

## Efficacy and Safety of Reducing Posttraumatic Hidden Blood Loss with Early Tranexamic Acid Intervention in Elderly Patients with Intertrochanteric Fracture: A Retrospective Analysis

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**Purpose:** Elderly patients with intertrochanteric fractures exhibit posttraumatic hidden blood loss (HBL). This study aimed to evaluate the efficacy and safety of reducing posttraumatic HBL via early intravenous (IV) tranexamic acid (TXA) intervention in elderly patients with intertrochanteric fracture.

**Methods:** A retrospective study was conducted with 77 patients (age  $\geq 65$  years, injury time  $\leq 6$  hours) who presented with intertrochanteric fracture from November 2016 to April 2018. Patients in the TXA group (n = 39) received 1 g of IV TXA at admission, whereas those in the normal saline (NS) group (n = 38) received an equal volume of saline. Hemoglobin (Hgb) and hematocrit (Hct) were recorded at posttraumatic admission (PTA) and on posttraumatic day (PTD) 1-3. HBL was calculated using the Gross formula. The preoperative transfusion (POT) rate was recorded. Lower-extremity venous ultrasound was performed to detect venous thrombosis.

**Results:** Hgb and Hct on PTD 2 and 3 were significantly higher in the TXA group than in the NS group (P < 0.05). HBL on PTD 2 and 3 was significantly less in the TXA group than in the NS group (P < 0.05). The POT rate was significantly lower in the TXA group than in the NS group (P = 0.036). Preoperative hospital stay was significantly shorter in the TXA group than in the NS group (P = 0.014). There were 4 cases of venous thrombosis in the TXA group and 3 in the NS group.

**Conclusion:** Early IV TXA intervention potentially reduces posttraumatic HBL in elderly patients with intertrochanteric fractures without increasing the risk of venous thrombosis.

Table I: Comparison of post-traumatic outcomes between the TXA and NS groups

Items	TXA group (n = 39)	NS group (n = 38)	p
Hgb (g/L)			
Hgb PTA	116.18 ± 4.58	114.79 ± 6.65	0.288'
Hgb PTD 1	111.28 ± 5.25	108.61 ± 7.28	0.068'
Hgb PTD 2	105.44 ± 6.60	100.26 ± 7.77	0.002''
Hgb PTD 3	98.74 ± 9.39	88.57 ± 8.24	<0.001''
Hct (l/o)			
Hct PTA	43.26 ± 2.44	42.42 ± 2.19	0.118'
Hct PTD 1	39.18 ± 2.50	38.61 ± 1.69	0.2411''
Hct PTD 2	35.82 ± 1.04	34.29 ± 1.255	0.019'
Hct PTD 3	32.62 ± 3.75	26.95 ± 1.01	<0.001''
HBL (mL)			
HBL PTD 1	173.95 ± 16.03	182.32 ± 20.95	0.053''
HBL PTD 2	238.46 ± 25.61	254.74 ± 29.16	0.011'
HBL PTD 3	281.23 ± 23.22	360.05 ± 40.45	<0.001''
POT rate (%)	4 (10.26)	11 (28.95)	0.036'
POT units (U)	12	30	
Preoperative stay (h)	87.38 ± 27.25	104.21 ± 31.21	0.014''
Vein thrombosis			0.515§

- Two-sided Student's t-test; § chi-squared test; Hct, hematocrit; Hgb, hemoglobin; HBL, hidden blood loss; TXA, tranexamic acid; NS, normal saline; PTA, post-traumatic admission; PTD, posttraumatic day; POT, preoperative transfusion

The FDA has stated that it is the responsibility of the physician to determine the FDA clearance status of each drug or medical device he or she wishes to use in clinical practice.