were excluded from the study. Brief history was taken and examination done. One-gm (10ml) tranexamic acid injection diluted in 20ml of 5% dextrose was given intravenously 20 minutes prior to skin incision. Patients were monitored from cesarean section till 24 hours postoperatively for blood loss. Gauzes used were weighed before and after surgery to measure the amount of blood loss. Volume of blood loss ascertained by difference in the weight of utilized material pre and postoperatively and volume contained in the suction bottle was added. Blood loss from cesarean section till 24 hours postoperatively of less than 1000 ml was labeled as effective. All the collected information was entered in to the predesigned form. Statistical analysis was done by SPSS version 20. Mean  $\pm$  S.D were calculated for age, gestational age, BMI, parity and blood loss. Frequencies and percentages were calculated for outcome variables, the effectiveness.

#### **RESULTS:**

A total of 130 women were included. The age of the patients was between 18 year - 30 year, with the mean age of  $24.75 \pm 2.41$  year. Most of the patients (n=79, 59.85%) belonged to 18 year - 25 year age group whereas 51 (40.15%) were 26 year to 30 year of age. Mean gestational age was  $38.84 \pm 1.23$  weeks. Majority of patients (n=81, 62.31%) were between 37 - 39 weeks of gestation while 49 (37.69%) were at 40 -42 weeks of gestation. Mean BMI was  $29.44 \pm 3.03$  kg/m<sup>2</sup>. Of the total 38 (29.23%) patients were primipara while 92 (70.77%) multipara. Mean blood loss was  $876 \pm 242$  ml in 51 (40.15%) patients.

#### **DISCUSSION:**

Postpartum hemorrhage remains a common complication in spite of employment of numerous measures for prevention of blood loss during and after cesarean delivery. PPH is reported in 20% cases and results in increased maternal morbidity and mortality.<sup>9,10</sup> Tranexamic acid acts as a potent antifibrinolytic agent and inhibits the breakdown of clot, consequently causes reduced blood loss.<sup>11</sup> Literature research revealed that blood transfusion requirement and re operation likelihood attributed to hemorrhage is reduced with the use of tranexamic acid during surgeries.<sup>3,12</sup> Tranexamic acid was also found effective in reducing mortality even in trauma patients.<sup>13</sup>

Use of tranexamic acid significantly reduces blood loss in patients having menorrhagia.<sup>14,15</sup> In index study tranexamic acid was found effective in lowering blood loss after cesarean section in 51 (40.15%) patients which is concurrent with the findings of another study.<sup>16</sup> Movafegh et al showed in the study that there was significantly less mean blood loss after giving tranexamic acid during and after surgery.<sup>17</sup> With tranexamic acid administration blood transfusion requirement was reduced as reported in a systematic review conducted to evaluate influence of tranexamic acid given during elective surgeries.<sup>3</sup> This effect was coupled with the added advantage of safety from thromboembolism as well.<sup>18</sup>

#### **CONCLUSION:**

Tranexamic acid was effective in reducing the amount of bleeding after cesarean delivery.

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The authors declare that they have no conflict of interest.

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