26385 - TRANEXAMIC ACID REDUCES BLOOD LOSS AND TRANSFUSION IN ADULT PATIENTS HAVING SPINAL FUSION SURGERY

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INTRODUCTION:

Tranexamic acid has been shown to reduce intraoperative blood loss in pediatric patients undergoing scoliosis surgery (1,2). However, the efficacy of antifibrinolytics for reduction of blood loss in adults having major spine surgery has not been well studied. The objective of this study was to determine whether tranexamic acid would reduce perioperative blood loss and blood transfusion in adult patients having elective spinal fusion.

METHODS:

Research Ethics Board approval and informed consent was obtained from all participants. Seventy-two adult patients undergoing elective posterior thoracic/lumbar spinal fusion were randomized to receive either 10 mg/kg of tranexamic acid, and then a continuous infusion of 1 mg/kg/hr of tranexamic acid or an equivalent volume of placebo and then a continuous infusion of an equivalent volume of placebo intraoperatively. The patients, surgeons, anesthesiologists, nurses and research staff collecting data were blinded to the allocation of the study drug. Intraoperative management was standardized. Mild induced hypotension and intraoperative cell salvage was utilized in all patients. Normothermia was maintained in all patients. Perioperative blood loss was measured intraoperatively and the wound drainage from the surgical drain was recorded for the first 24 hours postoperatively. Perioperative blood transfusion, duration of hospital stay, and complications were recorded. Continuous variables were compared with the unpaired t-test and categorical variables were compared with Fisher's Exact test, a p value of <0.05 was considered significant.

RESULTS:

Patients in the placebo group were younger than patients in the group receiving tranexamic acid. There was no difference in intraoperative blood loss between the two groups, however, the total perioperative blood loss, transfusion of allogeneic red blood cells, autologous whole blood, and duration of hospital stay were reduced in the tranexamic acid group compared to the placebo group (Table 1). There were no thromboembolic events or complications in either group.

DISCUSSION:

Intraoperative administration of tranexamic acid was found to reduce the total perioperative blood loss and transfusion of allogeneic red blood cells and autologous whole blood in the tranexamic acid group. The duration of hospital stay was also significantly lower in the tranexamic acid group.

1. Anesthesiology 2005;102:727-32.
2. Anesth Analg 2001;93:82-7.

Table 1: Patient Characteristics and Perioperative Data

	Tranexamic Acid (N=38)	Placebo (n=34)	Statistical Significance*
Age	52.3 ± 5.2	47.6 ± 6.9	p=0.0016
Weight (kg)	77.2 ± 17.9	73.5 ± 17.4	p=0.38
Height (cm)	166.0 ± 10.3	165.9 ± 12.2	p=0.97
ASA Status: I/II/III	3 /27/8	5/23/6	p=0.71
Intraoperative EBL (mL)	1646.7 ± 1577.7	1988.9 ± 2081.8	p=0.43
Total Perioperative EBL (mL)	2219.7 ± 653.6	2711.4 ± 881.9	p=0.0085
Total Perioperative Blood transfusion (mL)			
RBC	261.6 ± 343.2	536.2 ± 497.4	p=0.009
Autologous Whole Blood	419.3 ± 389.2	645.8 ± 541.1	p=0.0468
Cell Saver	421.5 ± 286.0	487.2 ± 363.9	p=0.40
FFP	136.4 ± 521.5	256.7 ± 331.6	p=0.24
PLT	13.6 ± 64.0	35.4 ± 130.6	p=0.38
Cryoprecipitate	0	0	n/a
Duration of Surgery (mins)	358.3 ± 132.4	382.5 ± 126.4	p=0.43
Hospital Stay (days)	5.2 ± 3.2	7.9 ± 2.7	p=0.0003

Values are mean ±SD

* All p-values are based on independent samples t-tests with the exception of ASA Status which is based on Fisher's Exact Test. Any tests resulting in a p-value of less than 0.05 are considered statistically significant at an alpha level of 0.05