

Efficacy of High Dose Intravenous Tranexamic Acid Compared to Low Dose in Reducing Blood Loss in Major Musculoskeletal Oncology Surgery : A Prospective, Randomised Control Trial

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INTRODUCTION:

Musculoskeletal oncology surgery is commonly associated with significant perioperative blood loss requiring blood transfusion, which is known to be associated with multiple complications. The purpose of this study was to compare efficacy of low dose and high dose intravenous tranexamic acid in reducing perioperative blood loss in major orthopaedic musculoskeletal surgery.

METHODS:

42 patients who had undergone major musculoskeletal oncology procedures were randomised into 2 groups. 1 group received a low dose of intravenous tranexamic acid, IV TXA (15mg/kg), while the other group of patients received a high dose of iv tranexamic acid (30mg/kg, maximum dose of 2.5g). Intraoperative estimated blood loss, post-operative Redivac drain charting, rate of allogenic blood transfusion, length of hospital stay, and amount of haemoglobin dropped were compared between the two groups.

RESULTS:

Total peri-operative blood loss calculated by summation of intraoperative estimated blood loss (EBL) and amount of post-operative drain was less in the high dose group. Mean EBL was similar for both groups. The post-operative drain was 500mls in the high dose group, while 67mls in low dose group however both results were statistically insignificant ($p=0.76$). Calculated blood loss, using Good and Naddler formula was less in the high-dose group. Less patients in high dose group required blood transfusion (45%) compared to the low-dose group,

where 50% of patients required blood transfusion, but the difference was insignificant statistically ($p=0.768$). With regards to the duration of admission, no significant differences were found in both groups of participants ($p=0.124$)

Table 1 showing Total perioperative blood loss

Variables	Median	p-value
EBL (estimated blood loss, mls)		0.44
- Low dose (N =20)	800	
- High dose (N = 22)	900	
Drain (mls)		0.55
- Low dose (N = 16)	670	
- High dose (N =18)	500	
Total blood loss (mls)		0.706
- Low dose (N = 20)	1571.5	
- High dose (N =22)	1095.0	

Note : * $p<0.05$, b-Mann Whitney

CONCLUSION:

Single dose of high-dose (30mg/kg) and low-dose (15mg/kg) iv tranexamic acid preoperatively are equally effective in reducing perioperative blood loss and requirement of blood transfusion in major musculoskeletal oncology surgery.

REFERENCES:

1. 2. Nagy, J.A., et al. Br J Cancer, 2009. **100**(6): p. 865-9.
2. Zhang, F., et al. BMC Musculoskeletal Disord, 2014. **15**: p. 448.